CUSTOMIZING BUSINESS INTELLIGENCE (BI) SYSTEM FOR PRODUCT PERFORMANCE ANALYSIS

THESIS

Submitted to International Program

Industrial Engineering in Partial Fulfillment of

The Requirements to obtain the Bachelor Degree at

Universitas Islam Indonesia

By:

Name : Mirza Naufan Hilmy

Student Number : 07 522 180

INTERNATIONAL PROGRAM

INDUSTRIAL ENGINEERING

UNIVERSITAS ISLAM INDONESIA

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By

Name : Mirza Naufan Hilmy

Student Number : 075 22 180

Yogyakarta, ...,2012

Supervisor

Muhammad Ridwan Andi Purnomo. ST, M.Sc, Ph.D

THESIS APPROVAL OF EXAMINATION COMMITTEE

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Submitted by : Mirza Naufan Hilmy (07 522 180)

Date:

Mirza Naufan Hilmy

Approved by Examination Committee:

Date:

Agus Mansur ST., M.Eng., Sc, Chair

Date:

Sri Indrawati ST., M.Eng, Member

Date:

Muhammad Ridwan AP., ST., M.Sc., Ph.D, Member

Accepted by,
Program Coordinator
International Program
Industrial Engineering Department
Universitas Islam Indonesia

Muhammad Ridwan Andi Purnomo, ST., M.Sc., Ph.D

This Thesis is dedicated to

My Parent Mahdor and Jamaliyah

My Sister Ika Natiqoh Hilmy

Rifqi Faizah Rohmi

My Brother Fanny Fauzan Hilmy

Ridwan Cahyadi

All friends who support me

MOTTO

"Verily Allah will not change the fate of a people until they change themselves" ~ Surah Ar Ra'd ~ 11

“Whatever befalls you is due to the act of your own hands” ~ Ash-Syuura: 30

“Try not to become a man of success but try to be a useful man” ~ Einstein

“Success is the ability to pass and tackle from one failure to the next without losing enthusiasm” ~ Winston Churchill

“Fill your life with millions wishes and desire to get it to yourselves” ~ Mirza Naufan Hilmy

“Successful people will take advantage of the mistakes he did, and will try again to perform in a different way” ~ Dale Carnegie

“A person who never made a mistake never tried anything new” ~ Albert Einstein

“People who stop learning will be past owners. People who still hold learning, will be the future owner” ~ Mario Teguh

“Learn from the mistakes of others. You can’t live long enough to do all the error itself” ~ Martin Vanbee

“Science without religion is lame” ~ Einstein

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Assalamu'alaikum Wr. Wb.

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In the writing of this thesis, I get lots of support, input and this is a moment full of experience. The completion of this thesis, on this occasion I would like to say thank to

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4. My Parent H. Mahdor. BA and Hj. Jamalyah. Pdi, both of my sisters Ika and Rifqi, and my little brother Fanny who like to pray and support me as well.
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I realize that this statement is still flawed, and therefore suggestions constructive criticism so I hope to goodness in the future. We hope this report will be useful for us all. Amin...

Wassalamu'alaikum Wr.Wb

Yogyakarta, …… 2012

Practical

Mirza Naufan Hilmy

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ABSTRACT

Business Intelligence (BI) is used to obtain the knowledge needed in decisions making process, so that appropriate decisions can be taken and able to transform business performance to be better. BI is growing rapidly up to the stage of development of pentaho. Pentaho is one of open source BI system which is widely used in real world business. Benefit Cost ratio (BCR) is the comparison value from profit value with cost value. Common problem of this research is to integrate the Benefit cost ratio value into data warehouse and customizing BI system to support decision making. The aim of this research is combining Benefit cost ratio each product into data warehouse and analyzing business condition by using pentaho in order to approaching efficiency, effective, accuracy in data information to embed business intelligence module in the investigated company. The result from Smart Dashboard at Saturday, 15 October 2011 have big Benefit Cost Ratio (BCR) value is 2,47 Milling N 50 Black with quantity 37 and Smart Report at Saturday, 15 October 2011 shown that total selling price product is Rp 36, 611,500 with total quantity 919 by 12 type of product.

Keywords: BI, Pentaho, BCR (Benefit Cost Ratio), Dashboard, and Report

CHAPTER I

INTRODUCTION

1.1 Background

Recently, decision making's accuracy has becomes very important in current business competition. Business development is supported by the increasing of sophisticated information system, especially in Business Intelligence (BI). Initial research about BI is conducted by Luhn in 1958. The research was explained about intelligence such as ability to capture the interrelationships from presented facts to create possible step toward final objectives. BI for industry was started at 90's, to fulfill requirements of managers for effective and efficient data analysis, in order to understand business conditions as well as decision process development. In the middle of 90's, BI has become interesting object in the academic world. It has kind of topics such as Online Analysis Process (OLAP), multidimensional modeling, design methodology, optimization, indexing techniques, narrowed towards modern architecture in the data warehouse (DW) system. It was applying by vendor to develop software application. After 90th century's, so many IT companies were interested about BI and agree to develop better business decision making and intelligent data analysis. New BI tools already developed as a closed software solution. Implementation of BI software has been used to evaluate a company (Orhan, 2009). After that BI tools have been developed such as enterprise resource planning or database management system, and business analytics software. In this time, an open source BI solution has become available one of many kind of open source BI solution is pentaho. Information from its website promises that pentaho provides a complete and integrated platform with all

crucial functional BI, including data integration, data analysis, data mining, reporting, and dashboard visualization.

Research object is CV. Huda Karya, this company has some problem such as still using manually data processing and management. So, the impact is inefficiency and ineffective in processing and management data. That's makes the operator or end-user difficult to monitoring and analysis data. In this research will develop the BI System in order to help the operator to monitoring and analysis data by customizing BI System in order to create smart report and dashboard. Further this research can apply in CV. Huda karya to make more efficient and effective data process, also can be used as a basic to conduct business condition analysis.

1.2 Problem Formulation

Based on the explanation above, problem to be solved in this research is how to customizing pentaho system in order to embed business intelligence module in the investigated company?

1.3 Scope of Research

There are some boundaries in this research such as follows:

1. The proposed BI system is a system prototype, not a final product to be installed in the real business system.
2. System development cost is not considered.
3. Interface to manage the database is not developed.

1.4 Research Objective

Objective of this research is to customizing pentaho system in order to create Smart Dashboard and Transaction Report.

1.5 Benefit of Research

The significance benefits of this research will be stated as follows:

1. Improve efficiency, effectiveness, accuracy in data analysis to learn business conditions.
2. Fast and accurate in analyzing data become decision making.
3. Develop integrated Database Management System with and equipped with BI system.

1.6 Writing Systematic

CHAPTER II LITERATURE REVIEW

This chapter is the backbone to determine the current study from the related previous research. It contains information about the result of related previous research and supporting literatures underlying the research.

CHAPTER III RESEARCH METHODOLOGY

This chapter consists of research methodology. It will describes the detailed series of research object, system development, research design, research procedure, and data collecting, processing and analyzing method.

CHAPTER IV DATA COLLECTIONG AND PROCESSING

This chapter explains the data collecting and processing in order to achieve the research objective.

CHAPTER V DISCUSSION

This chapter discusses about the result of the previous chapter. Several factors which were not considered in the previous chapter will be discussed in this chapter in order to get a comprehensive understanding about the whole research.

CHAPTER VI CONCLUSION AND SUGGESTION

This chapter gives short and precise statements described in the previous chapter. Suggestion related to the current study in purpose of the advancement in the future research is given based on the limitations of the current research.

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CHAPTER II

LITERATURE REVIEW

2.1 Literature Review

2.1.1 Previous Research

Several researches have been investigated about business intelligence, such as an implementation of pentaho in reporting management module (Arztrie, 2008). This research discussed about issues that are able to be solved using Software Requirement Specification (SRS) and Software Architecture Design (SAD). The result of this research is reporting management module which is expected to provide a fast and efficient reporting management module in order to improve the productivity of Security Analyst. This module is expected to be one of the effective ways to improve the company's quality.

In the research of the Integration between business intelligence and knowledge management, it also describe about current business problems that require analysis of both text and data, and some of technical challenges posed also solved by using approach based on an OLAP (on-line analytical processing) model enhanced with text analysis, and describe two tools (Cody, et al, 2002). Business Intelligence by Communications of the Association for Information Systems research discuss about its framework and potential. The framework high lights the importance of unstructured data develop business intelligence tools for its acquisition, integration, cleanup, search, analysis and delivery. This paper also explores a matrix for BI data type (structure vs unstructured) also internal and external source data (AIS, 2004).

In Process Business Intelligence research, its present a set of integrated tools that supports business and IT users in managing process execution quality by providing several features, such as analysis, prediction, monitoring, control, and optimization. The research refers to this set of tools as the Business Process Intelligence (BPI) tool suite (Daniela, Fabio, et al, 2004). The different think in Intelligent profitable customer segmentation system based on business intelligence tools research, explain how to provide an easy, efficient and more practical alternative approach based on the customer satisfaction survey for the profitable customers segmentation (Lee and Park, 2005).

The research which explains about identification and assessment measurement approaches for two different purposes that respectively are determining the value of business intelligence and managing business intelligence process (Antti and Virpi, 2006). Another related research about implementation of business intelligence concept also conducted by applying pentaho software to solve true business intelligence cases. The research goal is about testing the pentaho software whether it appropriate to be implemented in specific training in university (Tuncer, 2009).

Base on journal above, development of BI is still little by using BI application. This research will customize BI system for analysis product performance by using pentaho as BI solution, because still little research which using pentaho.

2.2 Theoretical Review

2.2.1 Benefit/Cost Ratio (BRC)

Below is a formulation that is used to determine benefit cost ratio:

$$Benefit\ Cost\ Ratio = \frac{Benefit}{Cost}$$

Benefit/cost ratio is the comparison value between profit value and production cost value. Cost-benefit analysis is an analysis used to determine amount of gains / losses (cost / benefit) as well as feasibility of project. This analysis is accounted the costs and benefits to be gained from the implementation of a program. Benefit analysis and cost calculation of benefits is united which cannot be separated. Benefit Cost Ratio (BCR) has undergone many developments, one of them is economic development. In the economic development, this analysis is commonly used to determine the feasibility of project developing. In general, the BCR can be used to:

a) Assist the decision-making process,

b) Provides alternatives or choices, and

c) Reduces the cost of an ineffective alternative.

2.2.2 Business Intelligence

Business intelligence (BI) refers to technologies, applications and practices for the collection, integration, analysis, and presentation of business information and sometimes to the information. The reason of business intelligence term that dates at least to 1958 is to support better business decision making. Thus, BI is also described as a decision support system DSS (Delailah, 2008).

BI systems provide historical, current, and predictive views of business operations. Most often used data that has been gathered into a data warehouse or a data mart and occasionally working from operational data. Software elements support the use of this information by assisting in the extraction, analysis, and reporting of information. Applications tackle sales, production, financial, and many other sources

of business data for purposes that include, notably, business performance management. Information may be gathered on comparable.

Below are the examples of Business intelligence:

1) Operational reporting - Typically static, based on a single operational system. Examples: current inventory report, customer invoice
2) Standardized reporting - Typically static, IT-driven based on a single system, on a recurring basis. Examples: Monthly sales report, Quarterly customer satisfaction report Ad hoc reporting frequently dynamic, end user driven, on an ad hoc basis. Example: Business user wants to see what products a certain customer has purchased over the last 6 months.
3) Embedded reporting - Typically blends report content directly into packaged or custom operational applications.
4) OLAP reporting (Online Analytical Processing) - Typically interactive, exploratory, dimensional (sales by product by time period by geography by channel)
5) Dashboards - Typically a single, simplified view of Key Performance Indicators.
6) Data mining - Involves automated analysis of large volumes of data, usually customer or consumer data. Tries to uncover hidden patterns and correlations in the data
7) Data warehousing - Integrating information from multiple different systems into a centralized data store. Example: integrating customer order, customer service, and customer marketing data into a centralized database.

2.2.3 Open source

Open source can be defined as computer software for which the human-readable source code is made available under a copyright license. Open source is consider as one of various possible design approaches, while others consider it a critical strategic element of the operations. Before open source became widely adopted, developers and producers used a variety of phrases to describe the concept; the term open source gained popularity with the rise of the Internet, which provided access to diverse production models, communication paths, and interactive communities.

2.2.4 Pentaho

Pentaho is a collection of application of business intelligence (BI) is growing rapidly from 2004 and is free open source software (FOSS) which runs on the Java platform. Some advantage by using pentaho such as can be operated in several operation systems such as windows, linux and mac; Can be access by smart phone base on android and IOS (Iphone Operation Systems); pentaho also can be collaborated to other database software as databank. Applications are developed by Pentaho Corp., based in Orlanda, USA. In addition to its free and the adoption of increasingly widespread, support can be obtained from Pentaho Corp. in the form of Service Level Agreement (SLA) and packaged in the Enterprise Edition version of its annual subscription, or need an annual contract. In addition, if using the community edition is free, then it could get much support from pentaho system integrators worldwide including in Indonesia.

2.2.5 Pentaho Data Integration / Kettle

Pentaho Data Integration consists of Rich Feature Set Enterprise class with high performance and scalability. It is 100% Broad Database Support, Metadata Driven

Graphical and model-driven design Mature. Pentaho Data Integration is an engine along with a suite of tools responsible for the processes of extracting, transforming, and loading best known as the ETL processes (Marina, 2010).

2.2.6 Pentaho Analysis / Mondrian

Pentaho analysis is also known as Relational Online Analytical Processing (ROLAP) architecture. It works with all popular open source and proprietary database. Pentaho analysis allow user to view data dimensionally and also navigate and explore ad hoc analysis drill-down from year to quarter Pivot. It also allow user to select specific members for analysis and web-based or Excel front ends.

2.2.7 BI Server / Platform

Pentaho BI Server is a portal web application that consists of services web service, workflow engine, and as a user interface for operational reporting and analysis in Pentaho. BI Server as an automated workflow in it already contained a variety of Pentaho BI engine, namely:

A. Pentaho Reporting

Pentaho Reporting is a class library for generating reports. XML based templates provide flexible reporting and printing functionality using data from multiple sources. It supports output to display devices, printers, PDF, Excel, HTML, XHTML, Plain Text, XML and CSV files. Pentaho Reporting was formerly known as JFree Report, but has been renamed to 'Pentaho Reporting' to avoid confusion with the other JFree.org projects.

B. Pentaho Dashboard

Pentaho dashboard is tight business process integration. It contains embedded workflow and can receive events from or trigger events in external systems. Pentaho Open BI Suite Integration Comprehensive auditing of user activity, performance and data access. The best feature of Pentaho dashboard is the context-sensitive drilling to reports or analysis. It has the integrated security, scheduling, alerting, portal integration.

