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SALES MOBILE APPLICATION DESIGN IN HANDPHONE STORE

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ABSTRACT
In the current era of globalization, technology is advancing rapidly, and computers are one of the technologies which are one of the tools used to make it easier to find problems, of course, it is also supported by hardware, software and brainware. Mobile stores require an information system that supports and provides satisfactory service to buyers. For this reason, the author makes this final project regarding the program for selling cellphones at the cellphone store which currently does not use a computerized system. The system at the cellphone store usually still uses a manual system. Starting from recording sales notes to bookkeeping sales reports that are still recorded in the books. This can allow for errors in recording, ineffectiveness and inefficient calculations in large numbers. And can cause inaccurate reports made. The use of the program is one solution to solving sales problems in the cellphone store. Therefore, with the use of a sales program, it is possible to further assist sales activities in the cellphone store.

Keywords: *Program Design, Mobile Sales, Transaction Reports.*

1. Introduction

Background of the problem

Currently the development of technology and information is very fast and advanced, one of which is computer technology (Hamzah et al., 2021; Orazbekovna et al., 2022). Computers are not foreign to us, almost all fields require a computer as a tool. Because computers were created to help humans in solving complex problems or problems. The computer also has a function as a data storage area that is supported by guaranteed data security. So by using a computerized system work can produce reports on time. Because if the company still uses a manual system, it will often occur recording and searching for data that is less efficient (Setyani & Pasaribu, 2021; Tobing et al., 2022; Li et al., 2020).

The purpose of this research to design a data processing program into information, using a computer through a programming language at a mobile phone shop in the field of sales. In carrying out their sales activities, mobile phone shops usually still use manual data processing systems. Although sales activities can run, manual data processing is less effective and efficient. As we know, there are still problems in selling cellphones (Tezer & Gülyaz, 2022; Seitakhmetova et al., 2022). These problems include:

1. Recording of Mobile Sales Notes that are still using notes and written by the cashier.
2. Calculation of cellphones sold still uses a calculator, with the current system it can cause an ineffective queue for buyers.
3. Daily sales can be estimated at more than 50 cellphones, with calculations that still use this calculator it can cause miscalculations in every transaction and bookkeeping report.
4. Recording of daily and monthly sales reports that are still written by the cashier.

To anticipate the increase in data that is still using conventional techniques, the author tries to provide an alternative solution to the problem, namely to switch to computerization, especially through programming languages in dealing with sales system problems in cellphone stores (Latifi & Kasumi, 2022; Qarkaxhija et al., 2022; Rahmadoni et al., 2022; Nuryadi et al., 2022).

Identification of problems

A good programming technique has the following characteristics, including the following:

1. Solve problem solving that is appropriate, correct, simple, standard and effective.
2. Having the right logic and program structure and easy to reach.
3. Low and affordable testing, maintenance and development costs.
4. Have good documentation.

To compose a computer program there are several steps that must be done by a programmer, including:

1. Analyze the problem.
2. Define the problem.
3. flow chart.
4. to test and check program errors.
5. Create a documentation program.

In designing a program we need a programming language that aims as a means of bridging between the user and the computer. Programming language is an activity of organizing and making a list of program codes so that they are easy to test and manage.

Programming language is a language that can be translated into machine language of a computer. Some Programming Languages for example: PASCAL Language, C Language, BASIC Language, Java Language and so on.

A programmer must have a logical mindset, thoroughness and thoroughness, mastery of a good programming language. This characteristic is one of the absolute requirements that a programmer must have before planning or starting a program.

Formulation of the problem

In solving a problem using a computer program, the author uses the following steps:

1. Analyze and understand the existing problems, then develop logical process sequences to solve the problem in the form of an algorithm.
2. Determine what forms are needed, namely the input in the program to be made, as well as what is produced, namely the output of the program to be made.
3. Make codes from the algorithms that have been made and translate them into statements that are in accordance with the programming language that the author uses.
4. To test the program from the logic process that has been made, whether the program is correct and free from errors, or still needs to be repaired.

