

Integrated Information System at Travel Samarinda Based on Macro Microsoft Office Excel

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Abstract—This study aims to find out how to design and create an integrated information system application using macro Microsoft office excel and supported by visual basic language. The data collection technique in this study using the method of observation and literature study. The result of this study is the application of an integrated information system that is useful for data processing on this research object to present information or report better, quickly, on time, relevant, and easy to access. The program can be developed in the future, considering that the facilities and capabilities of this program still need to be improved.

Keywords—*Integrated Information System; Macro; Visual Basic Language;*

I. INTRODUCTION

Natural resources are everything that comes from nature and can be used to meet the needs of human life. Natural resources include biotic components (such as plants, animals, and micro-organisms) and abiotic components (such as natural gas, water, soil, petroleum, and various metals). Technological innovation, the progress of civilization, the human population, and the industrial revolution are facts that

bring humans to the era of exploitation of natural resources so that their supplies are reduced.

Information technology is needed by a travel business so that its business activities can run smoothly, especially for a business whose activity processes are still mostly manual. Data management using computer technology is very helpful. The information generated is also better when compared to the information presented manually.

Travel Samarinda is a business that is the object of research here. It is a travel business engaged in the field of travel that provides car tickets and flight tickets. In carrying out its business activities, Travel Samarinda still processes transactions manually.

This study aims to find out how to design and create an integrated information system application using macro Microsoft office excel and supported by visual basic language. It is hoped that the application of this integrated information system can be easily used by Travel Samarinda so that the information in the form of the required reports can be presented better and more well organized.

II. LITERATURE REVIEW

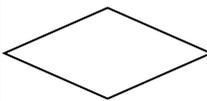
The system is a collection or group of elements or components that are interconnected or interact with each other and depend on each other to achieve specific goals ([1], [2]). Information is a statement that describes an event or an object, or a concept in such a way as to help us to distinguish it from others [8]. Information is data that has been analyzed into a meaningful form to the recipient and useful in making current or future decisions.

Technically, an information system can be defined as a set of interrelated components that collect or obtain, process, store, analyze, distribute and disseminate information to support decision making and monitoring in an organization ([5], [8]). Information systems can also help managers and employees analyze problems, describe complex issues, and create new products.

Macros are specific code or scripts that use the programming language from Visual Basic. The greater VBA language understanding, the more sophisticated procedures or commands can facilitate work with Microsoft Excel. Macro is a series of functions and program commands stored in the Visual Basic menu. Macro language of Microsoft office excel (VBA) provides facilities for users to compile more complex application programs such as compiling computer programs using programming languages [7].

Entity Relationship Diagram (ERD) is a data modeling technique presented with images of entities and relationships between entities in an information system. ERD is included in conceptual data modeling. The symbols in the ERD component are present in Table I.

TABLE I. SYMBOLS IN ERD COMPONENTS

| No. | Symbol | Description |
|-----|---|--|
| 1. |  | Entity. A collection of uniquely identifiable objects |
| 2. |  | Relationship. A relationship that occurs between entities with other entities. The types of relationships in question include: one to one, one to many, and many to many |
| 3. |  | Attributes. The characteristics of the entity or relationship which is a detailed description of the entity |
| 4. |  | The relationship between the entity with its attributes and the entity set with its relationship set |

III. RESEARCH METHOD

The object of this study that will be tested is Travel Samarinda which sells various services and requires an adequate integrated information system application to facilitate data management and presentation of transaction reports. The authors will research to build an integrated information system that raises issues related to booking, payment, and delivery system problems based on Macro Microsoft Excel as a means of data management and presentation of adequate information.

The approach method used in this study is presented in Figure 1

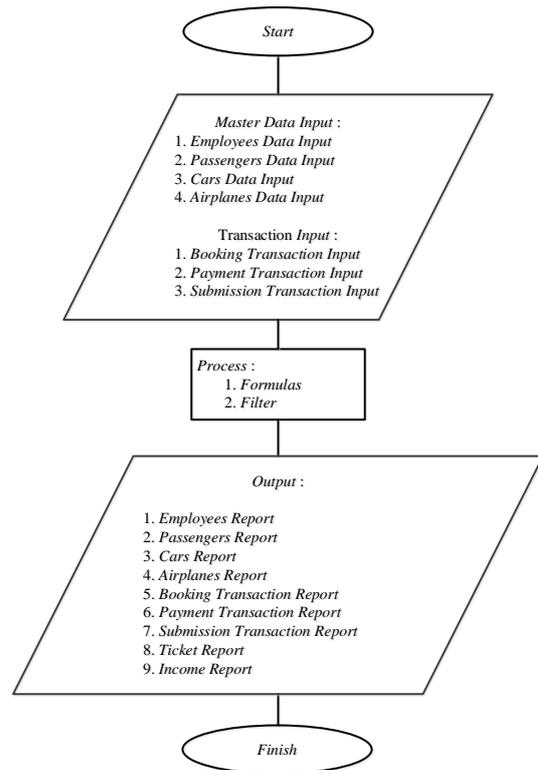


Fig. 1. Program Method Approach

The explanation of the program approach method is as follows:

1) *Start*, used to run the Macro Microsoft Office Excel application program for the Integrated Information System on Travel Samarinda.