There are three ways to fashion a dashboard from Pentaho content:

1) Pentaho Dashboard Designer, purpose Quick and easy dashboards based on existing Pentaho content produced by Report Designer, ad hoc reporting, Interactive Reporting, JPivot, or Analyzer; or charts and data tables created through Dashboard Designer or the Data Access Wizard. Basically, Dashboard Designer enables to display content in a predefined layout; there is a low degree of customization, but greater ease of use than other dashboard methodologies.
2) Community Dashboard Framework (CDF), purpose CDF is an open, community-supported framework for creating dashboards from XML configuration files and HTML templates. CDF dashboards must be created by hand from a text editor and are thus not nearly as quick and easy to create as Dashboard Designer dashboards, but there is much more flexibility with how content is displayed and refreshed.
3) Custom JSPs, purpose a Java Web developer (or have one on staff), create JSPs that display Pentaho content in whatever ways are possible through the BI Platform's content and service APIs. Of course this is the most difficult way

to create a dashboard, but it allows to completed freedom in terms of the type of content that can be displayed and how that content is laid out. Depending on the complexity of the design and the technical details of the implementation, a JSP dashboard could perform better than CDF or Dashboard Designer.

2.2.8 XAMPP

XAMPP is free application software that supports multiple operating systems and compilation of some programs. Its function is as a stand-alone server (localhost), which consists of the program Apache HTTP Server, MySql database, and language translator written in PHP and Perl programming. XAMPP is name stands, where X (four of any operating system), Apache, MySql, PHP and Perl. The program is available in the General Public License and is free, easy to use web server that can serve dynamic web page display. To get it can directly download from its official website.

2.2.9 MySql Database

MySql is a relational database management system (RDBMS) that runs as a server providing multi-user access to a number of databases. The SQL phrase stands for Structured Query Language. Developers can embed MySql as a library within an application, or use MySql as a standalone database engine. MySql is available as binaries, or because it is Open Source, developers can download, modify, and compile the source code on the target server. MySql supports transactional and non transactional tables, and one-way replication. The MySql developers built the database for high performance, especially with the use of non-transactional tables. In addition, MySql takes advantage of multiple processors, as it is fully multi threaded using kernel threads.

CHAPTER III

RESEARCH METHODOLOGY

3.1 Research Object

This study is focused how to customize the BI system using Pentaho software to create Smart Dashboard and Reports. This research is using the XAMPP application to build a MySql database and Pentaho Enterprise Edition.

3.2 Research Flowchart

This flowchart represents the main steps to build the modules:

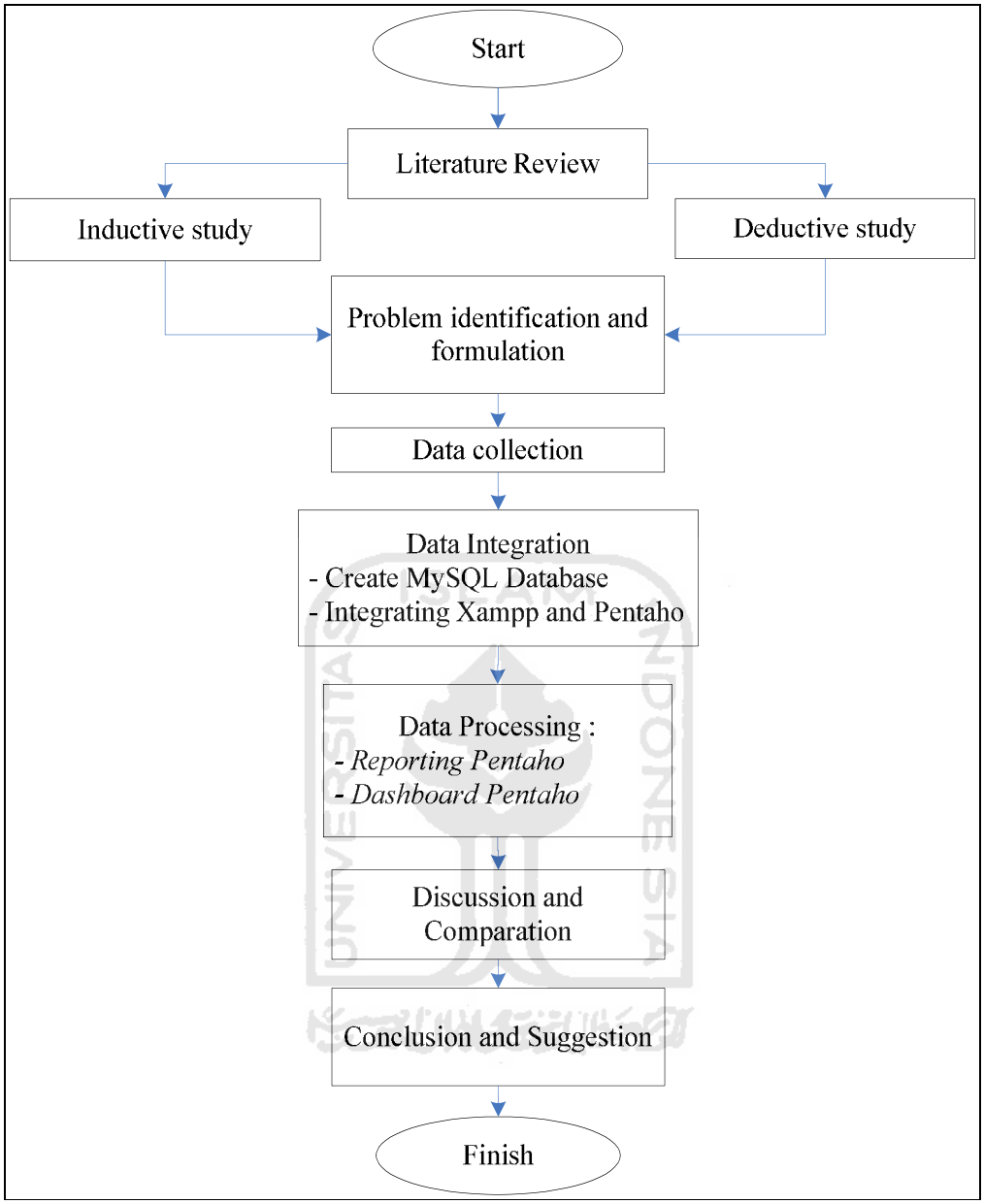


Figure 3.1 Research Flowchart

3.2.1 Literature Review

Literature review that written in this research is the result of a brief and critical review in order to provide understand about the content of the research. The content of literature review is the historical development of related forward scope and topics of study as well as basic theories.

3.2.2 Inductive Study

This study is supported by journals, e-books and books. It is also develops the research from previous researchers.

3.2.3 Deductive Study

This study is about building conceptual phenomena of relevant parameters in systematic order. This deductive is referred as literature review that used as a reference to solve the problems.

3.2.4 Problem Identification

On this stage, problem identification on company related with information system and process business is conducted, it will analyze business process flow and determine data type in database for further data processing.

3.2.5 Problem Formulation

Problem formulation is divided from problem identification that further will be determining business process, later it will synchronized the data and integrated it to pentaho.

3.2.6 Data Collection

Observation will be implemented to obtain initial data. Interview and data history analysis will be the chosen methods. Whereas, the data taken directly from the company.

3.2.7 Data Integration

Data will be processed indirectly, later will be synchronized then integrated to be processed using pentaho software. *Csv* is a kind of data file which can be processed as an input to the business intelligence tools. MySql database will be used as the data sources that have to be processed. Data of Transaction receipts in CV. Huda Karya are employed as raw data that will be converted to MySql database using XAMPP, and eventually integrated into Pentaho Enterprise Edition.

3.2.8 Data Processing.

After executing data integration to business intelligence tool, data will be processed to create smart dashboard and report. This research is focused to create smart dashboard based on Benefit cost ratio value of each product, while report making is focused on total transaction for each product in 2011.

3.2.9 Discussion

The discussion will be present about data processing associated with studies of the journals that related to this research problem and the references about basic theoretical information that will be required.

3.2.10 Conclusion and Suggestion

The final step of a study is conclusion and suggestion. Conclusion and suggestion is very useful in summarizing the final results of a study. This section also comes with some brainstorming to improve research results.

CHAPTER IV

DATA COLLECTING AND PROCESSING

4.1 Company Profile

CV. Huda Karya is located at Cawas, Klaten (Central Java). The company main businesses cover metal melting, lathe and polishes. CV. Huda Karya has some fix product. The company also accepts direct order from the customers and often accepts order from other islands of this country.

4.2 Data Collection

4.2.1 Data Material

Data material will be used to determine cost production for every product to find benefit/cost ratio. This data already related in production cost.

4.2.2 Production Cost

Production cost data is used to calculate capital cost which needed to produce a product. The variables involved production cost data such as employe's salary, material transport like fuel, production like electric, machine and the last one is raw material like coal, steel, iron, silicon oil, and lime stone. All variables are combined to be total cost for each product. However, cost production variable data unavailable in the company. Therefore, this research is using hypothetic data in order to obtain closer estimation production cost data from actual data.

4.2.3 Transaction Data

Transaction data is used as input data in Pentaho Enterprise Edition which will be connected with production cost data to determine Benefit /Cost Ratio each product. Transaction data is shown in Table 4.1.

4.3 Data Processing

4.3.1 Benefit Cost Ratio

Benefit/cost ratio is the comparison of product profit value and production cost value. This research will be determined benefit/cost ratio based on the data from CV. Huda Karya. Since production cost data is unavailable, this research is using hypothetical in order to obtain closer data to the actual data. Value Benefit/cost ratio will be used to determine comparison of benefit and production cost for each product. The result of the benefit/cost ratio is shown in Table 4.1.

Table 4.1 Data Sample Benefit/Cost Ratio

No	Product Name	Price (Benefit)	Production Cost	Benefit/Cost Ratio
1	Milling N 50 Black	34000	17000	2.00
2	Milling N 70 Black	43000	24000	1.79
3	Milling N 120 Black	66000	37000	1.78
4	Ulir N 70 Black	55000	24000	2.29
5	Iner Cylinder N 70	47500	21000	2.26
6	Ulir N 120 Polish	67500	35000	1.93
7	Cepit N 50	20000	10000	2.00
8	Poley BI x 12 x 1	30500	19000	1.61
9	Milling N 50 Black	42000	17000	2.47
10	Milling N 70 Black	60000	24000	2.50
11	Ulir N 70 Black	57500	24000	2.40
12	Ulir N 120 Polish	67500	35000	1.93
13	Ulir N 120	62000	34000	1.82
No	Product Name	Price (Benefit)	Production Cost	Benefit/Cost Ratio

4.3.2 MySql Database

MySql is a relational database management system (RDBMS) that performs as a server providing multi-user access to a number of databases. The SQL phrase stands for Structured Query Language. Developers can embed MySql as a library within an application, or use MySql as a standalone database engine. MySql is available as binaries, or because it is Open Source, developers can download, modify, and compile the source code on the target server. MySql supports transactional and non-transactional tables, and one-way replication. The MySql developers built the database for high performance, especially with the use of non-transactional tables. In addition, MySql takes advantage of multiple processors, as it is fully multi-threaded using kernel threads.

A. Create MySql Database

This research is creating database MySql based on additional application XAMPP version 1.7.2. XAMPP, it is free software which support several operation systems and constitute compilation from several programs. The function of XAMPP as the stand alone server (localhost), which compiled from Apache HTTP Server program, MySql database, and language translation which written by PHP Program language. Figure 4.2 (Appendix 1) explains about transaction data in the receipts shape. The receipts will be converted into MySql database, as depicted in Figure 4.1. The first step is determining the name of database, which named "*Pentaho*".

Browse | Structure | SQL | Search | Insert | Export | Import | Operations | Empty | Drop

	Field	Type	Collation	Attributes	Null	Default	Extra	Action
	No_Nota	int(5)			No	None		
	Year	text	latin1_swedish_ci		No	None		
	Date	text	latin1_swedish_ci		No	None		
	Customer Name	text	latin1_swedish_ci		No	None		
	Customer Address	text	latin1_swedish_ci		No	None		
	Product Name	text	latin1_swedish_ci		No	None		
	Quantity	int(10)			No	None		
	Price	int(10)			No	None		
	Total Price	int(10)			No	None		
	Cost Production	int(7)			No	None		
	BRC	varchar(10)	latin1_swedish_ci		No	None		
	BCR (1:100)	int(3)			No	None		

Figure 4.1 Data Type

Figure 4.1 explains the type of data used in each field of data. This research is creating Transaction table which named as "*Real One*". The table "Real One" is created based on MySql later will be connected with Pentaho. The table has 12 fields, includes:

a) No_Nota, No_nota becomes a primary key in the table. No_nota explained about transaction code from customer and data type used is integer data with maximum 5 characters.

b) Year, field explains about year of transaction year done by customer. This field is used as the data filter after connected with Pentaho. The data type used is Text, because this data is just additional data to make filter.

c) Date, Date field explains transaction date of customer. This field is more complete than year field, because it is explained day and date. Data type used in this field is Text, because time in each transaction not completely known and just to make clear time of transaction was done.

d) Customer Name, Customer Name field explains about the name of customer whose doing transaction. Customer Name is using Text as data type.

e) Customer Address, Customer address field is explains detail address of customer whose doing transaction. Data type used is text.

f) Product Name, Product Name in field explains product name ordered by customer. Product Name field is used Text as Data type.

g) Quantity, quantity explains number order of product. Data type used in this field is integer with maximum 10 characters.

h) Price, price explains selling price for each product. Data type used in this field is integer with maximum 10 characters.

i) Total price, total price explains about total selling price for each product which multiplied by order quantity. Data type used in this field is integer with maximum 10 characters.

j) Production Cost, Production Cost describes the product cost which considering manufacturing cost, cost raw material, salaries, and fuel cost (electricity and transportation). Data type used in this field is an integer with maximum characters is 7.

k) BRC, Benefit / Cost Ratio describe the ratio of benefits and costs that calculated using the comparison of price and cost data production. Data type used in this field is varchar.

l) BRC (1:100) is additional data and used to process data in Pentaho. This data is multiplication BRC and 100 to transform BRC value into data into Integer. Data type used in this field is an integer with maximum characters is 3.

The next step after creating MySql database is filling the table. There are two ways in completing this step; the first is putting one by one into the table and the second is importing data directly to MySql. However the second way needs additional

csv file. MySql is equipped by several features which will help user to processing data become effective and efficient as defected in figure 4.2.