A programmer (programmer) must have accuracy, a logical mindset, mastery of programming languages and good programming techniques so that there are no errors in program making. The errors from the program include the following:

1. Language Errors, Syntax Errors, and Grammatical Errors. That is an error in writing program code that does not match what is required.
2. Run-Time-Errors occur when the program is running which causes the program to stop prematurely.
3. Logic Errors (Logic Errors), where errors occur from the logic of the program made. This error is found if the program is run and the result of the program is incorrect.

The computer programming process is not just writing a sequence of instructions that the computer must do, but aims to solve a problem and make work or other things easy for the end user. Where the objectives of this program are:

1. Make solutions to problems that arise.
2. Improve the quality of work performance.
3. Assist in the decision-making process.
4. Accelerate the work or other desired by the user (user).

In its application, the program is one form of various types of applications that are used in the field of business and other fields such as science, to be able to produce a form of report or the desired goal. Therefore, an absolute program exists or is used within a company.

Purpose and objectives

The purpose of writing this research is as follows:

1. Reducing the mistakes that are usually done manually.

2. Provide convenience in the process of calculating sales transactions.
3. To help facilitate the creation of transaction reports.
4. To avoid transaction report data.
5. To assist and facilitate customers in the process of selling mobile phone transactions.
6. Simplify the data processing process.

Supporting equipment is a tool used to describe the logical form of a model of a system by using symbols, symbols and diagrams that show the exact meaning and function. The function of supporting equipment or commonly called system tools is to explain to the user how the function of the information system can work with a form of logic model (logical model) and physical model (physical model). In making a system model, the author needs tools to design a system structurally and actually, including the following:

Normalization

According to Soleh (2007a:14) "Normalization is the process of grouping data elements into tables that show entities and their relationships".According to Nugroho (2009:43) "The main function of normalization (normalization) is to create a well-structured relationship that is free from anomalies (inconsistencies that occur during deletion), updating (updating), and adding data (insert). "

There are several kinds of keys (key functions) used in normalization, including:

a. Primary Key
   An attribute or a minimal set of attributes that not only uniquely identifies a specific occurrence, but can also represent each occurrence of an entity. Each candidate key has the opportunity to become a primary key, but it is better to choose only one that can fully represent the existing entity.
b. Guest Key (Foreign key)
   An attribute or a set of attributes that completes a relationship that points to its parent. The guest key is assigned to the child entity and is the same as the primary key of the harmonized parent. The relationship between parent and child entities is a one-to-many relationship.
c. Candidate Key
   An attribute or a minimal set of attributes that uniquely identifies a specific occurrence of an entity. A minimal set of attributes implies that you cannot remove multiple attributes in the set without destroying unique ownership.

Flowchart (Flowchart)

According to (Soleh, 2007) "Flowcharts are symbols used to describe the sequence of processes in a computer program or a tool used to create algorithms". According to Sjukani (2011c:473) Flowchart is a flow of thought. There are many ways to complete a train of thought, both written and verbal. In writing, it can be stated in the form of a written sentence, or in the form of a table, or in the form of a chart or picture. Specifically to express the flow of thought in the form of images, America made a standard which he called ANSI (American National Standard Institute). One that is standardized in ANSI is a Flowchart image. The flow of thought can be expressed by the image of an arrow that points to the flow of an activity.

When drawing a flow chart, programmers can follow the following guidelines:

a. Flowchart programs should be top to bottom and start from the left of a page.
b. The activities in the flow chart must be clearly indicated.
c. It must be indicated where the activity will start and where it will end.
d. Each activity in the flow chart should use a word that represents a job (eg: “calculate” salary).
e. Each activity in the flowchart must be in the proper order.
f. Activities that are cut off and will be connected elsewhere must be clearly indicated using a connecting symbol.
g. Use standard flow chart symbols.