2) *Master data input*, is the master table consisting of employee data input, passenger data input, car data input, and airline data input. Input transactions which are part of the business process, consist of booking transaction input, payment transaction input, and submission transaction input.

3) *Process*, is the steps taken to enter the formulas and filters that have been designed, consisting of sum,

vlookup, and hlookup to get the desired output. The program design is based on the business processes that have been designed, the mechanisms and procedures include:

- a) *Sheet-sheet design*: designing any sheets that will later be made based on the data obtained.
- b) *The design of the tables on the sheet*: to design any tables that are needed in the sheets.
- c) *Userform design*: designing the display form that will be used for each table, which later in the form will be filled in by formulas containing commands with Visual Basic language to fill in the tables that have been created on each sheet, so that it has automatic use in storing data into tables.
- d) *Formula design*: designing any formulas that will be calculated by the computer in the tables that have been designed.
- e) *Menu design*: designing various kinds of buttons to execute commands executed by the user.

4) *Output*, is the desired result after the input and process have been completed. At the same time, the desired results are employee report, passenger report, car report, airline report, booking transaction report, payment transaction report, delivery transaction report, ticket report, income report.

5) *Finish*, is the end or completion of the design of the Macro Microsoft Office Excel application program for the Samarinda Travel Integrated Information System.

IV. RESEARCH RESULT

The business process at Travel Samarinda explains the events that apply to Travel Samarinda. Starting from the main data input to the transaction, the authors make a design consisting of two stages. The first stage is to design a Data Flow Diagram Level 0 to level 1. The second stage is to design an Entity Relationship Diagram that describes the flow of data into and out of the Samarinda Travel Integrated Information System with several interrelated entities.

4.1 Entity Relationship Diagram

The entity Relationship Diagram (ERD) is an entity object that can be distinguished in the real world. While the relationship is a relationship that occurs between one element or more entities. Relationship describes the relationship between master tables and transactions. The master table in the design of the Travel Samarinda integrated information system consists of an employee table, a passenger table, an airline table, and a car table. While the transaction table consists of a table of booking, payment, and ticket submission transactions. The ERD design display can be seen in Figure 2.

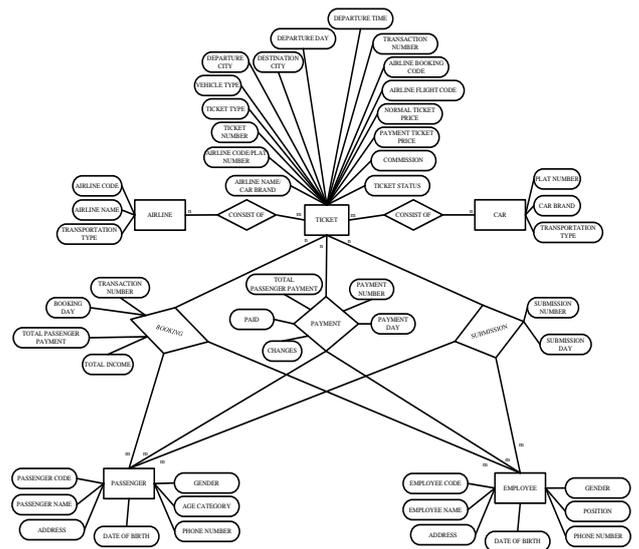


Fig. 2. Entity Relationship Diagram (ERD)

4.2 Sheet Design Stage

The sheet design stage describes the program's stages, starting from laying, naming the sheet (worksheet), and determining the table data used. The author uses a sheet as a data storage area and a place to print data reports in making the program.