			No_Nota	Year	Date	Customer Name	Customer Address	Product Name	Quantity	Price	Total Price	Cost Production	BRC	BCR (1:100)
			1	2010	Wednesday, January 06, 2010	UD. Bahtra	Jl. Kupang Jaya Indah (Surabaya)	Milling N 50 Black	112	34000	3808000	17000	2	200
			2	2010	Wednesday, January 06, 2010	UD. Bahtra	Jl. Kupang Jaya Indah (Surabaya)	Milling N 70 Black	145	43000	6235000	24000	1.79166666	179
			3	2010	Wednesday, January 06, 2010	UD. Bahtra	Jl. Kupang Jaya Indah (Surabaya)	Milling N 120 Black	53	66000	3498000	37000	1.78378378	178
			4	2010	Wednesday, January 06, 2010	UD. Bahtra	Jl. Kupang Jaya Indah (Surabaya)	Ulir N 70 Black	30	55000	1650000	24000	2.29166666	229
			5	2010	Wednesday, January 06, 2010	UD. Bahtra	Jl. Kupang Jaya Indah (Surabaya)	Iner Cylinder N 70	26	47500	1235000	21000	2.26190476	226
			6	2010	Wednesday, January 06, 2010	UD. Bahtra	Jl. Kupang Jaya Indah (Surabaya)	Ulir N 120 Polish	37	67500	2497500	35000	1.92857142	193
			7	2010	Wednesday, January 06, 2010	UD. Bahtra	Jl. Kupang Jaya Indah (Surabaya)	Cepit N 50	200	20000	4000000	10000	2	200
			8	2010	Wednesday, January 06, 2010	UD. Bahtra	Jl. Kupang Jaya Indah (Surabaya)	Poley Bl x 12 x 1	359	30500	10949500	19000	1.60526315	161
			9	2010	Tuesday, January 26, 2010	UD. Bahtra	Jl. Kupang Jaya Indah (Surabaya)	Milling N 50 Black	119	42000	4998000	17000	2.47058823	247
			10	2010	Tuesday, January 26, 2010	UD. Bahtra	Jl. Kupang Jaya Indah (Surabaya)	Milling N 70 Black	138	60000	8280000	24000	2.5	250
			11	2010	Tuesday, January 26, 2010	UD. Bahtra	Jl. Kupang Jaya Indah (Surabaya)	Ulir N 70 Black	154	57500	8855000	24000	2.39583333	240
			12	2010	Tuesday, January 26, 2010	UD. Bahtra	Jl. Kupang Jaya Indah (Surabaya)	Ulir N 120 Polish	37	67500	2497500	35000	1.92857142	193
			13	2010	Tuesday, January 26, 2010	UD. Bahtra	Jl. Kupang Jaya Indah (Surabaya)	Ulir N 120	92	62000	5704000	34000	1.82352941	182
			14	2010	Tuesday, January 26, 2010	UD. Bahtra	Jl. Kupang Jaya Indah (Surabaya)	Cepit N 70	180	21000	3780000	11500	1.82608695	183
			15	2010	Tuesday, January 26, 2010	UD. Bahtra	Jl. Kupang Jaya Indah (Surabaya)	Poley Bl x 12 x 1	399	30500	12169500	19000	1.60526315	161
			16	2010	Monday, February 15, 2010	UD. Bahtra	Jl. Kupang Jaya Indah (Surabaya)	Cepit N 50	75	18500	1387500	10000	1.85	185

Figure 4.2 Transaction Data Sample

Figure 4.2 explains about transaction data which put into MySql. The third step is connecting the database into Pentaho.

4.3.3 Pentaho Enterprise Edition

Pentaho is collections of Business Intelligence (BI) tools which evolving rapidly and included Free Open Source Software (FOSS) that running on the Java platform. Pentaho is applications developed by Pentaho Corp., based in Orlanda, USA.

A. Connecting MySql into Pentaho BI Server / Platform

Pentaho BI server can be connected with many kind of database. This research will connect Pentaho BI server to MySql database to create connection. Several steps creating connection of MySql into Pentaho are;

1. Ensure MySql is turned on and Pentaho is opened. The localhost BI server is described in Figure 4.3.

Figure 4.3Pentaho BI Servers

2. Create new database connection from MySql by click on "*Create New*" button, and then data source wizard window will appear.

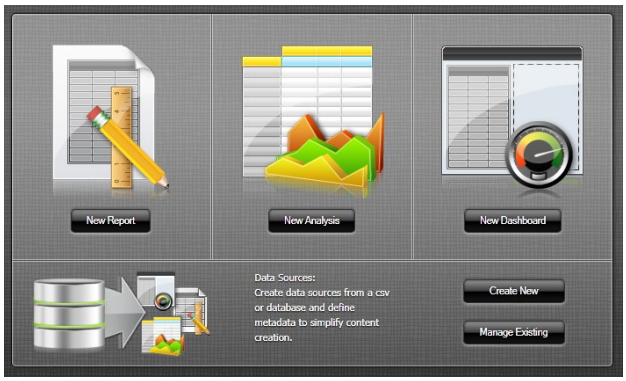


Figure 4.4 Pentaho BI Servers

3. Determine data source name and select data source function. Data source used in this research is "*Real One*" and data source is used to reporting and analysis. For database connection is describe in step 4.

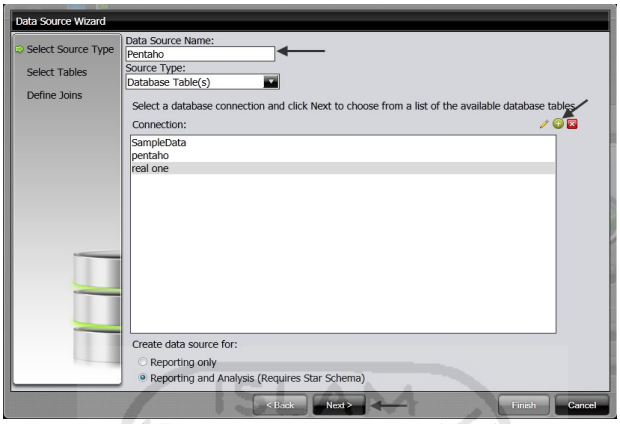


Figure 4.5 Data Source Wizard

4. Determine database connection, several step for determining database connection are;

   a) Determine connection name in "Connection Name" field.

   b) Select database type in "Database type" filed.

   c) Fill field of setting box;

      i. Type *host name* is *localhost*.

      ii. Type *database name* to be used in database name.

      iii. Type *port number*, actually in this field automatically fill.

      iv. Type *user name*.

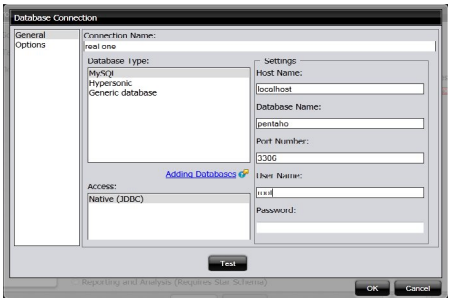


Figure 4.6 Database Connection

d) Click *test* button to test the database connection.

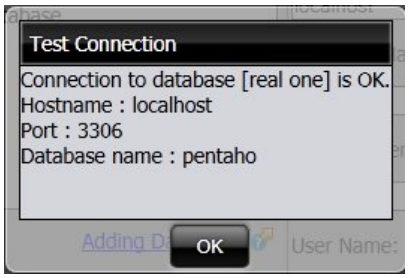


Figure 4.7 Test connection windows

B. Creating Report Using Pentaho BI Server 4

Pentaho BI server already has facility for create database, based on data source. After developed database connection and creating new data source the data will be analyzed and processed to create monthly financial report. Steps to create financial report are written as follows:

a) Click *New Report* on the display opening Pentaho BI Server. *Select data source* used to create report as depicted in Figure 4.8.

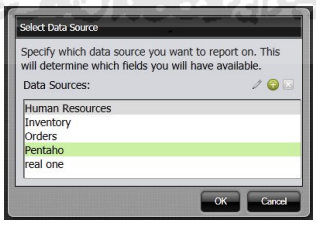


Figure 4.8 Data Source

b) Click and fill columns layout by dragging and dropping data *Product Name, Customer Name, Quantity, Price,* and *Total Price*. Then drag and drop date on the group layout.

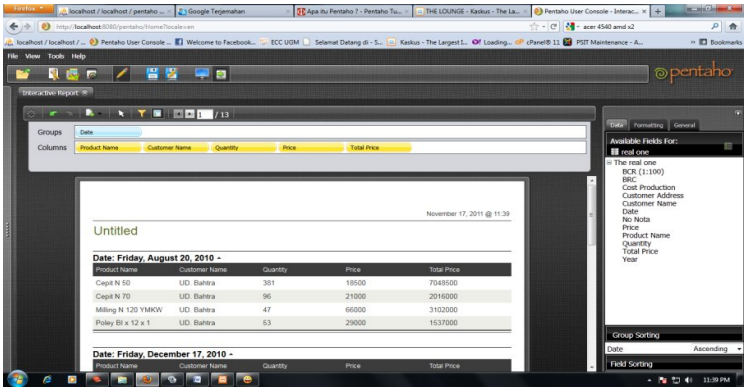


Figure 4.9 Report Layer

c) Save report and specify the name of the report and report the location and select OK. It will show a case in figure 4.10.

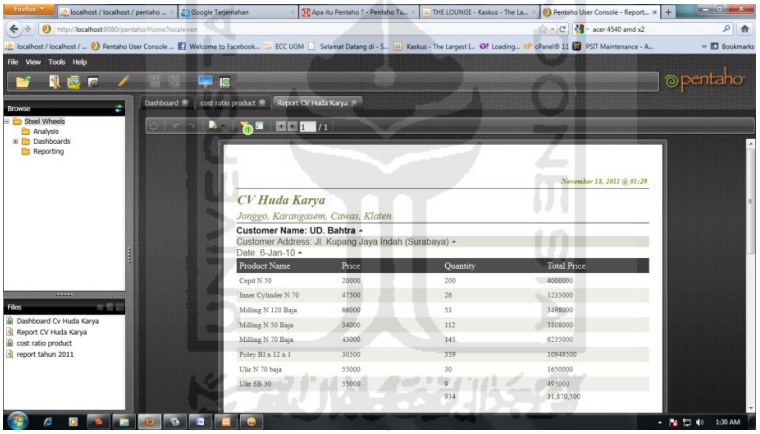


Figure 4.10 Report CV. Huda Karya

C. Create Dashboard

Dashboard is used for connecting and processing data in a simple form. The Steps to create dashboard are written as follows:

a) Select the *New Dashboard* on the opening display Pentaho BI server.

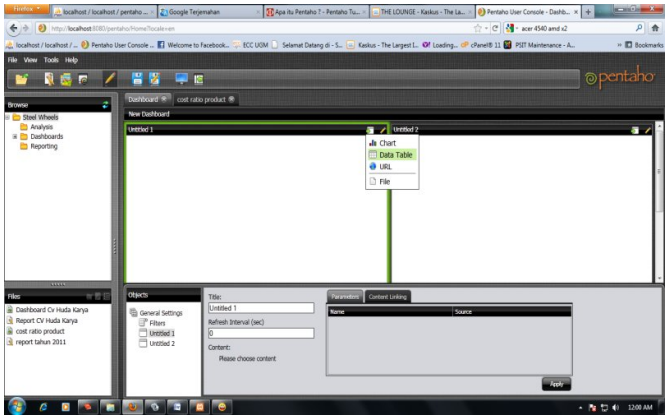


Figure 4.11 Dashboard

b) On the *General Settings* select the number of column is needed to split dashboard layer.

c) Click *insert content* in column number one and select *Data Table*.

d) Choose *real one* as *data source* will be used.

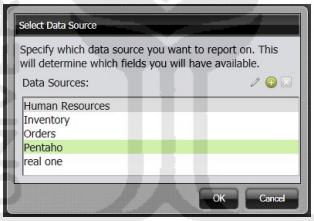


Figure 4.12 Select Data Source

e) Fill on *selected columns* with: *Customer Name, Quantity, Price, Production Cost,* and *BCR* on Query Editor Windows. Selected Columns is depicted in Figure 4.13.

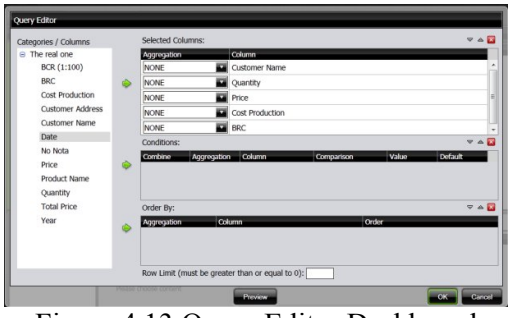


Figure 4.13 Query Editor Dashboard

a) Click Ok, and then it will appear as depicted in Figure 4.13.

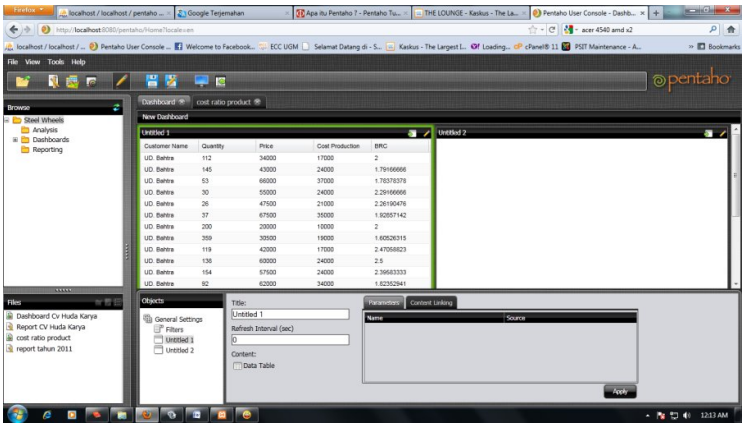


Figure 4.14 Tables BCR on Dashboard

b) Click the insert content and Select chart on second dashboard.

c) Select the *real one* on data source windows.

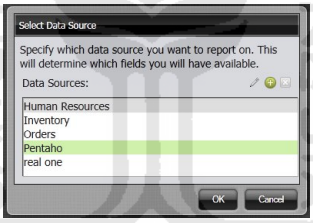


Figure 4.15 Select data source windows

d) Insert *selected columns* using green arrow columns *Product Name,* and *BCR (1:100*). In *conditions* enter *date* columns and contents the *value* with one of existing date and then click OK.