Coding Structure

Several possible arrangements of digits (numbers), letters and special characters can be designed into code form. In designing a code must pay attention to several things, namely as follows:

a. Easy to remember
   To make the code easy to remember, it can be done by connecting the code with the object that the code represents.
b. Must be Unique
   The code must have the uniqueness of each item it represents. Unique means that no codes are twins.
c. Must be Flexible
   The code must be flexible so that changes or additions of new items can still be represented by the code.
d. Must be Efficient
   The code must be as short or as short as possible, in addition to being easy to remember, it must also be efficient when stored on a computer.
e. Must be standardized
   Code must be standardized for all levels, non-standard code leads to misunderstanding and the possibility of error for those who use the code.
f. Must Be Consistent
   The code must be consistent with the code that has been used.
g. Spaces to Avoid
   Spaces in the code should be avoided, because it can cause errors in using it.
h. Avoid Similar Characters
   Characters that are nearly identical or similar in form and pronunciation should not be used in the code.
i. Code Length Must Be Same
   Similar codes must have the same code length.

HIPO (Hierarchy Plus Input Process Output)

According to Jogiyanto (2003) "HIPO is a program documentation tool developed and supported by IBM". But now HIPO has also been used as a tool for designing and documenting the system development cycle.

In the discussion of program specifications, it is explained how the program works to make it easier to understand. In program design, we are required to build a structured program, because a structured program is the hallmark of a good program. HIPO diagram is a program documentation tool, with HIPO we can see the structure of a program. HIPO has been specifically designed and developed to describe a multilevel structure for understanding the functions and modules of a system. HIPO is also designed to describe the modules that programmers must complete. HIPO is not used to show program instructions to be used, besides that HIPO provides a complete explanation of the input to be used, the process to be carried out and the desired output (Davis, 2019).

2. Research Methods

To analyze and design the system, the authors conducted research with the following methods:

Data collection technique

This method is a method that is carried out by conducting research with the following methods:

1. Direct Observation Method to the cellphone shop (observation).

Observation is a method of collecting data through direct observation of the object under study. In this case the author collects data related to the final project material through observations inseveral existing cellphone sales places which the author uses as material for writing the finalproject.

2. Methods of Library Research (Library Research).

Literature study is a way of obtaining data or information sourced from data collection, studying reading books, notes and other relevant lecture materials. In this case, the author collects data related to the final project material through reading manuals that have to do with writing the final project.

System Development Model

A program will not succeed without someone controlling it. In this case it depends on the user (brainware) so that a program has value. With brainware, the computer will be able to read machine language commands, then translated by humans to produce useful information. The need for an application program that is easy to use and has an attractive and quite good graphic display is felt to be an important thing considering the guidance from various other fields. The ease of use of the application program will be very helpful in solving work problems and in accordance with what has been planned (Kasauli et al., 2017; Kasauli et al., 2021). So a good application program will produce good performance, optimal work results and provide satisfaction for all parties.

1. Hardware

   The definition used in hardware (hardware) is to describe all the electronic and mechanical elements of computers and equipment used by programmers. Hardware is all components and equipment that make up a system and other equipment that allows computers to carry out tasks or processes. Broadly speaking, hardware is a computer that can be divided into two parts, namely:

   a. Central Processing Unit

      Central Processing Unit (CPU) is the brain of a computer or data processing media, the CPU is divided into three parts, namely:

      1) Memory, which is a place or container used to store program data to be processed by the CPU.
      2) ROM (Random Only Memory), which is memory whose contents have been created and determined by the factory and cannot be changed or deleted by the computer user (user).
      3) RAM (Random Access Memory), namely memory that can be read or written.

   b. Input and Output Devices

      That is an input and output from the computer. The hardware needed by the author so that the application can run are as follows:

      1) Processor: Pentium IV
      2) RAM: 300 GB (2.74 GB usable)
      3) Hard Disk : 40 Giga Bytes
      4) CD-RW : CD Room
      5) Keyboard : Standard Keyboard
      6) Monitor: 17 inches
      7) Printers: Inkjet Printers

2. Software

   Software is a series or arrangement of instructions that must be in the correct order. Software is often referred to as a program. The function of the software is to prepare application programs so that the performance of all equipment on the computer is controlled.

   a. Operating System

      An operating system device is a set of software tools designed to facilitate the use of computers in running programs. In this final project the author uses the Microsoft Windows Seven information system.

   b. Programming Language

      The application program used for designing this program is Microsoft Visual Basic 6.0, Microsoft Office Access 2007.

