

Design of the Simple Receipt Application to Minimize Errors and Increase Work Efficiency of the Assistant Expenditure Treasurer

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ABSTRACT

The use of expenditure receipts at the Inspectorate considered having a low level of efficiency due to impracticality and recording errors that are often found in recipient data, resulting in wrong recipients of activity funds. This error was caused by the Microsoft Excel system being used was still manual and had not yet maximised the available Microsoft Excel functions and features. Therefore, the researcher intends to update the method used by using available formulas and features. This study uses a research and development approach method. The research that carried out resulted in a Microsoft Excel-based assistant treasurer receipt application with the formula Vlookup, Excel Add-Ins, Hyperlink, and VBA Macro Excel. The simple receipt application that made produces five application menus; namely the main menu, receipt menu, transaction data history menu, an application supporting data menu, and menus around the application.

Keywords: Assistant Expenditure Treasurer, receipt application, Microsoft Excel.

1. INTRODUCTION

Transaction proof is a very important supporting item in making financial reports at the Inspectorate. Transaction proof that is often used at the Inspectorate is the Service Expenditure Receipt issued by the Assistant Expenditure Treasurer. The system for issuing and recording expenditure receipts that have been used so far is still classified as manual even though it has used the help of Microsoft Excel. It has not maximized the existing formulas so that the efficiency level of service expenditure receipts can be said to be still relatively low. One of the proofs is in the data filling process of the recipient of funds related to daily money in carrying out inspection tasks. The mandatory data regarding the recipient of the fund includes the name of the recipient, employee ID number (Nomor Induk Pegawai/NIP), position, rank, and work unit. Recording the recipient's NIP and rank often experience errors so that the funds paid are often mistaken by the recipient. Seeing these conditions, the Inspectorate Assistant Expenditure Treasurer felt the need of a new way to make proof of expenditure transactions faster, easier, more efficient, and minimal errors. Based on the

research conducted by Arvanitis and Loukis (2009) [1], it is found that IT has some positive impacts on organizations namely reduced input, reduced overall costs, better flexibility, and improved product quality. In the research statement, IT answers the problem of efficiency in an organization. So, the most possible way that the Inspectorate can do is to involve and maximize IT in the process of issuing expense receipts by redesigning the application system in Microsoft Excel and maximizing the formula features that are already contained in Microsoft Excel so that it becomes a simple receipt application program. In addition, if Microsoft Excel is used, it will be easier for Inspectorate to adjust because this program is what has been used to make manual receipts by the Inspectorate Assistant Expenditure Treasurer. This is also reinforced by research by Ariana (2016) [2] which states that around 65% of public sector employees in Indonesia are more familiar with the Microsoft Excel application than other simple accounting applications. Novianty, I (2018) which shows that the quality of management accounting information systems has a significant influence on the quality of decision making [7], this is a reinforcement that the existence of a sound information system using IT will provide maximum output in carrying out organisational, operational activities so that

decisions made can be effective and efficient. Based on the data, the researcher chose to design and create a simple receipt application using Microsoft Excel.

1.1 Related Work

1.1.1 Duties and Functions of the Provincial Inspectorate

The provincial inspectorate has the task of supervising the implementation of government affairs in the local area, the implementation of guidelines for the administration of district/city government and the performance of government affairs in the district/city area [4,6].

1.1.2 LookUp Formula

This function is used to find a specific value in a data table. There are two types of tables, namely Vertical tables using VLOOKUP and Horizontal tables using HLOOKUP [5].

1.1.3 Add-Ins Excel

The functionality of the Microsoft Excel application can be extended by adding additional features commonly known as Excel Add-Ins. In general, Excel Add-Ins is available in the form of an executable file, so to install it, you just have to run the executable file [5].

1.1.4 Visual Basic for Application (VBA)

VBA, or commonly known as Macro, is a programming language used in Microsoft Excel. Macro programs cannot be run without running Excel. Some of the advantages of using VBA Macros in Excel include saving time, saving energy, and reducing error rates. Macros can be executed if the file is saved in XLSM, XLXB, or XLS format [10].