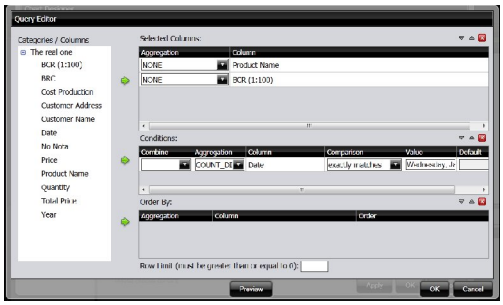


Figure 4.16 Query Editor Dashboard

e) *Chart design windows* will be depicted in Figure 4.17. Determine Chart Type and Data as follows:

i. Type is Pie *Chart*.

ii. Themes are *Default*.

iii. Series Column is .*Product Name*.

iv. Category columns are *BCR (1:100)*.

v. Value Column is *BCR (1:100)*.

vi. Scale Is *100*

vii. Chart title is *Chart Ratio Product*.

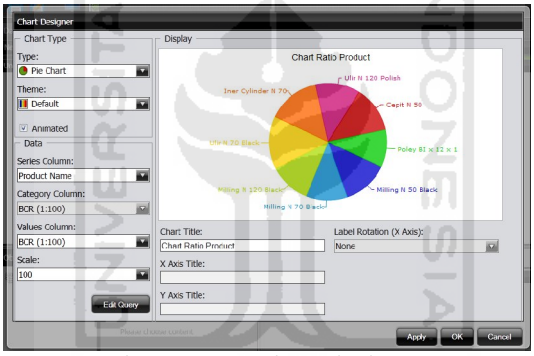


Figure 4.17 Chart designer

f) Click Ok and save dashboard with the names and specific locations.

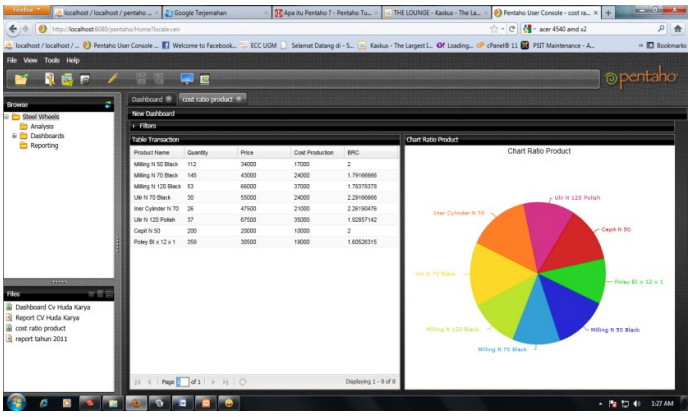


Figure 4.18 Dashboard Table and Pie chart

D. Create Filter on Dashboard

To synchronize data in column 1 and 2 are connected using a filter. Filter function is to shown data by user needed. This research will be used filter based on *date* fields.

a) Select *filters* on dashboard appear as depicted in Figure 4.19.

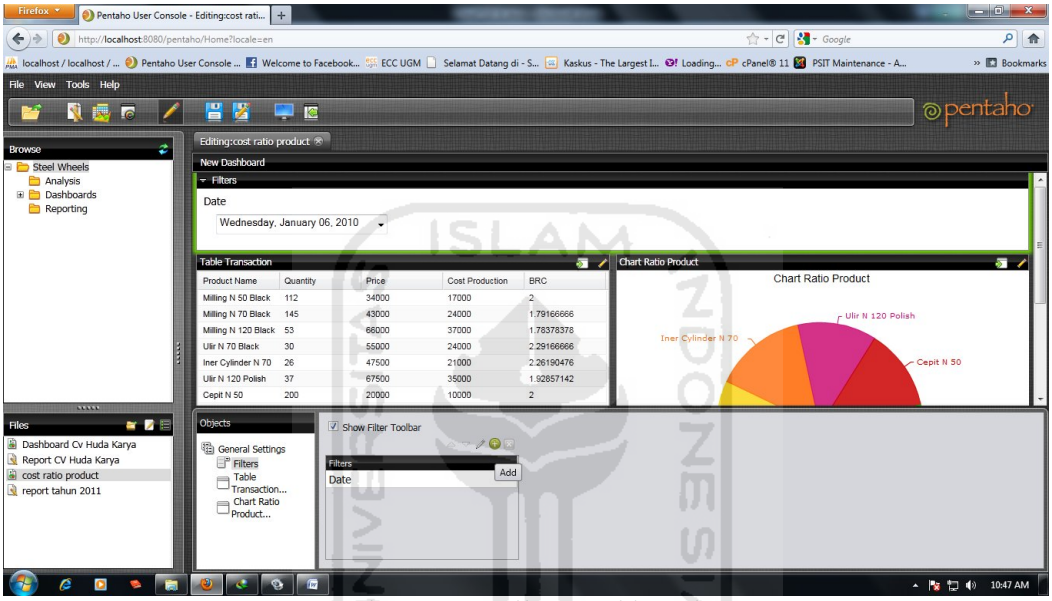


Figure 4.19 Filter Dashboard

b) Clicks *add* on box filter.

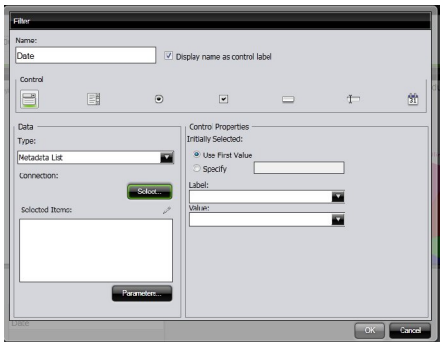


Figure 4.20 Filter

Fill *Name* filter with *Date* and then select data type *metadata list*. Click *Select* to specify data filter.

c) *Query Editor* is depicted in Figure 4.21. Insert *Date* in *selected columns*.

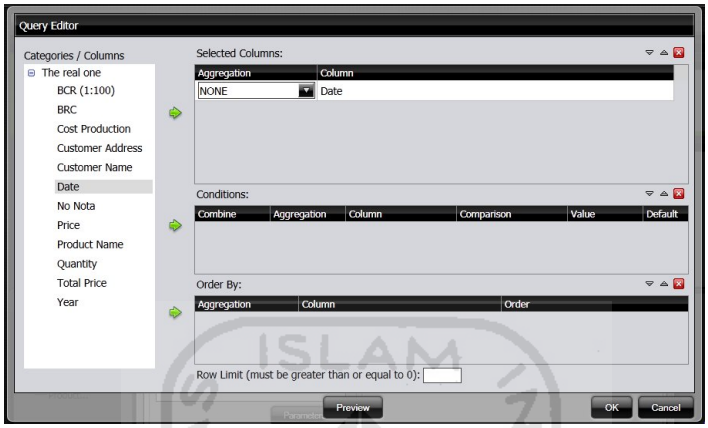


Figure 4.21 Query Editor Filter

d) Click Ok.

e) Return to Column 1 and changes parameter source date with *date*.

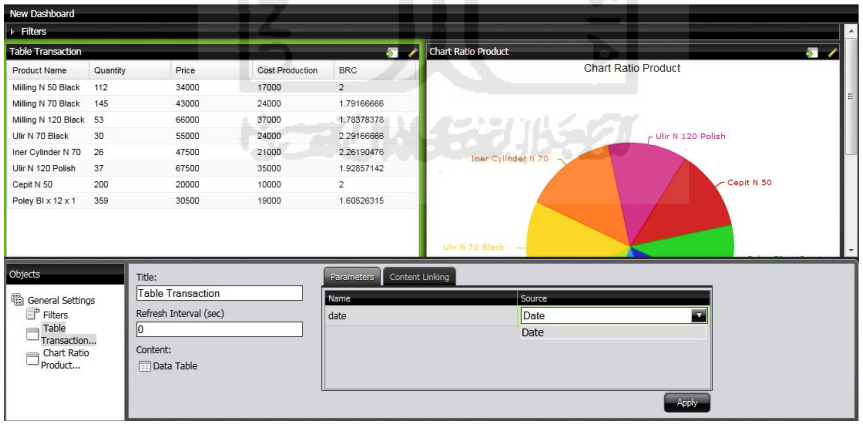


Figure 4.22 Dashboard Columns 1

f) Click Apply.

g) On Column 2do the same thing as Column1, change the date parameter by *Date*.

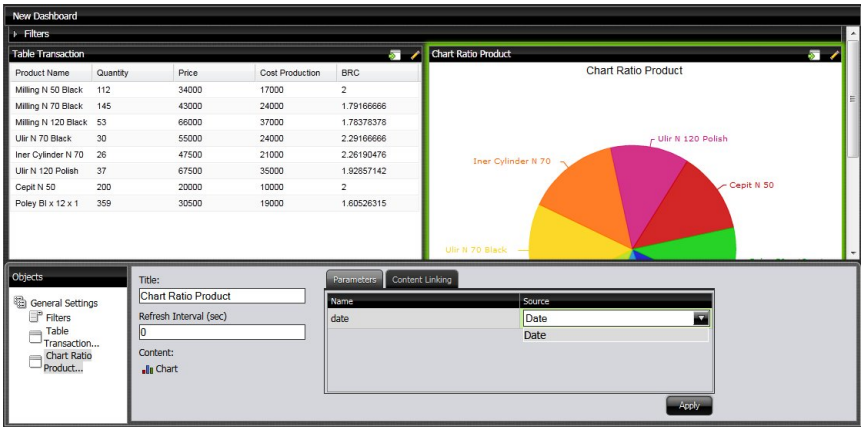


Figure 4.23 Dashboard Columns 2

h) Click Apply, to implement setting.

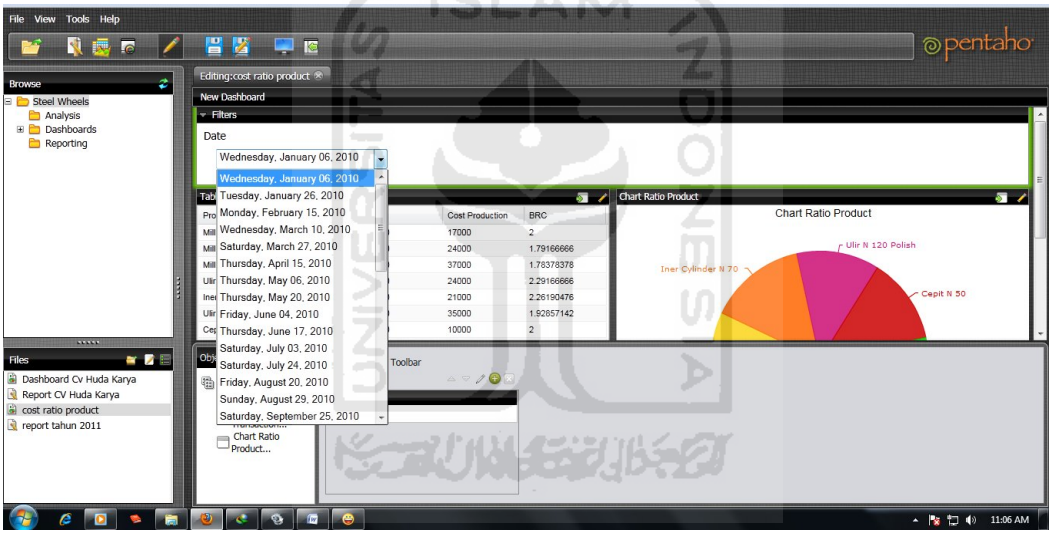


Figure 4.24 Filter Dashboard

Figure 4.24 is the final result after create filter on dashboard. Users can see data with easy using filter. The filter based on date of transaction. Filter function is making limited data based on transaction date. Users can specify transaction date in column 1 and 2. The twin column will be automatically show data depend on filter.

The first column is described about the name of the product is order, the selling price product. And also described about cost produce every product on

Production Cost column and Benefit / Cost Ratio for each product is calculated based on the selling price of the product divided by the cost of production. While second column is described Benefit /Cost Ratio from column 1 in form Pie Chart view as facilitate user to analyze highest ratios each product.

CHAPTER V

DISCUSSION

5.1 Benefit Cost Ratio

Benefit/cost ratio is the comparison between profit values and cost values. This problem will compute benefit/cost ratio support by the data in CV. Huda Karya. Since data of production cost unavailable, hence this research using hypothetical data, it is will be closer to the real data. So this is the result of the benefit/cost ratio, as follow:

Table 5.1 Sample Benefit/Cost Ratio

No	Product Name	Price (Benefit)	Production Cost	Benefit/Cost Ratio
1	Milling N 50 Black	34000	17000	2.00
2	Milling N 70 Black	43000	24000	1.79
3	Milling N 120 Black	66000	37000	1.78
4	Ulir N 70 Black	55000	24000	2.29
5	Iner Cylinder N 70	47500	21000	2.26
6	Ulir N 120 Polish	67500	35000	1.93
7	Cepit N 50	20000	10000	2.00
8	Poley BI x 12 x 1	30500	19000	1.61
9	Milling N 50 Black	42000	17000	2.47
10	Milling N 70 Black	60000	24000	2.50
11	Ulir N 70 Black	57500	24000	2.40
12	Ulir N 120 Polish	67500	35000	1.93
13	Ulir N 120	62000	34000	1.82
14	Cepit N 70	21000	11500	1.83
15	Poley BI x 12 x 1	30500	19000	1.61
16	Cepit N 50	18500	10000	1.85
17	Cepit N 70	21000	11500	1.83
No	Product Name	Price (Benefit)	Production Cost	Benefit/Cost Ratio

5.2 MySql Database

Create database is required to convert data from transaction receipts into MySql database with using XAMPP Software.

5.2.1 Create MySql Database

The step to creating database is compute number and specifies of field type, since type of field will be determine the function of the constructed field.

Browse | Structure | SQL | Search | Insert | Export | Import | Operations | Empty | Drop

	Field	Type	Collation	Attributes	Null	Default	Extra	Action
☐	No_Nota	int(5)			No	None		
☐	Year	text	latin1_swedish_ci		No	None		
☐	Date	text	latin1_swedish_ci		No	None		
☐	Customer Name	text	latin1_swedish_ci		No	None		
☐	Customer Address	text	latin1_swedish_ci		No	None		
☐	Product Name	text	latin1_swedish_ci		No	None		
☐	Quantity	int(10)			No	None		
☐	Price	int(10)			No	None		
☐	Total Price	int(10)			No	None		
☐	Cost Production	int(7)			No	None		
☐	BRC	varchar(10)	latin1_swedish_ci		No	None		
☐	BCR (1:100)	int(3)			No	None		

Figure 5.1 Structure MySql

Figure 5.1 is explains about the type of field, MySql structure in this research is created using XAMPP software.

5.2.2 Connecting MySql into Pentaho BI Server / Platform

This problem using name "*real one*" and select database connection type as "*MySql*" since will connect to MySql database from XAMPP. Load Host Name in setting box with "*localhost*", Database Name with "*pentaho*" and user name with "*root*". The name of MySql database is "*pentaho*" and "*root*" as the default name of user. After that, choose *Test* to try database connection.