3. Computer System Configuration

Computer system configuration is a form of model that describes or interprets the components of a computer in a simple way. A computer configuration can be described as follows

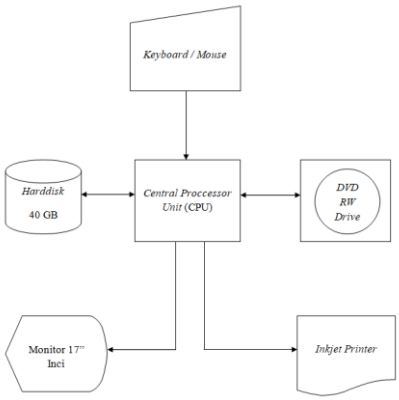

Fig 1. Computer Configuration

With the computer, the company's performance and operations can be improved. For example, in a sales system where the recording system is manually (the writing is still using notes), processing and calculating large-scale data is often difficult for users and this manual system can also cause long queues for buyers, as well as reporting sales results which are often late. and not accurate. For this reason, a computer program is needed to be able to calculate sales transactions and process sales data, so that precise, accurate, efficient, timely information can be generated and do not experience duplicate data.

3. Results and Discussions

The design of this program consists of several forms of input and several forms of output which then the elements of each form of input and output are explained how these program files are normalized, detailed or specified, and how the flowchart will be made later to solve the problems that arise. there is in the processing of sales data at the handphone shop.

Software Requirements Analysis

1. Input Form Design

The input form specification consists of the input documents required to enter the data before the data is processed into the required information. The specifications for the input form are as follows:

a. Mobile Data
Document Name : Mobile Data
Function: To find out Mobile data
Source: Supplier
Purpose: Admin
Frequency: Every time there is new cellphone data
Media : Paper
Quantity : 1 Sheet
Format : Appendix A-1

b. User Data
Document Name : User Data
Function: To find out user data
Source: new admin and cashier
Purpose: Admin
Frequency: Every time there is new admin and cashier data
Media : Paper
Quantity : 1 Sheet
Format : Appendix A-2

2. Output Form Design

Output form specifications are details about the output document which is the result of a running program or system. The output form of the application of data processing sales of goods is as follows:

a. Mobile Sales Note
Document Name : Mobile Phone Sales Note
Function: As proof of sales transactions
Source: Cashier
Destination: Buyer
Frequency: Every time a sales transaction occurs
Media : Paper
Quantity : 1 Sheet
Form: Attachment B-1

b. Mobile data report
Document Name : Mobile Data Report
Function: To find out Mobile data
Source: Admin
Purpose: Leader
Frequency: Once a month
Media : Paper
Quantity : 1 Sheet
Format : Attachment B-2

c. User data report
Document Name : User Data Report
Function: To find out cashier data
Source: Admin
Purpose: Leader
Media : Paper
Quantity : 1 Sheet
Format : Attachment B-3

d. Sales report
Document Name : Sales Report
Function: To find out sales transactions for several periods
Source: Admin
Purpose: Leader
Frequency: Daily or monthly
Media : Paper
Quantity : 1 Sheet
Form: Attachment B-4

3. File Normalization

The normalization form of the design that the author made is as follows:
a. Normalized Form is not normal (Unnormalized Form).