1.1.5 Hyperlink

This function will create a shortcut to a different location in a workbook, or open a document stored on a network server, intranet, or the Internet. When clicking the cell that contains the Hyperlink function, Excel will move to the location listed, or open the specified document [5].

1.2 Our Contribution

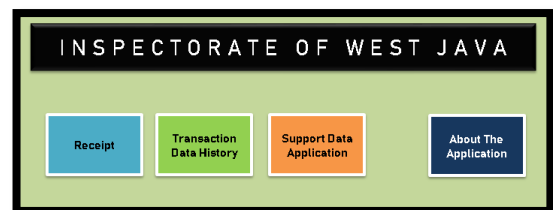
This study presents the process and results of a simple receipt application design based on the needs of the Inspectorate Assistant Treasurer. The design process used in making this simple receipt application uses a research and development approach (Sugiyono, 2016) [9] so that this study was made to update the existing receipt application system in Microsoft Excel by maximising the Vlookup formula, Excel Add-Ins, namely Terbilang, VBA Excel Macros, and Hyperlinks.

1.3 Paper Structure

This research is organised as follows. Section 2 explains the introduction of the study, formulation of the problem to be solved and presents the research literature study. Section 3 contains a complete discussion of designing a simple receipt application. Finally, section 5 is a conclusion and provides directions for further research.

2. BACKGROUND

2.1 Main Menu Design



Picture 1 Home Page Menu

The main menu display of the simple receipt application consists of 4 main menus that are already active and ready to be used to process all transactions that require Expenditure receipts. The designing steps used to produce 4 main menus namely:

1. Set the Homepage Menu sheet display using the print area display. This is done to find out the cell boundaries in making the receipt main menu.
2. After knowing the boundaries of the print area, adjust the size of the menu buttons and titles based on the print area boundaries.
3. Create a Homepage Menu Title that is "Inspectorate of West Java Province".
4. Create 4 menu buttons. To create a menu button, use rectangular icon shapes on the Insert Toolbar found in

Microsoft Excel and edit the name of each rectangular icon shape according to the designated sheet [5]. The menu button created can function if the following formula is used:

- Receipt Menu: Right click and select Hyperlink - click Place in This Document - click Receipt - click OK [5].
- Transaction Data History Menu: Right click and select Hyperlink - click Place in This Document - click Transaction Data History - click OK [5].
- Support Data Application Menu: Right click and select Hyperlink - click Place in This Document - click Support Data Application - click OK [5].
- About the Application Menu: Right click and select Hyperlink - click Place in This Document - click About the Application - click OK [5].

2.2 Receipt Menu Design

This menu is an important menu for the Assistant Expenditure Treasurer because this menu is the center for processing transaction data that can change receipt history data. The receipt model used in this menu follows the previous receipt format. Aspects that must be included in the expenditure receipt are the receipt header, receipt page, date, receipt number, account code, receipt title, nominal, spelled out, usage description, recipient data in the form of name, rank, position and work unit, as well as the signatures columns of the recipient and Assistant Expenditure Treasurer.

In designing the receipt model, the Vlookup and Spelled Out/Terbilang formulas are used. The part that uses the Vlookup formula with the basic formula = VLOOKUP(lookup_value, table_array, col_index_num, [range_lookup]) [5] is the name of the recipient, the rank of the recipient, the position of the recipient, and the work unit of the recipient. The following is a detailed usage of the Vlookup formula including:

- Recipient's name using function = VLOOKUP(T29, 'SUPPORT DATA APPLICATION'!A2: F143,2)
- Recipient's rank using function = VLOOKUP(T29, 'SUPPORT DATA APPLICATION'!A2: F143,4)
- Recipient's position using the function =VLOOKUP(T29, 'SUPPORT DATA APPLICATION'!A2: F143,5)
- Recipient's work unit using the function =VLOOKUP(T29, 'SUPPORT DATA APPLICATION'!A2: F143,6).