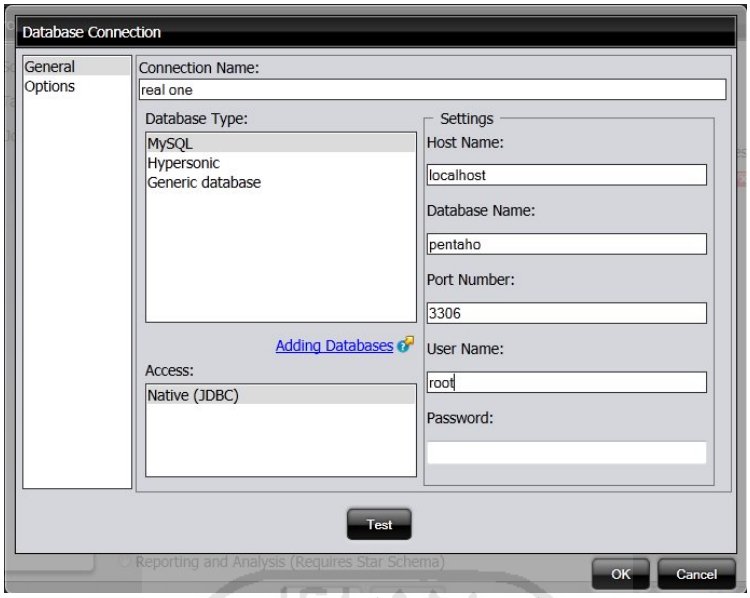
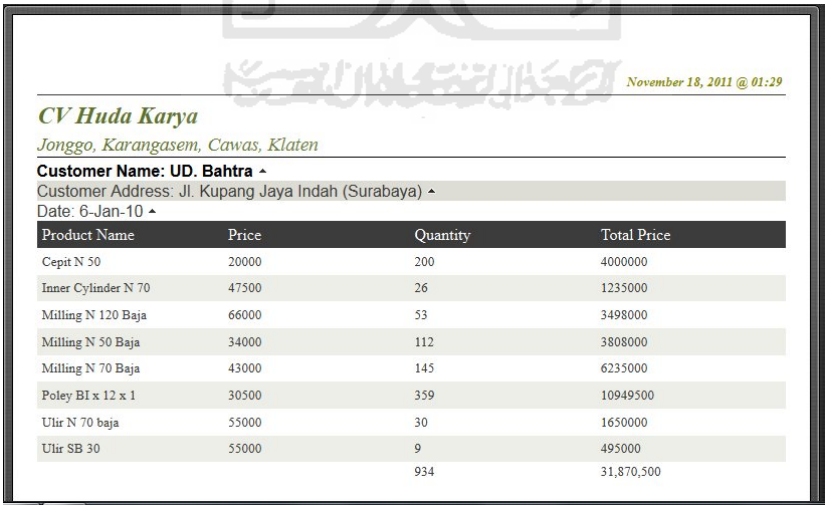


Figure 5.2 Database Connection

5.3 Create Report Using Pentaho BI Server

To creating smart report, it is like described on chapter IV. The figure 5.3 is final of smart report, the report will be automatically process the data when the database is increased and updated.



November 18, 2011 @ 01:29

CV Huda Karya

Jonggo, Karangasem, Cawas, Klaten

Customer Name: UD. Bahtra

Customer Address: Jl. Kupang Jaya Indah (Surabaya)

Date: 6-Jan-10

Product Name	Price	Quantity	Total Price
Cepit N 50	20000	200	4000000
Inner Cylinder N 70	47500	26	1235000
Milling N 120 Baja	66000	53	3498000
Milling N 50 Baja	34000	112	3808000
Milling N 70 Baja	43000	145	6235000
Poley BI x 12 x 1	30500	359	10949500
Ulir N 70 baja	55000	30	1650000
Ulir SB 30	55000	9	495000
		934	31,870,500

Figure 5.3 Smart Report Pentaho

5.4 Create Dashboard using Pentaho BI Server

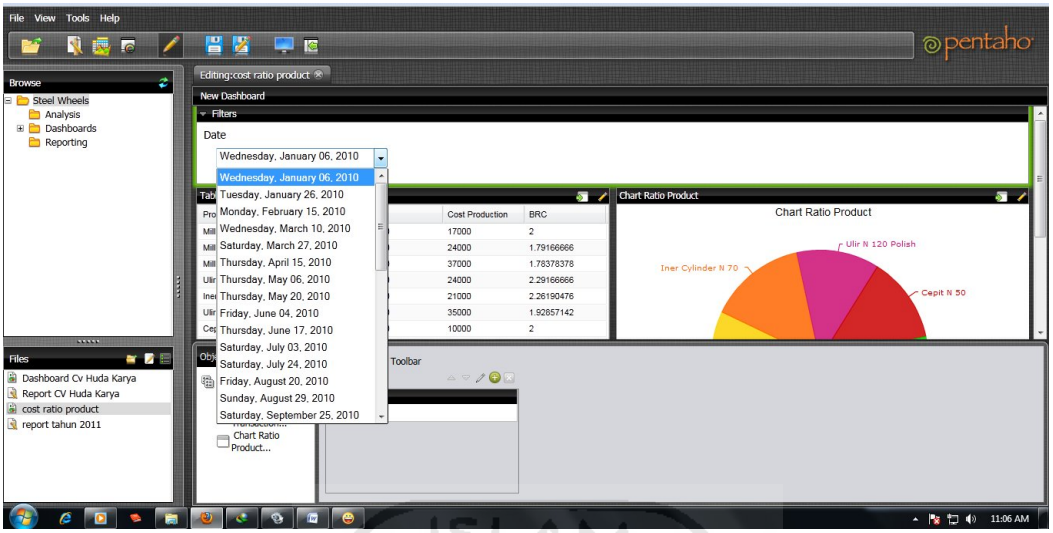


Figure 5.4 Filter Dashboard

The user able see data with easy using filter, such as defected on figure 5.4. The base on filter is the date of transaction. That function is building limitation data by transaction date. So, users can be able to specify data shown in column number one and number two, base on transaction date. The both columns will be automatically show data have been happen in certain time depending on filter.

The first column describes about the name of the order product, the selling price product, production cost and benefit / cost ratio (BRC) each product. BRC value is calculated based on the selling price of the product divided by the cost of production, while the second column describes about the Benefit /Cost Ratio from column one. BRC value is convert into Pie Chart for facilitate the user to analyzes the highest ratios of each product.

CHAPTER VI

CONCLUSION AND SUGGESTION

6.1 Conclusion

Customizing pentaho in order to creating smart dashboard and report should execute several steps. The firts is creating MySql database as input, build connection from MySql into Pentaho and create smart Dashboard and Transaction Report.

1. Creating dashboard should be determining entire layout and contain dashboard. Select *new dashboard* and determine fields in the first layout such as *Customer Name*, *Quantity*, *Price*, *Production Cost*, and *BRC*. And another layer, to shown Pie chart should be determining the variable to build the chart such as *Customer name* and value of *Benefit/cost ratio (BRC)*.
2. First step to create Transaction report is ensure that database connect with Pentaho BI Server. Further, select *new report* and insert data into *Columns* and *Group*.

6.2 Suggestion

1. CV. Huda Karya unsupported by database management system (DBMS). Hence, making difficult to analyze and searching a data. It should be better to apply DBMS.
2. BCR (benefit/cost ratio) shown that some product must decrease cost production in order to get high benefit.

3. Preference to install XAMPP earliest in order to avoid creasing database application (phpmyadmin). Since, if opposite database application will be crash and unavailable. It is just when combining XAMPP and Pentaho.

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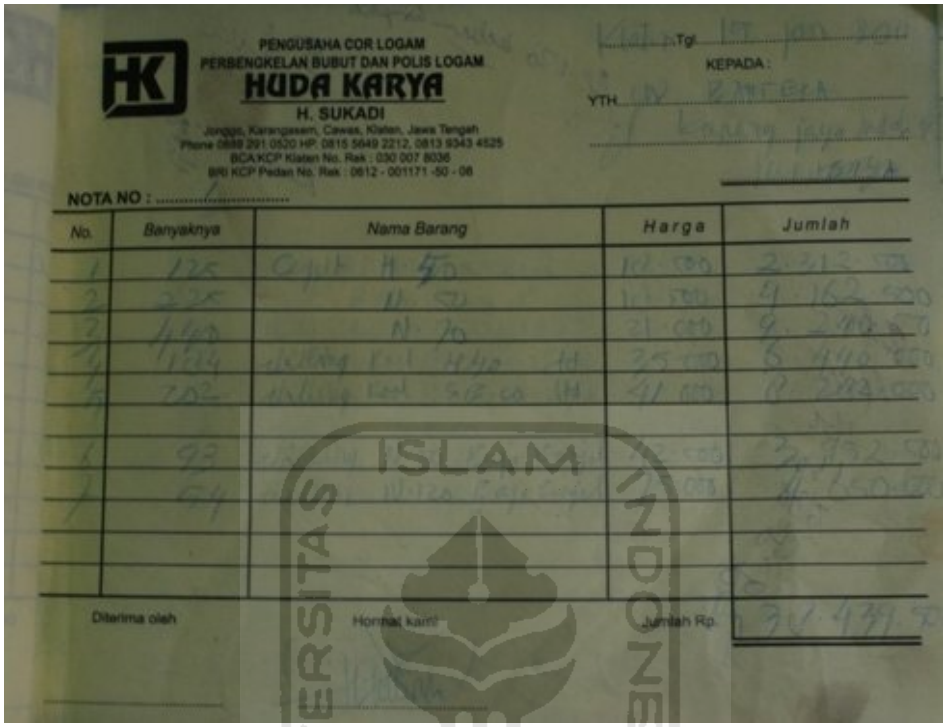
APPENDIX

Appendix 1 Figure Receipt Transaction and Product

1. Receipt Transaction



PENGUSAHA COR LOGAM
PERBENGKELAN BUBUT DAN POLIS LOGAM
HUDA KARYA
H. SUKADI
Jonggo, Karangasem, Cawas, Klaten, Jawa Tengah
Phone 0888 291 0520 HP. 0815 5649 2212, 0813 9343 4525
BCA KCP Klaten No. Rek : 030 007 8036
BRI KCP Pedan No. Rek : 0612 - 001171 -50 - 08

Tgl.
KEPADA :
YTH.

NOTA NO : .....

No.	Banyaknya	Nama Barang	Harga	Jumlah

Diterima oleh
Hormat kami
Jumlah Rp.

2. Cepit

3. Milling

4. Inner Cylinder / Anglo

5. Poley

6. Ulir

Appendix 2 Benefit Cost Ratio (BCR) and Table Transaction

Production Cost

No	Product Name	Production Cost
1	Cepit N 120	13000
2	Cepit N 50	10000
3	Cepit N 70	11500
4	Iner Cylinder N 120	30000
5	Iner Cylinder N 70	23000
6	Milling N 120	36000
7	Milling N 120 Benjol	38000
8	Milling N 120 Black	37000
9	Milling N 120 Blue	36000
10	Milling N 120 Polish	36500
11	Milling N 120 YMKW	34000
12	Milling N 50	16000
13	Milling N 50 Benjol	16500
14	Milling N 50 Black	17000
15	Milling N 50 Blue	17500
16	Milling N 50 Polish	17000
17	Milling N 50 YMKW	17000
18	Milling N 70	24000
19	Milling N 70 Benjol	25000
20	Milling N 70 Black	24000
21	Milling N 70 Blue	24000
22	Milling N 70 Polish	24500
23	Milling N 70 YMKW	22000
24	Milling SB 10 Black	20000
25	Poley BI x 12 x 1	19000
26	Ulir ARM 1000 Black	47000
27	Ulir ARM 1000 Polish	45000
28	Ulir N 120	34000
29	Ulir N 120 Blue	35000
30	Ulir N 120 Polish	35000
31	Ulir N 50	20000
32	Ulir N 50 Blue	20000
33	Ulir N 50 Polish	21000
34	Ulir N 70	23000
35	Ulir N 70 Black	24000
36	Ulir N 70 Blue	24000
No	Product Name	Production Cost

No	Product Name	Production Cost
37	Ulir N 70 Polish	23500
38	Ulir SB 10	19000
39	Ulir SB 10 Blue	20000
40	Ulir SB 10 Polish	20000
No	Product Name	Production Cost

No Nota	Date	Customer	Customer Address	Product Name	Quantity	Price	Total Price
1	Wednesday, January 06, 2010	UD. Bahtra	Jl. Kupang Jaya Indah	Milling N 50 Black	112	34000	3808000
2	Wednesday, January 06, 2010	UD. Bahtra	Jl. Kupang Jaya Indah	Milling N 70 Black	145	43000	6235000
3	Wednesday, January 06, 2010	UD. Bahtra	Jl. Kupang Jaya Indah	Milling N 120 Black	53	66000	3498000
4	Wednesday, January 06, 2010	UD. Bahtra	Jl. Kupang Jaya Indah	Ulir N 70 Black	30	55000	1650000
5	Wednesday, January 06, 2010	UD. Bahtra	Jl. Kupang Jaya Indah	Iner Cylinder N 70	26	47500	1235000
6	Wednesday, January 06, 2010	UD. Bahtra	Jl. Kupang Jaya Indah	Ulir N 120 Polish	37	67500	2497500
7	Wednesday, January 06, 2010	UD. Bahtra	Jl. Kupang Jaya Indah	Cepit N 50	200	20000	4000000
8	Wednesday, January 06, 2010	UD. Bahtra	Jl. Kupang Jaya Indah	Poley BI x 12 x 1	359	30500	10949500
9	Tuesday, January 26, 2010	UD. Bahtra	Jl. Kupang Jaya Indah	Milling N 50 Black	119	42000	4998000
10	Tuesday, January 26, 2010	UD. Bahtra	Jl. Kupang Jaya Indah	Milling N 70 Black	138	60000	8280000
11	Tuesday, January 26, 2010	UD. Bahtra	Jl. Kupang Jaya Indah	Ulir N 70 Black	154	57500	8855000
12	Tuesday, January 26, 2010	UD. Bahtra	Jl. Kupang Jaya Indah	Ulir N 120 Polish	37	67500	2497500
13	Tuesday, January 26, 2010	UD. Bahtra	Jl. Kupang Jaya Indah	Ulir N 120	92	62000	5704000
14	Tuesday, January 26, 2010	UD. Bahtra	Jl. Kupang Jaya Indah	Cepit N 70	180	21000	3780000
15	Tuesday, January 26, 2010	UD. Bahtra	Jl. Kupang Jaya Indah	Poley BI x 12 x 1	399	30500	12169500
16	Monday, February 15, 2010	UD. Bahtra	Jl. Kupang Jaya Indah	Cepit N 50	75	18500	1387500
17	Monday, February 15, 2010	UD. Bahtra	Jl. Kupang Jaya Indah	Cepit N 70	340	21000	7140000
18	Monday, February 15, 2010	UD. Bahtra	Jl. Kupang Jaya Indah	Ulir N 120 Polish	37	67500	2497500
19	Monday, February 15, 2010	UD. Bahtra	Jl. Kupang Jaya Indah	Milling N 50 Blue	45	34000	1530000
20	Monday, February 15, 2010	UD. Bahtra	Jl. Kupang Jaya Indah	Milling N 70 Blue	55	43000	2365000
21	Monday, February 15, 2010	UD. Bahtra	Jl. Kupang Jaya Indah	Milling N 120 Blue	128	66000	8448000
22	Monday, February 15, 2010	UD. Bahtra	Jl. Kupang Jaya Indah	Milling N 50	48	42500	2040000
23	Monday, February 15, 2010	UD. Bahtra	Jl. Kupang Jaya Indah	Ulir N 120	92	62000	5704000
24	Monday, February 15, 2010	UD. Bahtra	Jl. Kupang Jaya Indah	Poley BI x 12 x 1	276	28500	7866000
25	Wednesday, March 10, 2010	UD. Bahtra	Jl. Kupang Jaya Indah	Cepit N 50	35	18500	647500
26	Wednesday, March 10, 2010	UD. Bahtra	Jl. Kupang Jaya Indah	Cepit N 70	336	21000	7056000
27	Wednesday, March 10, 2010	UD. Bahtra	Jl. Kupang Jaya Indah	Cepit N 120	211	24500	5169500
No Nota	Date	Customer	Customer Address	Product Name	Quantity	Price	Total Price