TRAVEL SAMARINDA
 Jl. MT Hariyono
 No. Telp. 0811-5741-333

INVOICE

Nomor Bayar : 8

| Info Booking | | Tanggal Booking | | Status | | | | | | | | | | | |
|--------------------------|---------|--------------------|------------------|-----------------|-------|-----------|-------------|-----------------------|---------------------|--------------|----------------|----------|---------------|---------------|------|
| Nomor Transaksi | | 19/07/2021 | | TICKETED | | | | | | | | | | | |
| Detail Penumpang | | | | | | | | | | | | | | | |
| Kode Penumpang | Nama | Jenis Kelamin | Anak-anak/Dewasa | | | | | | | | | | | | |
| AA | Zakaria | Pria | Anak-anak | | | | | | | | | | | | |
| Detail Flight | | | | | | | | | | | | | | | |
| No. | Jenis | Kode Maskapai/Utut | No. Plat | Meat | Jenis | Kota Asal | Kota Tujuan | Tanggal Keberangkatan | Waktu Keberangkatan | Kode Booking | Kode Penumpang | Passport | Relais | Berapa Bayar | Plat |
| 1 | AA | GA | AA | BB | BB | BB | BB | 19/07/2021 | 17:00 | AA | AA | AA | AA | Rp 150.000,00 | |
| 2 | AA | GA | AA | BB | BB | BB | BB | 19/07/2021 | 17:00 | AA | AA | AA | AA | Rp 150.000,00 | |
| Detail Pembayaran | | | | | | | | | | | | | | | |
| Jumlah Seluruh Biaya | | | | | | | | | | | | | Rp 150.000,00 | | |
| Bayar | | | | | | | | | | | | | Rp 150.000,00 | | |
| Kembalian | | | | | | | | | | | | | Rp 0,00 | | |

Samarinda, 28/07/2021
Ahmad Moerdani

Fig. 3. Invoice Print Sheet

4.3 Userform Design

User-form is one of the facilities contained in Macro Excel that can be used for data entry facilities into previously prepared sheets. Some of the controls needed by programs such as Text-box to input data and other controls can be placed on a User-form. The following is the User-form design that authors places in the program: the log-in user-form, sign-in user-

form, main menu user-form, employee data user-form, passenger data user-form, car data user-form, airline data user-form, booking transaction user-form, payment transaction user-form, ticket submission transaction user-form, master report menu user-form, transaction report menu user-form, ticket report menu user-form, revenue report menu user-form, master report process user-form, transaction report processing user-form, ticket report processing user-form, revenue report processing user-form.

Main Menu User-form is a form to open data to run the program using the facilities provided. There are three sections in this main menu: (a) Master Data, consisting of Employee, Passenger, Airline, and Car selection buttons; (b) Transactions, consisting of the Booking, Payment, and Delivery selection buttons; (c) Report, consisting of Main, Transaction, Ticket, and Revenue selection buttons. Main Menu User-form display can be seen in Figure 4.

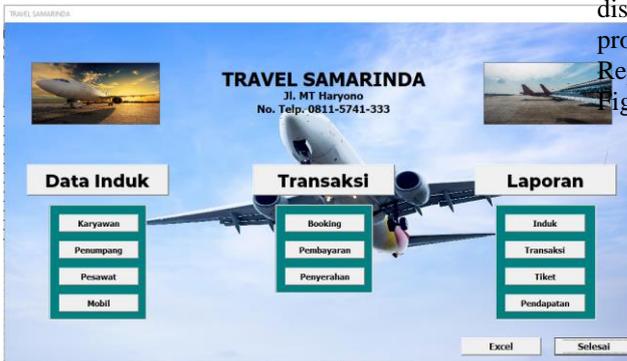


Fig. 4. Main Menu Userform

Employee Data User-form functions to input data for newly joined employees. The facilities provided in this user form are the Process, Delete, Cancel, Finish, and Menu Buttons. The display of the Employee Data User-form can be seen in Figure 5.

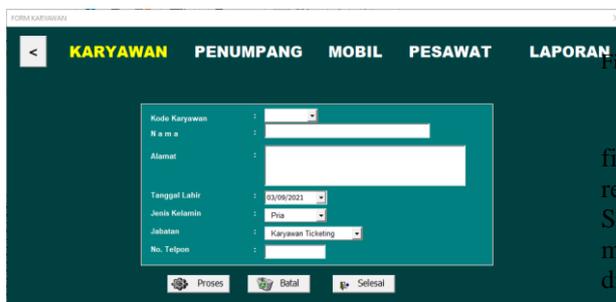


Fig. 5. Employee Data Userform

The Payment Transaction Userform function is to input payment transaction data. After a passenger makes a booking for air travel tickets or land trips through Samarinda Travel services, passengers can make payments according to the price of all booked

tickets. Payment Transaction User-form display can be seen in Figure 6.



Fig. 6. Payment Transaction Userform

The Ticket Report Process User-form is used to display ticket report data that has been previously processed using the Ticket Report User-form. Ticket Report Process User-form display can be seen in Figure 7.