The array table used as a reference for the Vlookup formula usage is a table of employee data contained in the Support Data Sheet.

The part that uses a spelled-out formula is the part that states the amount of nominal issued. The following are the steps for designing a spelled-out formula:

- Download the File "Terbilang" using Google Chrome, Yahoo, or Internet Explorer [3].
- After the file "Terbilang" is downloaded, then open the simple receipt application excel workbook and click the file toolbar [3].
- Click Options and select the Add-Ins menu [3].
- Select "Excel Add-Ins" to manage and click Go [3].
- Select Add-Ins available "Terbilang" and click Ok. The file has been activated but the function has not been activated [3].
- To activate the Terbilang function, enter the formula =PROPER(terbilang(B17)&"Rupiah") [3].
- The function can be executed [3].

The receipt menu not only contains receipts but there is also a print button to print receipts, a save button to store transaction history data, and a home button as a shortcut back to the main menu. Print and save buttons use excel macros [8, 10], while the home button uses hyperlink [5].

The screenshot shows a receipt form titled 'KUITANSI (TANDA PEMBAYARAN)' from 'PEMERINTAH DAERAH PROVINSI JAWA BARAT INSPEKTORAT'. It includes fields for 'No.' (20.000.000), 'Tanggal', and 'Dua Puluh Jera Rapih'. The form is divided into sections for 'Substansi', 'Lokasi', and 'Berkas'. On the right side, there are three buttons: 'PRINT' (orange), 'SAVE' (blue), and 'HOME' (black circle). The text 'Page 1' is visible in the center.

Picture 2 Receipt Menu

2.3 Transaction History Data Menu Design

The transaction history data menu is the output menu from the receipt menu. In this menu, there is transaction history data consisting of date, receipt number, account code, information on usage, nominal, recipient's data in the form of name, rank, class, position and work unit, as well as the name of the Assistant Expenditure Treasurer who issued the receipt. The date is used to fill in the date when the receipt of expenditure is issued. The receipt number and account code are adjusted to the transactions that occur on the expenditure receipt. Information of use describes transactions requiring receipt of expenditure, nominal is used to fill in the number of figures that must be issued. Columns of recipient's name, rank / position, and work unit are used to fill in complete receipt recipient data.

No	Date	Receipt Number	Account Code	Description	Total	Receiver Data			
						Name	Rank	Position	Address
1									
2									
3									
4									
5									
6									
7									
8									
9									
10									
11									
12									
13									
14									
15									
16									
17									
18									
19									
20									
21									
22									
23									
24									
25									
26									
27									
28									
29									
30									

Picture 3 Transaction Data History Menu

No	Description	Formula	Sheet Input	Sheet Output
1	Receiver Name	VLOOKUP(T25,'SUPPORT DATA APPLICATION'!A2:F143,2)	Support Data Application	Receipt
2	Receiver Rank	VLOOKUP(T25,'SUPPORT DATA APPLICATION'!A2:F143,3)	Support Data Application	Receipt
3	Receiver Position	VLOOKUP(T25,'SUPPORT DATA APPLICATION'!A2:F143,4)	Support Data Application	Receipt
4	Receiver Company	VLOOKUP(T25,'SUPPORT DATA APPLICATION'!A2:F143,5)	Support Data Application	Receipt

Picture 5 VlookUp Formula Explanation

2.4 Supporting Data Menu Design

The supporting data menu for the receipt application contains two main data to run the receipt application program. The first data is the employee database which contains the column ID, name, NIP, class, rank, position, and work unit. The second data is a Microsoft Excel file for applying terbilang formulas, because the formulas cannot function on receipts with the built-in function files.