No Nota	Date	Customer	Customer Address	Product Name	Quantity	Price	Total Price
28	Wednesday, March 10, 2010	UD. Bahtra	Jl. Kupang Jaya Indah	Milling N 50	48	42500	2040000
29	Wednesday, March 10, 2010	UD. Bahtra	Jl. Kupang Jaya Indah	Milling N 50 Blue	42	34000	1428000
30	Wednesday, March 10, 2010	UD. Bahtra	Jl. Kupang Jaya Indah	Milling N 70 Blue	45	43000	1935000
31	Wednesday, March 10, 2010	UD. Bahtra	Jl. Kupang Jaya Indah	Milling N 120 Blue	52	66000	3432000
32	Wednesday, March 10, 2010	UD. Bahtra	Jl. Kupang Jaya Indah	Milling N 70 YMKW	99	45000	4455000
33	Wednesday, March 10, 2010	UD. Bahtra	Jl. Kupang Jaya Indah	Milling N 50 Black	28	42500	1190000
34	Wednesday, March 10, 2010	UD. Bahtra	Jl. Kupang Jaya Indah	Poley BI x 12 x 1	192	28500	5472000
35	Wednesday, March 10, 2010	UD. Bahtra	Jl. Kupang Jaya Indah	Ulir N 50 Blue	76	35000	2660000
36	Wednesday, March 10, 2010	UD. Bahtra	Jl. Kupang Jaya Indah	Ulir SB 10 Blue	97	34000	3298000
37	Wednesday, March 10, 2010	UD. Bahtra	Jl. Kupang Jaya Indah	Ulir N 120 Blue	60	67000	4020000
38	Wednesday, March 10, 2010	UD. Bahtra	Jl. Kupang Jaya Indah	Ulir N 70 Blue	82	44000	3608000
39	Wednesday, March 10, 2010	UD. Bahtra	Jl. Kupang Jaya Indah	Milling N 50 YMKW	94	34000	3196000
40	Wednesday, March 10, 2010	UD. Bahtra	Jl. Kupang Jaya Indah	Milling SB 10 Black	10	42500	425000
41	Saturday, March 27, 2010	UD. Bahtra	Jl. Kupang Jaya Indah	Cepit N 70	340	21000	7140000
42	Saturday, March 27, 2010	UD. Bahtra	Jl. Kupang Jaya Indah	Milling N 70 YMKW	103	43000	4429000
43	Saturday, March 27, 2010	UD. Bahtra	Jl. Kupang Jaya Indah	Ulir N 70 Blue	49	67000	3283000
44	Saturday, March 27, 2010	UD. Bahtra	Jl. Kupang Jaya Indah	Milling SB 10 Black	67	42500	2847500
45	Thursday, April 15, 2010	UD. Bahtra	Jl. Kupang Jaya Indah	Poley BI x 12 x 1	314	13000	4082000
46	Thursday, April 15, 2010	UD. Bahtra	Jl. Kupang Jaya Indah	Milling N 50 Polish	163	26500	4319500
47	Thursday, April 15, 2010	UD. Bahtra	Jl. Kupang Jaya Indah	Milling SB 10 Black	67	36000	2412000
48	Thursday, April 15, 2010	UD. Bahtra	Jl. Kupang Jaya Indah	Ulir SB 10 Polish	45	35000	1575000
49	Thursday, April 15, 2010	UD. Bahtra	Jl. Kupang Jaya Indah	Milling N 70 Black	30	60000	1800000
50	Thursday, April 15, 2010	UD. Bahtra	Jl. Kupang Jaya Indah	Cepit N 70	240	21000	5040000
51	Thursday, May 06, 2010	UD. Bahtra	Jl. Kupang Jaya Indah	Cepit N 70	199	21000	4179000
52	Thursday, May 06, 2010	UD. Bahtra	Jl. Kupang Jaya Indah	Poley BI x 12 x 1	120	29500	3540000
53	Thursday, May 06, 2010	UD. Bahtra	Jl. Kupang Jaya Indah	Milling N 70 YMKW	103	43000	4429000
54	Thursday, May 06, 2010	UD. Bahtra	Jl. Kupang Jaya Indah	Milling N 120 YMKW	49	67000	3283000
No Nota	Date	Customer	Customer Address	Product Name	Quantity	Price	Total Price

No Nota	Date	Customer	Customer Address	Product Name	Quantity	Price	Total Price
55	Thursday, May 06, 2010	UD. Bahtra	Jl. Kupang Jaya Indah	Milling N 50 Polish	136	26000	3536000
56	Thursday, May 06, 2010	UD. Bahtra	Jl. Kupang Jaya Indah	Milling SB 10 Black	45	35000	1575000
57	Thursday, May 06, 2010	UD. Bahtra	Jl. Kupang Jaya Indah	Ulir SB 10 Polish	45	35000	1575000
58	Thursday, May 20, 2010	UD. Bahtra	Jl. Kupang Jaya Indah	Poley BI x 12 x 1	206	29500	6077000
59	Thursday, May 20, 2010	UD. Bahtra	Jl. Kupang Jaya Indah	Milling N 70 YMKW	64	43000	2752000
60	Thursday, May 20, 2010	UD. Bahtra	Jl. Kupang Jaya Indah	Milling N 50 Polish	82	35000	2870000
61	Thursday, May 20, 2010	UD. Bahtra	Jl. Kupang Jaya Indah	Milling N 50 YMKW	61	34000	2074000
62	Thursday, May 20, 2010	UD. Bahtra	Jl. Kupang Jaya Indah	Iner Cylinder N 70	85	40000	3400000
63	Thursday, May 20, 2010	UD. Bahtra	Jl. Kupang Jaya Indah	Cepit N 70	340	21000	7140000
64	Friday, June 04, 2010	UD. Bahtra	Jl. Kupang Jaya Indah	Milling N 70	99	43000	4257000
65	Friday, June 04, 2010	UD. Bahtra	Jl. Kupang Jaya Indah	Milling N 50	146	42500	6205000
66	Friday, June 04, 2010	UD. Bahtra	Jl. Kupang Jaya Indah	Poley BI x 12 x 1	234	29500	6903000
67	Friday, June 04, 2010	UD. Bahtra	Jl. Kupang Jaya Indah	Cepit N 70	200	21000	4200000
68	Friday, June 04, 2010	UD. Bahtra	Jl. Kupang Jaya Indah	Cepit N 120	60	24500	1470000
69	Friday, June 04, 2010	UD. Bahtra	Jl. Kupang Jaya Indah	Cepit N 50	175	19000	3325000
70	Thursday, June 17, 2010	UD. Bahtra	Jl. Kupang Jaya Indah	Cepit N 50	175	19000	3325000
71	Thursday, June 17, 2010	UD. Bahtra	Jl. Kupang Jaya Indah	Cepit N 70	80	21000	1680000
72	Thursday, June 17, 2010	UD. Bahtra	Jl. Kupang Jaya Indah	Milling N 50 Black	53	42500	2252500
73	Thursday, June 17, 2010	UD. Bahtra	Jl. Kupang Jaya Indah	Milling N 70 Polish	172	47000	8084000
74	Thursday, June 17, 2010	UD. Bahtra	Jl. Kupang Jaya Indah	Milling N 70	39	43000	1677000
75	Thursday, June 17, 2010	UD. Bahtra	Jl. Kupang Jaya Indah	Milling N 120	56	72500	4060000
76	Thursday, June 17, 2010	UD. Bahtra	Jl. Kupang Jaya Indah	Iner Cylinder N 70	45	39000	1755000
77	Thursday, June 17, 2010	UD. Bahtra	Jl. Kupang Jaya Indah	Poley BI x 12 x 1	159	19500	3100500
78	Saturday, July 03, 2010	UD. Bahtra	Jl. Kupang Jaya Indah	Poley BI x 12 x 1	81	29000	2349000
79	Saturday, July 03, 2010	UD. Bahtra	Jl. Kupang Jaya Indah	Cepit N 50	500	18500	9250000
80	Saturday, July 03, 2010	UD. Bahtra	Jl. Kupang Jaya Indah	Milling N 120	56	56500	3164000
81	Saturday, July 03, 2010	UD. Bahtra	Jl. Kupang Jaya Indah	Milling N 120 Polish	27	66000	1782000
No Nota	Date	Customer	Customer Address	Product Name	Quantity	Price	Total Price

No Nota	Date	Customer	Customer Address	Product Name	Quantity	Price	Total Price
82	Saturday, July 03, 2010	UD. Bahtra	Jl. Kupang Jaya Indah	Iner Cylinder N 70	45	39000	1755000
83	Saturday, July 03, 2010	UD. Bahtra	Jl. Kupang Jaya Indah	Milling SB 10 Black	164	35500	5822000
84	Saturday, July 03, 2010	UD. Bahtra	Jl. Kupang Jaya Indah	Milling N 50 Black	134	42500	5695000
85	Saturday, July 24, 2010	UD. Bahtra	Jl. Kupang Jaya Indah	Poley BI x 12 x 1	64	29500	1888000
86	Saturday, July 24, 2010	UD. Bahtra	Jl. Kupang Jaya Indah	Cepit N 50	500	18500	9250000
87	Saturday, July 24, 2010	UD. Bahtra	Jl. Kupang Jaya Indah	Cepit N 70	60	21000	1260000
88	Saturday, July 24, 2010	UD. Bahtra	Jl. Kupang Jaya Indah	Milling N 50 YMKW	18	33000	594000
89	Saturday, July 24, 2010	UD. Bahtra	Jl. Kupang Jaya Indah	Milling N 120 YMKW	47	66000	3102000
90	Saturday, July 24, 2010	UD. Bahtra	Jl. Kupang Jaya Indah	Milling N 120	53	74000	3922000
91	Saturday, July 24, 2010	UD. Bahtra	Jl. Kupang Jaya Indah	Milling N 70 Polish	81	39500	3199500
92	Friday, August 20, 2010	UD. Bahtra	Jl. Kupang Jaya Indah	Cepit N 50	381	18500	7048500
93	Friday, August 20, 2010	UD. Bahtra	Jl. Kupang Jaya Indah	Milling N 120 YMKW	47	66000	3102000
94	Friday, August 20, 2010	UD. Bahtra	Jl. Kupang Jaya Indah	Cepit N 70	96	21000	2016000
95	Friday, August 20, 2010	UD. Bahtra	Jl. Kupang Jaya Indah	Poley BI x 12 x 1	53	29000	1537000
96	Sunday, August 29, 2010	UD. Bahtra	Jl. Kupang Jaya Indah	Milling N 70 Polish	93	39500	3673500
97	Sunday, August 29, 2010	UD. Bahtra	Jl. Kupang Jaya Indah	Milling N 120 Black	138	57500	7935000
98	Sunday, August 29, 2010	UD. Bahtra	Jl. Kupang Jaya Indah	Milling N 50 Benjol	84	42500	3570000
99	Sunday, August 29, 2010	UD. Bahtra	Jl. Kupang Jaya Indah	Milling N 120 Benjol	18	74000	1332000
100	Sunday, August 29, 2010	UD. Bahtra	Jl. Kupang Jaya Indah	Milling N 70 Black	134	57500	7705000
101	Saturday, September 25, 2010	UD. Bahtra	Jl. Kupang Jaya Indah	Cepit N 70	280	21000	5880000
102	Saturday, September 25, 2010	UD. Bahtra	Jl. Kupang Jaya Indah	Cepit N 120	100	24000	2400000
103	Saturday, September 25, 2010	UD. Bahtra	Jl. Kupang Jaya Indah	Cepit N 50	225	18000	4050000
104	Saturday, September 25, 2010	UD. Bahtra	Jl. Kupang Jaya Indah	Milling N 120	37	60000	2220000
105	Saturday, September 25, 2010	UD. Bahtra	Jl. Kupang Jaya Indah	Milling N 120 Polish	24	62500	1500000
106	Saturday, September 25, 2010	UD. Bahtra	Jl. Kupang Jaya Indah	Milling N 70 Polish	2	39500	79000
107	Saturday, September 25, 2010	UD. Bahtra	Jl. Kupang Jaya Indah	Milling N 50 Polish	43	29500	1268500
108	Saturday, September 25, 2010	UD. Bahtra	Jl. Kupang Jaya Indah	Milling N 50 Benjol	34	42500	1445000
No Nota	Date	Customer	Customer Address	Product Name	Quantity	Price	Total Price