Kd_user
Nm_user
No_nota
tanggal
kd_user
subtotal
kd_user
nm_user
kd_hp
kd_merk
kd_jenis
hrg_beli
hrg_jual
stok
acs
fitur
kd_user
nm_user
kd_user
nm_user
alamat
jenis_kelamin
telepon
status

b. First Normalized Form (1 NF/First Normal Form)

kd_jenis *
jenis_hp
kd_merk *
merk_hp
tipe_hp
kd_hp *
hrg_beli
hrg_jual
stok
acs
fitur
kd_user *
nm_user
alamat
jenis_kelamin
telepon
status
password
no_nota *
tanggal
qty
total
subtotal

Information :
* = Candidatekey

c. Second Normal Form (2 NF / Second Normal Form)

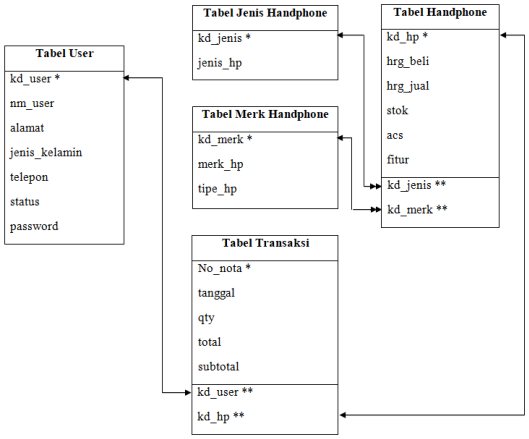

Fig 2. 2NF

Information :

* = *Primarykey* ⟷ = *One to one*

** = *Foreignkey* ⟷ = *One to many*

d. Third Normal Form (3 NF / Third Normal Form)

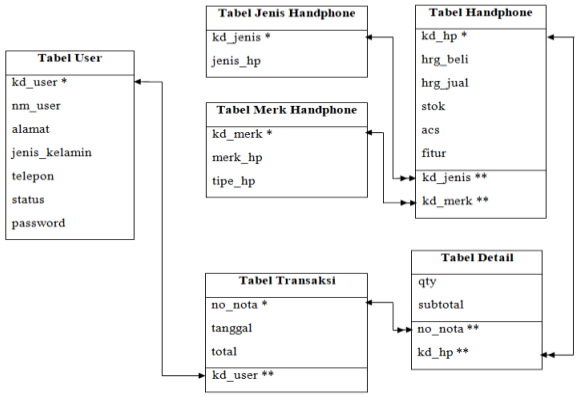

Fig 3. 3NF

Information:

* = *Primarykey* ⟷ = *One to one*

** = *Foreignkey* ⟷ = *One to many*

4. File Specification

The file specifications used in the design of the handphone sales program at the cellphone store, use one database, namelyjual_handphone.mdb, and the files used are as follows

a. Mobile Phone Type File Specification

Database Name : sales_handphone.mdb
Table Name: type hp
File Type : Master File
Organization: Index Sequential
File Access : Random
Media File : Harddisk
Record Length : 23 Characters
Field Key : kd_type
Software : Microsoft Visual Basic 6.0

Tabel 1- Mobile Phone Type File Specification

No	Elemen Data	Nama Field	Tipe	Panjang	Keterangan
1	Kode Jenis	kd_jenis	Text	3	*Primarykey*
2	Jenis Handphone	jenis_hp	Text	20	

b. Mobile Brand File Specifications

Database Name : sales_handphone.mdb
Table Name: brand
File Type : Master File
Organization: Index Sequential
File Access : Random
Media File : Harddisk
Record Length : 87 Characters
Field Key : kd_brand
Software : Microsoft Visual Basic 6.0

Tabel 2 - Mobile Brand File Specifications

No	Elemen Data	Nama Field	Tipe	Panjang	Keterangan
1	Kode Merk	kd_merk	Text	7	*Primarykey*
2	Merk Handphone	merk_hp	Text	30	
3	Tipe Handphone	tipe_hp	Text	50	