No	ID	Name	NIP	Class	Rank	Position	Work Unit
1							
2							
3							
4							
5							
6							
7							
8							
9							
10							
11							
12							
13							
14							
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19							
20							
21							
22							
23							
24							
25							
26							
27							
28							
29							
30							

Picture 4 Support Data Menu

2.5 Menu Design Regarding the Application

This menu is created as a detailed guide to the formula used in this simple receipt application as well as an explanation of the function of the formula so that if a formula error is made, this guide can help solve the formula errors. Some of the points explained in the Receipt Application Menu include:

1. VlookUp formula that works for the recipient column on the receipt.

No	Description	Formula	Sheet Input	Sheet Output
1	Description Formula	IF(OR(AND(LEFT(T25,3) <> "TER", RIGHT(T25,3) <> "BANG")), AND(LEFT(T25,3) <> "TER", RIGHT(T25,3) <> "BANG")), "TERbilang", "TERbilang")	Support Data Application	Receipt

Picture 6 Description Formula Explanation

3. The Print button is used to print receipts with 1 click of a button.

No	Description	Formula	Sheet Input	Sheet Output
1	Print Button	IF(OR(AND(LEFT(T25,3) <> "TER", RIGHT(T25,3) <> "BANG")), AND(LEFT(T25,3) <> "TER", RIGHT(T25,3) <> "BANG")), "TERbilang", "TERbilang")	Support Data Application	Receipt

Picture 7 Print Button Explanation

4. Save button is to save receipt history data in the receipt history data menu.

No	Description	Formula	Sheet Input	Sheet Output
1	About The Application	IF(OR(AND(LEFT(T25,3) <> "TER", RIGHT(T25,3) <> "BANG")), AND(LEFT(T25,3) <> "TER", RIGHT(T25,3) <> "BANG")), "TERbilang", "TERbilang")	Support Data Application	Receipt

Picture 8 About The Application Menu

The menu regarding the receipt application has 8 buttons that use hyperlinks. The steps for making the 8 buttons include:

1. Use the icon shapes found on the insert toolbar.
2. Edit the name, shape, and color of the icon shapes.
3. For the menu button to function, enter the following formula:
 - a. VlookUp Formula: Right click and select Hyperlink - click Place in This Document - click VlookUp Formula - click OK [5].
 - b. Description Formula: Right click and select Hyperlink - click Place in This Document - click Description Formula - click OK [5].
 - c. Print Button: Right click and select Hyperlink - click Place in This Document - click Print Button - click OK [5].
 - d. Save Button: Right click and select Hyperlink - click Place in This Document - click Save Button - click OK [5].
 - e. Home Button: Right click and select Hyperlink - click Place in This Document - click Home Page - click OK [5].
 - f. Receipt Button: Right click and select Hyperlink - click Place in This Document - click Receipt - click OK [5].
 - g. History Data Button: Right click and select Hyperlink - click Place in This Document - click Transaction Data History - click OK [5].
 - h. Support Data Button: Right click and select Hyperlink - click Place in This Document - click Support Data Application - click OK [5].

3. CONCLUSION

The design of a simple receipt application includes five menu designs, including:

1. Main Menu Design

In general, the feature used in making the main menu is Hyperlink. The four main buttons on this menu use the Hyperlink feature.

2. Designing Receipt Menu

The receipt menu display format used follows the form commonly used by the Assistant Treasurer for Expenditure at the Inspectorate. Still, to maximise the functions contained in Excel, this menu uses the VlookUp formula for recipient data, the Excel Add-Ins formula is spelt out for the elaboration of receipt nominal, hyperlink feature for the main menu button, and use Excel's VBA Macros for the print and save buttons.

3. Menu Design of Transaction History Data

The historical data menu is the output menu of Excel VBA Macros which is run in the save button on the receipt menu.

4. Designing Supporting Data Menu

Application supporting data contains inspectorate employee data and Excel Add-Ins data. Employee data is used as a table array in executing the VlookUp function on the receipt menu. In contrast, Excel Add-Ins data is used as a raw file in managing several tasks on the receipt menu.

5. Menu Design Regarding Receipt Application

The last menu is a menu that contains a detailed explanation of the excel formulas and features used. This menu is created so that the receipt application user can find out in detail the process of designing the receipt application.

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