No Nota	Date	Customer	Customer Address	Product Name	Quantity	Price	Total Price
109	Saturday, September 25, 2010	UD. Bahtra	Jl. Kupang Jaya Indah	Milling N 70 Black	82	57500	4715000
110	Saturday, September 25, 2010	UD. Bahtra	Jl. Kupang Jaya Indah	Milling N 70 Benjol	34	58500	1989000
111	Saturday, September 25, 2010	UD. Bahtra	Jl. Kupang Jaya Indah	Milling N 120 Black	5	73000	365000
112	Saturday, September 25, 2010	UD. Bahtra	Jl. Kupang Jaya Indah	Milling N 120 Benjol	18	74000	1332000
113	Saturday, September 25, 2010	UD. Bahtra	Jl. Kupang Jaya Indah	Milling SB 10 Black	74	55000	4070000
114	Saturday, September 25, 2010	UD. Bahtra	Jl. Kupang Jaya Indah	Poley BI x 12 x 1	239	28500	6811500
115	Wednesday, November 03, 2010	UD. Bahtra	Jl. Kupang Jaya Indah	Cepit N 50	465	18500	8602500
116	Wednesday, November 03, 2010	UD. Bahtra	Jl. Kupang Jaya Indah	Cepit N 70	460	21000	9660000
117	Wednesday, November 03, 2010	UD. Bahtra	Jl. Kupang Jaya Indah	Milling SB 10 Black	40	55000	2200000
118	Wednesday, November 03, 2010	UD. Bahtra	Jl. Kupang Jaya Indah	Milling N 120 Benjol	21	80000	1680000
119	Wednesday, November 03, 2010	UD. Bahtra	Jl. Kupang Jaya Indah	Milling N 120 Black	25	75000	1875000
120	Wednesday, November 03, 2010	UD. Bahtra	Jl. Kupang Jaya Indah	Poley BI x 12 x 1	72	28500	2052000
121	Saturday, November 20, 2010	UD. Bahtra	Jl. Kupang Jaya Indah	Milling SB 10 Black	74	55000	4070000
122	Saturday, November 20, 2010	UD. Bahtra	Jl. Kupang Jaya Indah	Milling N 70 Black	25	57500	1437500
123	Saturday, November 20, 2010	UD. Bahtra	Jl. Kupang Jaya Indah	Cepit N 50	250	18500	4625000
124	Saturday, November 20, 2010	UD. Bahtra	Jl. Kupang Jaya Indah	Milling N 120 Black	10	80000	800000
125	Saturday, November 20, 2010	UD. Bahtra	Jl. Kupang Jaya Indah	Cepit N 120	60	74000	4440000
126	Saturday, November 20, 2010	UD. Bahtra	Jl. Kupang Jaya Indah	Poley BI x 12 x 1	188	28500	5358000
127	Monday, November 29, 2010	UD. Bahtra	Jl. Kupang Jaya Indah	Milling SB 10 Black	64	55000	3520000
128	Monday, November 29, 2010	UD. Bahtra	Jl. Kupang Jaya Indah	Milling N 120 Black	22	75000	1650000
129	Monday, November 29, 2010	UD. Bahtra	Jl. Kupang Jaya Indah	Milling N 70 Polish	34	38000	1292000
130	Monday, November 29, 2010	UD. Bahtra	Jl. Kupang Jaya Indah	Iner Cylinder N 70	46	39000	1794000
131	Monday, November 29, 2010	UD. Bahtra	Jl. Kupang Jaya Indah	Poley BI x 12 x 1	106	28500	3021000
132	Monday, November 29, 2010	UD. Bahtra	Jl. Kupang Jaya Indah	Cepit N 70	140	21000	2940000
133	Friday, December 17, 2010	UD. Bahtra	Jl. Kupang Jaya Indah	Milling SB 10 Black	46	55000	2530000
134	Friday, December 17, 2010	UD. Bahtra	Jl. Kupang Jaya Indah	Milling N 70 Black	110	57000	6270000
135	Friday, December 17, 2010	UD. Bahtra	Jl. Kupang Jaya Indah	Milling N 70 Benjol	60	60000	3600000
No Nota	Date	Customer	Customer Address	Product Name	Quantity	Price	Total Price

No Nota	Date	Customer	Customer Address	Product Name	Quantity	Price	Total Price
136	Friday, December 17, 2010	UD. Bahtra	Jl. Kupang Jaya Indah	Poley BI x 12 x 1	106	28500	3021000
137	Friday, December 17, 2010	UD. Bahtra	Jl. Kupang Jaya Indah	Milling N 70 Polish	22	42000	924000
138	Friday, December 17, 2010	UD. Bahtra	Jl. Kupang Jaya Indah	Iner Cylinder N 70	43	39000	1677000
139	Friday, December 17, 2010	UD. Bahtra	Jl. Kupang Jaya Indah	Milling N 50 Benjol	34	42500	1445000
140	Saturday, January 15, 2011	UD. Bahtra	Jl. Kupang Jaya Indah	Milling N 70 Benjol	60	60000	3600000
141	Saturday, January 15, 2011	UD. Bahtra	Jl. Kupang Jaya Indah	Cepit N 50	225	18500	4162500
142	Saturday, January 15, 2011	UD. Bahtra	Jl. Kupang Jaya Indah	Cepit N 70	440	21000	9240000
143	Saturday, January 15, 2011	UD. Bahtra	Jl. Kupang Jaya Indah	Iner Cylinder N 70	43	39000	1677000
144	Saturday, January 15, 2011	UD. Bahtra	Jl. Kupang Jaya Indah	Milling SB 10 Black	202	41000	8282000
145	Saturday, January 15, 2011	UD. Bahtra	Jl. Kupang Jaya Indah	Milling N 50 Benjol	93	42500	3952500
146	Saturday, January 15, 2011	UD. Bahtra	Jl. Kupang Jaya Indah	Milling N 120 Benjol	54	75000	4050000
147	Thursday, February 03, 2011	UD. Bahtra	Jl. Kupang Jaya Indah	Milling N 120 Benjol	54	75000	4050000
148	Thursday, February 03, 2011	UD. Bahtra	Jl. Kupang Jaya Indah	Poley BI x 12 x 1	240	28500	6840000
149	Thursday, February 03, 2011	UD. Bahtra	Jl. Kupang Jaya Indah	Ulir N 120 Polish	30	70000	2100000
150	Thursday, February 03, 2011	UD. Bahtra	Jl. Kupang Jaya Indah	Milling N 50 Black	83	42500	3527500
151	Thursday, February 03, 2011	UD. Bahtra	Jl. Kupang Jaya Indah	Milling N 120 Black	12	80000	960000
152	Thursday, February 03, 2011	UD. Bahtra	Jl. Kupang Jaya Indah	Milling SB 10 Black	53	41000	2173000
153	Thursday, February 03, 2011	UD. Bahtra	Jl. Kupang Jaya Indah	Milling N 70	189	42000	7938000
154	Thursday, February 03, 2011	UD. Bahtra	Jl. Kupang Jaya Indah	Iner Cylinder N 70	43	39000	1677000
155	Saturday, February 26, 2011	UD. Bahtra	Jl. Kupang Jaya Indah	Cepit N 50	150	18500	2775000
156	Saturday, February 26, 2011	UD. Bahtra	Jl. Kupang Jaya Indah	Cepit N 70	674	21000	14154000
157	Saturday, February 26, 2011	UD. Bahtra	Jl. Kupang Jaya Indah	Milling N 70	189	42000	7938000
158	Saturday, February 26, 2011	UD. Bahtra	Jl. Kupang Jaya Indah	Ulir N 120 Polish	30	70000	2100000
159	Saturday, February 26, 2011	UD. Bahtra	Jl. Kupang Jaya Indah	Ulir N 70	46	57000	2622000
160	Saturday, February 26, 2011	UD. Bahtra	Jl. Kupang Jaya Indah	Milling N 120 Black	23	80000	1840000
161	Sunday, March 20, 2011	UD. Bahtra	Jl. Kupang Jaya Indah	Milling N 70	189	42000	7938000
162	Sunday, March 20, 2011	UD. Bahtra	Jl. Kupang Jaya Indah	Ulir N 120 Polish	30	70000	2100000
No Nota	Date	Customer	Customer Address	Product Name	Quantity	Price	Total Price

No Nota	Date	Customer	Customer Address	Product Name	Quantity	Price	Total Price
163	Sunday, March 20, 2011	UD. Bahtra	Jl. Kupang Jaya Indah	Ulir ARM 1000 Polish	12	87500	1050000
164	Sunday, March 20, 2011	UD. Bahtra	Jl. Kupang Jaya Indah	Ulir ARM 1000 Black	33	97500	3217500
165	Sunday, March 20, 2011	UD. Bahtra	Jl. Kupang Jaya Indah	Milling N 50 Benjol	100	44000	4400000
166	Sunday, March 20, 2011	UD. Bahtra	Jl. Kupang Jaya Indah	Ulir N 70	61	57500	3507500
167	Sunday, March 20, 2011	UD. Bahtra	Jl. Kupang Jaya Indah	Milling SB 10 Black	144	41000	5904000
168	Sunday, March 20, 2011	UD. Bahtra	Jl. Kupang Jaya Indah	Milling N 120 Black	23	80000	1840000
169	Sunday, March 20, 2011	UD. Bahtra	Jl. Kupang Jaya Indah	Iner Cylinder N 70	27	45000	1215000
170	Sunday, March 20, 2011	UD. Bahtra	Jl. Kupang Jaya Indah	Poley BI x 12 x 1	204	29000	5916000
171	Wednesday, April 06, 2011	UD. Bahtra	Jl. Kupang Jaya Indah	Milling N 50 Black	125	42500	5312500
172	Wednesday, April 06, 2011	UD. Bahtra	Jl. Kupang Jaya Indah	Ulir ARM 1000 Black	13	97500	1267500
173	Wednesday, April 06, 2011	UD. Bahtra	Jl. Kupang Jaya Indah	Milling SB 10 Black	77	41500	3195500
174	Wednesday, April 06, 2011	UD. Bahtra	Jl. Kupang Jaya Indah	Milling N 70 Polish	103	42500	4377500
175	Wednesday, April 06, 2011	UD. Bahtra	Jl. Kupang Jaya Indah	Milling N 120 Polish	24	62000	1488000
176	Wednesday, April 06, 2011	UD. Bahtra	Jl. Kupang Jaya Indah	Milling N 50 Benjol	100	44000	4400000
177	Wednesday, April 06, 2011	UD. Bahtra	Jl. Kupang Jaya Indah	Iner Cylinder N 70	35	45000	1575000
178	Wednesday, April 06, 2011	UD. Bahtra	Jl. Kupang Jaya Indah	Iner Cylinder N 120	10	65000	650000
179	Wednesday, April 06, 2011	UD. Bahtra	Jl. Kupang Jaya Indah	Milling N 70 Black	30	57500	1725000
180	Wednesday, April 06, 2011	UD. Bahtra	Jl. Kupang Jaya Indah	Milling N 120 Black	23	80000	1840000
181	Wednesday, April 06, 2011	UD. Bahtra	Jl. Kupang Jaya Indah	Cepit N 50	225	18500	4162500
182	Wednesday, April 06, 2011	UD. Bahtra	Jl. Kupang Jaya Indah	Cepit N 70	440	21000	9240000
183	Wednesday, April 06, 2011	UD. Bahtra	Jl. Kupang Jaya Indah	Milling SB 10 Black	144	41000	5904000
184	Wednesday, April 06, 2011	UD. Bahtra	Jl. Kupang Jaya Indah	Poley BI x 12 x 1	336	29000	9744000
185	Wednesday, April 06, 2011	UD. Bahtra	Jl. Kupang Jaya Indah	Iner Cylinder N 70	35	45000	1575000
186	Saturday, April 16, 2011	UD. Bahtra	Jl. Kupang Jaya Indah	Milling N 50 Polish	35	35000	1225000
187	Saturday, April 16, 2011	UD. Bahtra	Jl. Kupang Jaya Indah	Milling SB 10 Black	39	41000	1599000
188	Saturday, April 16, 2011	UD. Bahtra	Jl. Kupang Jaya Indah	Milling N 120 Benjol	35	72500	2537500
189	Saturday, April 16, 2011	UD. Bahtra	Jl. Kupang Jaya Indah	Ulir N 50	100	27500	2750000
No Nota	Date	Customer	Customer Address	Product Name	Quantity	Price	Total Price

No Nota	Date	Customer	Customer Address	Product Name	Quantity	Price	Total Price
190	Saturday, April 16, 2011	UD. Bahtra	Jl. Kupang Jaya Indah	Ulir N 70	75	41000	3075000
191	Saturday, April 16, 2011	UD. Bahtra	Jl. Kupang Jaya Indah	Iner Cylinder N 70	18	40000	720000
192	Saturday, April 16, 2011	UD. Bahtra	Jl. Kupang Jaya Indah	Iner Cylinder N 120	2	65000	130000
193	Saturday, April 30, 2011	UD. Bahtra	Jl. Kupang Jaya Indah	Milling SB 10 Black	145	55000	7975000
194	Saturday, April 30, 2011	UD. Bahtra	Jl. Kupang Jaya Indah	iner Cylinder N 70	18	40000	720000
195	Saturday, April 30, 2011	UD. Bahtra	Jl. Kupang Jaya Indah	Ulir N 120 Polish	18	70000	1260000
196	Saturday, April 30, 2011	UD. Bahtra	Jl. Kupang Jaya Indah	Milling N 70 Black	30	57500	1725000
197	Saturday, April 30, 2011	UD. Bahtra	Jl. Kupang Jaya Indah	Milling N 120 Polish	24	62000	1488000
198	Saturday, April 30, 2011	UD. Bahtra	Jl. Kupang Jaya Indah	Cepit N 70	100	22000	2200000
199	Saturday, April 30, 2011	UD. Bahtra	Jl. Kupang Jaya Indah	Poley BI x 12 x 1	377	30500	11498500
200	Saturday, April 30, 2011	UD. Bahtra	Jl. Kupang Jaya Indah	Milling N 50 Black	2	43500	87000
201	Saturday, April 30, 2011	UD. Bahtra	Jl. Kupang Jaya Indah	Ulir N 70	3	43500	130500
202	Thursday, May 12, 2011	UD. Bahtra	Jl. Kupang Jaya Indah	Cepit N 70	220	22000	4840000
203	Thursday, May 12, 2011	UD. Bahtra	Jl. Kupang Jaya Indah	Milling N 50 Polish	156	35000	5460000
204	Thursday, May 12, 2011	UD. Bahtra	Jl. Kupang Jaya Indah	Milling SB 10 Black	129	41500	5353500
205	Thursday, May 12, 2011	UD. Bahtra	Jl. Kupang Jaya Indah	Ulir N 70	30	41000	1230000
206	Thursday, May 12, 2011	UD. Bahtra	Jl. Kupang Jaya Indah	Milling N 50 Black	100	30000	3000000
207	Thursday, May 12, 2011	UD. Bahtra	Jl. Kupang Jaya Indah	Milling N 70 Black	83	52500	4357500
208	Thursday, May 12, 2011	UD. Bahtra	Jl. Kupang Jaya Indah	Ulir N 50	100	27500	2750000
209	Thursday, May 12, 2011	UD. Bahtra	Jl. Kupang Jaya Indah	Cepit N 120	10	25000	250000
210	Saturday, May 28, 2011	UD. Bahtra	Jl. Kupang Jaya Indah	Iner Cylinder N 70	18	40000	720000
211	Saturday, May 28, 2011	UD. Bahtra	Jl. Kupang Jaya Indah	Milling N 120 Polish	50	74000	3700000
212	Saturday, May 28, 2011	UD. Bahtra	Jl. Kupang Jaya Indah	Milling N 70 Polish	138	42500	5865000
213	Saturday, May 28, 2011	UD. Bahtra	Jl. Kupang Jaya Indah	Ulir N 120 Polish	94	71500	6721000
214	Saturday, May 28, 2011	UD. Bahtra	Jl. Kupang Jaya Indah	Milling N 70 Black	83	52500	4357500
215	Saturday, May 28, 2011	UD. Bahtra	Jl. Kupang Jaya Indah	Milling N 120 Black	32	87500	2800000
216	Saturday, May 28, 2011	UD. Bahtra	Jl. Kupang Jaya Indah	Ulir ARM 1000 Black	34	98500	3349000
No Nota	Date	Customer	Customer Address	Product Name	Quantity	Price	Total Price

