James Alvin Dhanardi

2602123976

LA - 95

**Personal Report**

**Assurance of Learning\_Algorithm and Programming**

This documentation will explain about the program flow of ‘Bee Bank’ Transaction System, along with the assumptions and validations in the program.

The program starts with an welcome text and menu selection display. There would be three types of operation that the customer can make, deposit, planned saving, and search saving. Then the customer would be prompted to input their selection, along with a validation to make sure that the chosen option is valid. Each type of transaction will be explained below:

1. Deposit

Deposit is a type of saving with bigger interest rate than normal saving but the customer can’t withdraw their money for a period of time that they have set themselves.

Firstly the customer would be asked to input the title of the deposit. Validation is made to ensure that the length of the title is between 5 to 30 characters. The title would later be used to identify the saving in search saving menu.

Secondly, the customer would be asked to input the amount of money that they want to deposit. We make an assumption that the deposited money should be at least Rp 1.000.000, 00

Thirdly, we assume that Bee Bank has an deposit annual interest rate of 5%.

Fourthly, the customer would be prompted to input their deposit period, with a minimal of 1 month.

Fifth, the customer would be asked to input the transaction date. This feature is only for the sake of applying sorting algorithm that was asked in the instruction. In real life scenario, the transaction date would be retrieved automatically using API or system date.

Then, the system would calculate interest and total amount of money in per month according to this formula

100% - 20% is the percentage of profit that has been deducted by the deposit tax percentage of 20%. According to government regulations that 20% tax for deposit storage.

Lastly, the system would display the monthly report of interest gain and amount of money, then save the monthly data to a file so customer can check their deposit record.

The deposit calculation will be simulated below:

Deposit Name: For House  
Deposited Amount: Rp 1.500.000  
Annual Interest Rate: 5%  
Duration (in months): 3 months  
Transaction Date: 1-1-2021

|  |  |  |
| --- | --- | --- |
| Date | Monthly Interest Gain | Total Amount |
| 1-1-2021 | - | Rp 1.500.000 |
| 1-2-2021 | Rp 5.000,- | Rp 1.505.000 |
| 1-3-2021 | Rp 5.016,- | Rp 1.510.016 |
| 1-4-2021 | Rp 5.033,- | Rp 1.515.049 |

1. Planned Saving

Planned saving is a type of saving where the customer would send a fixed amount of money every month with an increasing interest rate based on saving amount and duration.

The table for interest rate is shown as below:

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
| Monthly Routine | Deposit Interest rate per year (floating), can change at any time | | | | |
| <1 years | 1 to < 3years | 3 to < 5years | 5 to < 10years | > 10 years |
| < 1.000.000 | 1% | 1% | 1.2% | 1.5% | 1.5% |
| >= 1.000.000 | 1% | 1.2% | 1.5% | 1.7% | 1.7% |

Firstly, the user would be prompted to input their saving title. Validation is made to ensure that the length of the title is between 5 to 30 characters. The title would later be used to identify the saving in search saving menu.

Secondly, the user would be prompted to input their monthly saving routine. The minimal amount is Rp 100.000,00.

Thirdly, the user would be prompted to input the duration period. The minimum duration is 1 year (12 months).

Fourthly, the customer would be asked to input the transaction date. This feature is only for the sake of applying sorting algorithm that was asked in the instruction. In real life scenario, the transaction date would be taken automatically using API or system date. The autodebit date would be the date when the user make the transaction.

Fifth, the system will calculate the monthly interest and track the saving according to the following formula

Lastly the system will display the saving record and save the record to a file.

The planned saving calculation will be simulated below:

Saving Title: For Car  
Monthly Amount: Rp 1.500.000  
Duration: 14 months  
Transaction Date: 1-1-2021

|  |  |  |
| --- | --- | --- |
| Date | Interest | Total Amount |
| 1-1-2021 | Rp 15000 | Rp 1.515.000 |
| 1-2-2021 | Rp 15000 | Rp 3.030.000 |
| … | … | … |
| 1-1-2022 | Rp 18000 | Rp 19.698.000 |
| 1-2-2022 | Rp 18000 | Rp 21.216.000 |

After the customer has done either deposit or planned saving operation, the data would be automatically sorted in ascending order based on transaction date.

1. Search Saving

The search saving functionality would allow the customer to check their transactions. All the data here is already sorted based on transaction date.

Firstly, the user would be prompted to input the date period to check the records.

Then the user can choose the type of saving they want to check:

1. All Saving

The user can check all the transaction records, including both deposit and planned saving.

1. Deposit Search

The user can choose to check all deposit records or check a particular deposit, the system would show the title of the deposit and the user can input the option.

1. Planned Saving Search

The user can choose to check all planned saving records or check a particular planned saving, the system would show the title of the saving and the user can input the option.

After the customer has done the operation, they will be asked whether they want to do another operation or not. If they don’t, the system will show the thank you page and close the operation.