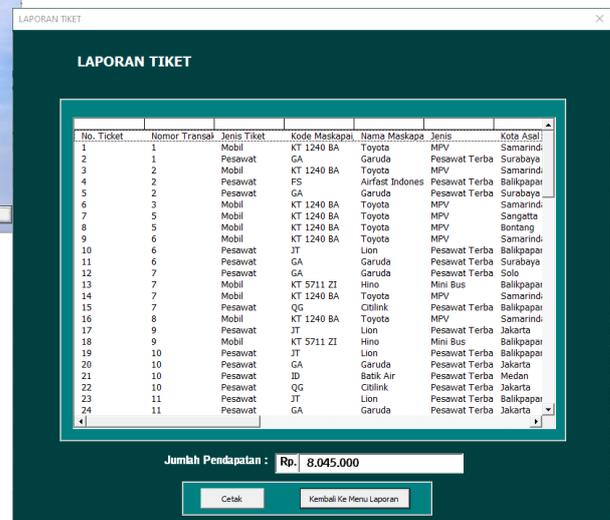


Fig. 7. Ticket Report Process Userform

The Income Report Menu User-form functions to find out or calculate the income obtained through the results of payment transactions made on Travel Samarinda for a certain period, starting from the date, month, to year. Income Report Menu User-form display can be seen in Figure 8.



Fig. 8. Income Report Menu Userform

The Income Report Process User-form is used to display income report data that has been previously processed using the Income Report User-form. Income Report Process User-form display can be seen in Figure 9.



Fig. 9. Income Report Process Userform

4.4 Implementation

Steps to run the application program:

1) Turn on the computer

a) Operate your computer, laptop, or notebook by pressing the power button.

b) Click the start menu, then type in the search column (Microsoft Excel), or you can double click in Microsoft Excel is available on the Windows desktop.

2) Opening program files

a) Open the Microsoft Excel program or application

b) Click the menu or file tab. Select open. You can also open it using a shortcut by pressing Ctrl + O on the keyboard

c) Find the folder and select the program file

d) The program will open and be marked by the appearance of the log-in form and then fill it with the user id and password in the program.

3) They are performing data input. Start from the moment of running the application, and the Log-in

menu will appear. Enter user id and password to enter the program. After successfully logging in, the main menu will appear, opening and running the program. The facilities available on this main menu include master data forms, transactions, reports, excel, and exits. The steps for entering data are as follows:

a) Point the cursor to the command button "MAIN," which is on the left side (if you want to open the master form), and a frame will appear showing buttons consisting of employees, passengers, airlines, and car

b) Move the cursor to the command button "TRANSACTION" in the middle (if you want to open the transaction form), a frame will appear showing buttons consisting of booking transactions, payment transactions, and ticket submission transactions

c) Move the cursor to the command button labeled "REPORT" on the right side (if you want to open the report form). A frame will appear that displays buttons consisting of parent, transaction, ticket, and revenue. If you click on the master, a report menu will appear containing options for employees, passengers, airlines, and cars. If you click on the transaction button, a report menu containing booking, payment, and ticket submission options will appear. If you click on a ticket, a report menu will appear that will display a ticket report. If you click on revenue, a report menu will appear that will display an income report.

d) Move the cursor to the command button labeled "DONE" on the bottom side on the right if you want to exit or close the program.

e) Move the cursor to the command button labeled "EXCEL" on the bottom side on the left to bring up excel worksheets.

f) Next, select these buttons to enter data, execute transactions, print reports as needed, or exit the application program.

g) In each user form, there are main buttons or facilities with their respective uses.

B. Discussion

Microsoft Excel can be applied in the preparation of information system databases on Travel Samarinda. It also makes it easier for companies to process their business transactions because, in the process, several processes are processed into one practical application. Among them are those related to the recording process and the reporting process. The recording and reporting process itself often becomes faster and more accurate.

The planning process results are from the Data Flow Diagram (DFD), which continues using the Entity-Relationship Diagram (ERD). After making the DFD and ERD complete, proceed to make a list of

programs consisting of combo boxes, command buttons, option buttons, list box, text box, label, and frame. The last process is the sheet design and the required user-form design.

V. CONCLUSION

Based on the research and discussion results, the authors would like to convey suggestions that may be useful for the company. First, the authors recommend that the data input process be carried out carefully to avoid errors in typing, which will later result in delays in the time of work being carried out. Second, the program can be developed in the future, considering that the facilities and capabilities of this program still need to be improved. Third, The owner should conduct training for the owner himself and his employees who will use the Macro Microsoft Excel application or program that has been created to make it easier to do recording and reporting.

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