No Nota	Date	Customer	Customer Address	Product Name	Quantity	Price	Total Price
217	Saturday, May 28, 2011	UD. Bahtra	Jl. Kupang Jaya Indah	Milling N 50 Black	83	42500	3527500
218	Saturday, June 04, 2011	UD. Bahtra	Jl. Kupang Jaya Indah	Milling N 120 Polish	12	80000	960000
219	Saturday, June 04, 2011	UD. Bahtra	Jl. Kupang Jaya Indah	Milling SB 10 Black	53	41000	2173000
220	Saturday, June 04, 2011	UD. Bahtra	Jl. Kupang Jaya Indah	Milling N 70	189	42000	7938000
221	Saturday, June 04, 2011	UD. Bahtra	Jl. Kupang Jaya Indah	Ulir SB 10	281	23000	6463000
222	Saturday, June 04, 2011	UD. Bahtra	Jl. Kupang Jaya Indah	Milling N 50 Polish	95	35000	3325000
223	Saturday, June 04, 2011	UD. Bahtra	Jl. Kupang Jaya Indah	Iner Cylinder N 70	18	40000	720000
224	Saturday, June 04, 2011	UD. Bahtra	Jl. Kupang Jaya Indah	Iner Cylinder N 70	20	42500	850000
225	Saturday, June 04, 2011	UD. Bahtra	Jl. Kupang Jaya Indah	Cepit N 70	255	22000	5610000
226	Saturday, June 04, 2011	UD. Bahtra	Jl. Kupang Jaya Indah	Cepit N 50	90	35000	3150000
227	Tuesday, June 21, 2011	UD. Bahtra	Jl. Kupang Jaya Indah	Ulir SB 10	141	23000	3243000
228	Tuesday, June 21, 2011	UD. Bahtra	Jl. Kupang Jaya Indah	Milling N 50 Black	50	43500	2175000
229	Tuesday, June 21, 2011	UD. Bahtra	Jl. Kupang Jaya Indah	Milling N 70 Black	37	57500	2127500
230	Tuesday, June 21, 2011	UD. Bahtra	Jl. Kupang Jaya Indah	Cepit N 70	255	22000	5610000
231	Tuesday, June 21, 2011	UD. Bahtra	Jl. Kupang Jaya Indah	Ulir N 120 Polish	94	71500	6721000
232	Tuesday, June 21, 2011	UD. Bahtra	Jl. Kupang Jaya Indah	Iner Cylinder N 70	16	47000	752000
233	Tuesday, June 21, 2011	UD. Bahtra	Jl. Kupang Jaya Indah	Poley BI x 12 x 1	134	27500	3685000
234	Tuesday, June 21, 2011	UD. Bahtra	Jl. Kupang Jaya Indah	Cepit N 50	90	35000	3150000
235	Saturday, July 02, 2011	UD. Bahtra	Jl. Kupang Jaya Indah	Cepit N 50	190	19500	3705000
236	Saturday, July 02, 2011	UD. Bahtra	Jl. Kupang Jaya Indah	Cepit N 70	200	220000	44000000
237	Saturday, July 02, 2011	UD. Bahtra	Jl. Kupang Jaya Indah	Cepit N 120	120	25000	3000000
238	Saturday, July 02, 2011	UD. Bahtra	Jl. Kupang Jaya Indah	Milling N 70 Polish	168	43000	7224000
239	Saturday, July 02, 2011	UD. Bahtra	Jl. Kupang Jaya Indah	Milling SB 10 Black	52	42000	2184000
240	Saturday, July 02, 2011	UD. Bahtra	Jl. Kupang Jaya Indah	Ulir N 120 Polish	21	70000	1470000
241	Saturday, July 02, 2011	UD. Bahtra	Jl. Kupang Jaya Indah	Iner Cylinder N 70	15	47000	705000
242	Saturday, July 02, 2011	UD. Bahtra	Jl. Kupang Jaya Indah	Poley BI x 12 x 1	93	27500	2557500
243	Saturday, July 02, 2011	UD. Bahtra	Jl. Kupang Jaya Indah	Milling N 50	58	35000	2030000
No Nota	Date	Customer	Customer Address	Product Name	Quantity	Price	Total Price

No Nota	Date	Customer	Customer Address	Product Name	Quantity	Price	Total Price
244	Friday, July 15, 2011	UD. Bahtra	Jl. Kupang Jaya Indah	Ulir SB 10 Black	44	35000	1540000
245	Friday, July 15, 2011	UD. Bahtra	Jl. Kupang Jaya Indah	Ulir N 50 Polish	129	35500	4579500
246	Friday, July 15, 2011	UD. Bahtra	Jl. Kupang Jaya Indah	Ulir N 120	59	70500	4159500
247	Friday, July 15, 2011	UD. Bahtra	Jl. Kupang Jaya Indah	Milling N 70	160	45000	7200000
248	Friday, July 15, 2011	UD. Bahtra	Jl. Kupang Jaya Indah	Milling SB 10 Black	47	42500	1997500
249	Friday, July 15, 2011	UD. Bahtra	Jl. Kupang Jaya Indah	Milling N 120	50	71500	3575000
250	Friday, July 15, 2011	UD. Bahtra	Jl. Kupang Jaya Indah	Milling N 70 Polish	168	43000	7224000
251	Friday, July 15, 2011	UD. Bahtra	Jl. Kupang Jaya Indah	Cepit N 50	50	19500	975000
252	Friday, July 15, 2011	UD. Bahtra	Jl. Kupang Jaya Indah	Cepit N 70	320	22000	7040000
253	Friday, July 15, 2011	UD. Bahtra	Jl. Kupang Jaya Indah	Cepit N 120	120	25000	3000000
254	Friday, July 15, 2011	UD. Bahtra	Jl. Kupang Jaya Indah	Iner Cylinder N 70	15	47000	705000
255	Wednesday, August 03, 2011	UD. Bahtra	Jl. Kupang Jaya Indah	Cepit N 50	200	19500	3900000
256	Wednesday, August 03, 2011	UD. Bahtra	Jl. Kupang Jaya Indah	Cepit N 70	60	22000	1320000
257	Wednesday, August 03, 2011	UD. Bahtra	Jl. Kupang Jaya Indah	Milling N 70 Black	55	45000	2475000
258	Wednesday, August 03, 2011	UD. Bahtra	Jl. Kupang Jaya Indah	Milling N 120 Polish	75	71500	5362500
259	Wednesday, August 03, 2011	UD. Bahtra	Jl. Kupang Jaya Indah	Ulir N 70	32	44000	1408000
260	Wednesday, August 03, 2011	UD. Bahtra	Jl. Kupang Jaya Indah	Ulir SB 10 Polish	48	35000	1680000
261	Wednesday, August 03, 2011	UD. Bahtra	Jl. Kupang Jaya Indah	Milling N 120	59	82500	4867500
262	Wednesday, August 03, 2011	UD. Bahtra	Jl. Kupang Jaya Indah	Ulir SB 10	80	23000	1840000
263	Wednesday, August 03, 2011	UD. Bahtra	Jl. Kupang Jaya Indah	Ulir N 70 Black	30	38000	1140000
264	Wednesday, August 03, 2011	UD. Bahtra	Jl. Kupang Jaya Indah	Poley BI x 12 x 1	185	27000	4995000
265	Wednesday, September 07, 2011	UD. Bahtra	Jl. Kupang Jaya Indah	Milling N 70 YMKW	180	45000	8100000
266	Wednesday, September 07, 2011	UD. Bahtra	Jl. Kupang Jaya Indah	Milling SB 10 Black	119	42500	5057500
267	Wednesday, September 07, 2011	UD. Bahtra	Jl. Kupang Jaya Indah	Milling N 120 YMKW	30	62000	1860000
268	Wednesday, September 07, 2011	UD. Bahtra	Jl. Kupang Jaya Indah	Milling N 50	93	42500	3952500
269	Wednesday, September 07, 2011	UD. Bahtra	Jl. Kupang Jaya Indah	Ulir ARM 1000 Black	34	98500	3349000
270	Wednesday, September 07, 2011	UD. Bahtra	Jl. Kupang Jaya Indah	Milling N 120 Black	7	60000	420000
No Nota	Date	Customer	Customer Address	Product Name	Quantity	Price	Total Price

No Nota	Date	Customer	Customer Address	Product Name	Quantity	Price	Total Price
271	Wednesday, September 07, 2011	UD. Bahtra	Jl. Kupang Jaya Indah	Milling N 120 Polish	5	71500	357500
272	Wednesday, September 07, 2011	UD. Bahtra	Jl. Kupang Jaya Indah	Ulir N 120	54	65000	3510000
273	Wednesday, September 07, 2011	UD. Bahtra	Jl. Kupang Jaya Indah	Ulir N 50	97	35000	3395000
274	Wednesday, September 07, 2011	UD. Bahtra	Jl. Kupang Jaya Indah	Ulir SB 10 Polish	20	35000	700000
275	Wednesday, September 07, 2011	UD. Bahtra	Jl. Kupang Jaya Indah	Cepit N 50	100	19500	1950000
276	Wednesday, September 07, 2011	UD. Bahtra	Jl. Kupang Jaya Indah	Cepit N 70	180	22000	3960000
277	Friday, September 16, 2011	UD. Bahtra	Jl. Kupang Jaya Indah	Milling N 120 YMKW	45	63000	2835000
278	Friday, September 16, 2011	UD. Bahtra	Jl. Kupang Jaya Indah	Milling SB 10 Black	62	41000	2542000
279	Friday, September 16, 2011	UD. Bahtra	Jl. Kupang Jaya Indah	Milling N 70 Polish	120	42000	5040000
280	Friday, September 16, 2011	UD. Bahtra	Jl. Kupang Jaya Indah	Cepit N 120	135	24500	3307500
281	Friday, September 16, 2011	UD. Bahtra	Jl. Kupang Jaya Indah	Cepit N 70	160	22000	3520000
282	Saturday, October 01, 2011	UD. Bahtra	Jl. Kupang Jaya Indah	Ulir N 50	56	36000	2016000
283	Saturday, October 01, 2011	UD. Bahtra	Jl. Kupang Jaya Indah	Ulir N 70	40	43000	1720000
284	Saturday, October 01, 2011	UD. Bahtra	Jl. Kupang Jaya Indah	Milling N 50 Polish	126	36000	4536000
285	Saturday, October 01, 2011	UD. Bahtra	Jl. Kupang Jaya Indah	Milling N 50 Benjol	28	43500	1218000
286	Saturday, October 01, 2011	UD. Bahtra	Jl. Kupang Jaya Indah	Milling N 70 Benjol	32	61000	1952000
287	Saturday, October 01, 2011	UD. Bahtra	Jl. Kupang Jaya Indah	Milling N 70	48	39000	1872000
288	Saturday, October 01, 2011	UD. Bahtra	Jl. Kupang Jaya Indah	Cepit N 120	135	24500	3307500
289	Saturday, October 01, 2011	UD. Bahtra	Jl. Kupang Jaya Indah	Cepit N 70	160	22000	3520000
290	Saturday, October 01, 2011	UD. Bahtra	Jl. Kupang Jaya Indah	Ulir N 50 Polish	128	36000	4608000
291	Saturday, October 15, 2011	UD. Bahtra	Jl. Kupang Jaya Indah	Cepit N 50	93	19500	1813500
292	Saturday, October 15, 2011	UD. Bahtra	Jl. Kupang Jaya Indah	Ulir N 50 Polish	128	36000	4608000
293	Saturday, October 15, 2011	UD. Bahtra	Jl. Kupang Jaya Indah	Milling N 50	67	37000	2479000
294	Saturday, October 15, 2011	UD. Bahtra	Jl. Kupang Jaya Indah	Milling N 50 Black	37	42000	1554000
295	Saturday, October 15, 2011	UD. Bahtra	Jl. Kupang Jaya Indah	Milling N 50 YMKW	49	36000	1764000
296	Saturday, October 15, 2011	UD. Bahtra	Jl. Kupang Jaya Indah	Milling N 70 Polish	159	42000	6678000
297	Saturday, October 15, 2011	UD. Bahtra	Jl. Kupang Jaya Indah	Milling N 70	79	39000	3081000
No Nota	Date	Customer	Customer Address	Product Name	Quantity	Price	Total Price

No Nota	Date	Customer	Customer Address	Product Name	Quantity	Price	Total Price
298	Saturday, October 15, 2011	UD. Bahtra	Jl. Kupang Jaya Indah	Milling N 70 Black	34	60000	2040000
299	Saturday, October 15, 2011	UD. Bahtra	Jl. Kupang Jaya Indah	Ulir ARM 1000 Black	34	98500	3349000
300	Saturday, October 15, 2011	UD. Bahtra	Jl. Kupang Jaya Indah	Poley BI x 12 x 1	185	27000	4995000
301	Saturday, October 15, 2011	UD. Bahtra	Jl. Kupang Jaya Indah	Iner Cylinder N 70	9	47000	423000
302	Saturday, October 15, 2011	UD. Bahtra	Jl. Kupang Jaya Indah	Milling SB 10 Black	103	41000	4223000
303	Saturday, October 15, 2011	UD. Bahtra	Jl. Kupang Jaya Indah	Milling N 120 YMKW	45	63000	2835000
304	Saturday, October 15, 2011	UD. Bahtra	Jl. Kupang Jaya Indah	Ulir SB 10 Polish	20	35000	700000
305	Saturday, October 15, 2011	UD. Bahtra	Jl. Kupang Jaya Indah	Milling N 70 YMKW	180	45000	8100000
306	Saturday, October 15, 2011	UD. Bahtra	Jl. Kupang Jaya Indah	Ulir SB 10	80	23000	1840000
No Nota	Date	Customer	Customer Address	Product Name	Quantity	Price	Total Price