3. Program Flowchart (Flowchart)

The Flowchart design that the author made is as follows:

a. Login Menu Flowchart

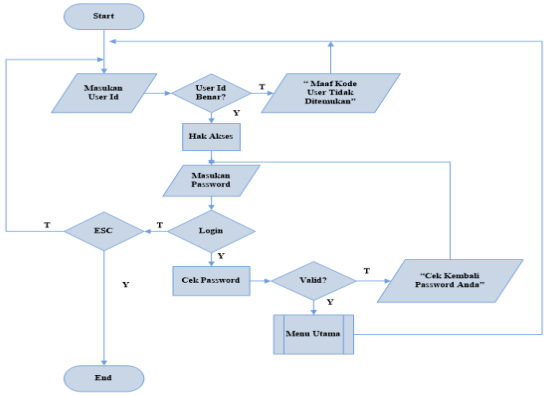

Fig. 4. Login Menu Flowchart

b. Main Menu Flowchart

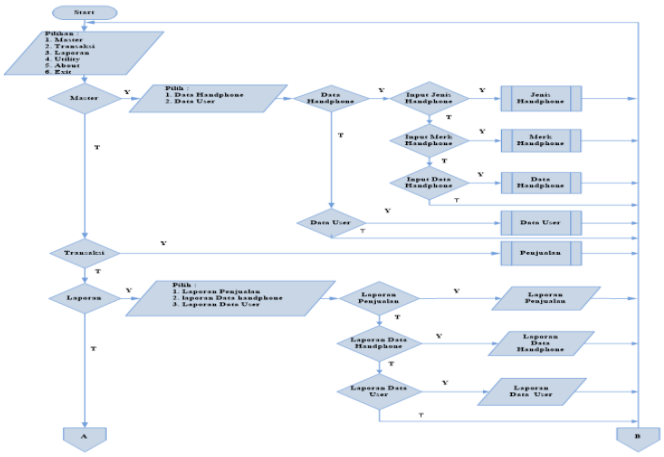

Fig. 5. Main Menu Flowchart

4. **User Interface**

Some of the proposed system user interface designs in the application program

a. Menu Login

Fig. 6. Menu Login

b. application main menu

Fig. 7. Main Menu

c. Phone Type Menu

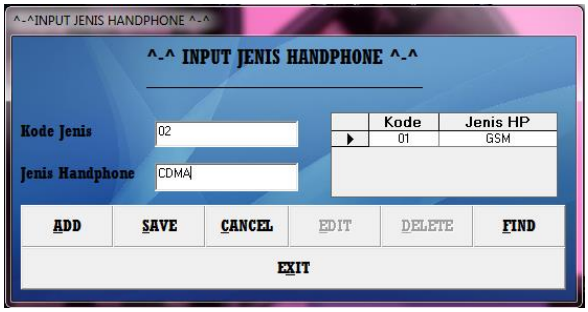

Fig. 8. Phone Type Menu

d. Mobile Brand Menu

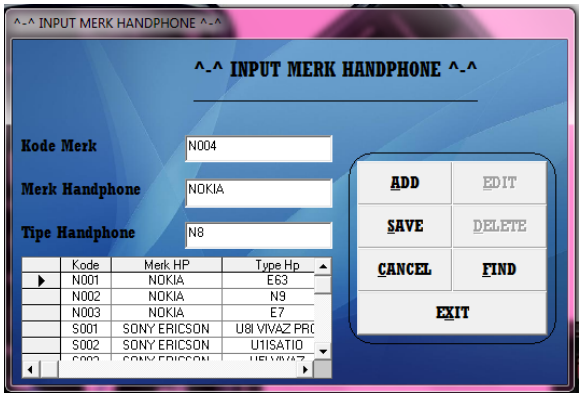

Fig. 9. Mobile Brand Menu

e. Mobile Data Menu

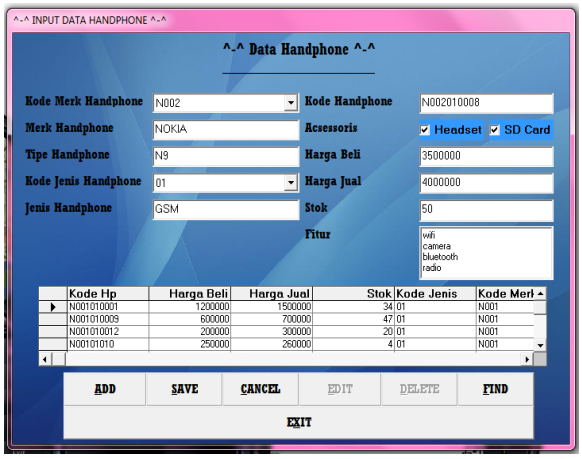

Fig. 10. Mobile Data Menu

f. User Data Menu

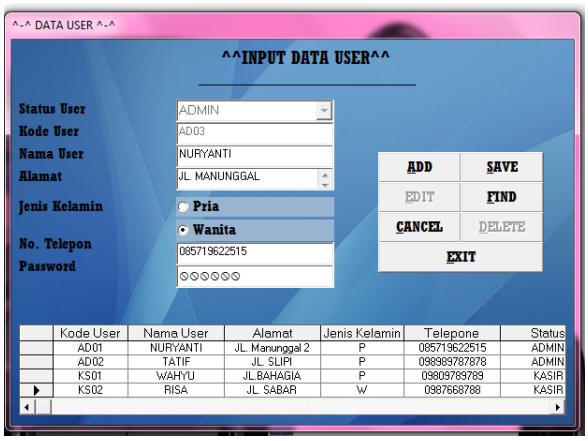

Fig 11. User Data Menu

5. HIPO form specification (Hierarchy plus Input-Procces-Output) The HIPO design that the author made is as follows:

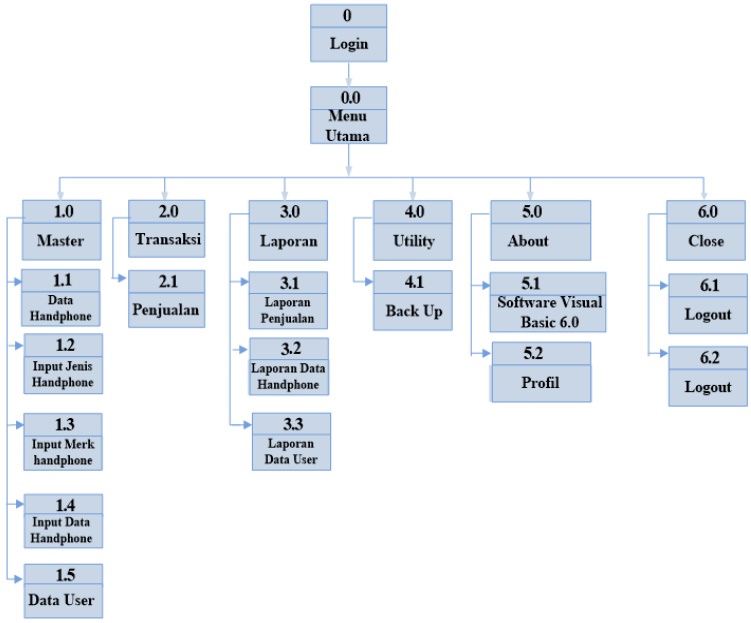

Fig. 12. Hierarchy plus Input-Procces-Output

5. Conclusion

After discussing the previous chapters, the author can draw the following conclusions: The design of this program is an alternative to reduce the problems that have occurred so far in data processing at the cellphone shop, including recording cellphone sales notes that are still written in notes, to sales calculations and sales reports that still use a calculator. With the design of this program, the sales system at the mobile phone shop can be done more quickly and accurately. Data processing can also be done more neatly, structured, safe and avoid things that can harm. In using a computer, accuracy and discipline are needed from the user, especially in terms of data storage that is truly in accordance with existing provisions, so it can be said that if the input data is correct, the output will automatically be generated according to with what to expect. For this reason, it is necessary to hold training for employees who are directly involved in data processing. In making the program, it is necessary to have a complete program of facilities to know the work of data processing and provide the desired information, as well as users (users) that the program can use properly. With the new system, errors or deficiencies in the system in the handphone shop can be reduced and overcome.

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