Algorithm and Programming Final Project: ATM Application

Diagram

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**Student Information:**

Raissa Azaria / 2502005805

**Class Information:**

Class: L1BC

Lecturer’s name: Jude Joseph Lamug Martinez, MCS / D4017

**Binus University International**

**School of Computer Science**

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**Chapter I: Introduction**

In the first semester at Binus International University, as a freshman in computer science major we learned python as our first programming language. We first start from the very basic part which is printing something. As time goes by, we started to learn a lot of new things such as list, tuples, if statements, dictionaries and many more. Our lecture has already mention that at the end of our semester, we need to finish our final project. Basically, final project is all the material that we have already learn and we need to implement it into one specific project. The specification of the project is given on the first or second meeting and as we learned week by week, we need to think about the ideas for our project.

I have a lot of ideas for my final project. My first idea was making an emergency map. So, if there are people who is sick and need to go to the hospital immediately, the maps will give the user the most efficient road or the mouse path (jalan tikus) so they will arrive faster than the others. But then I need to install the maps and need to research some specific road. So, I change my mind. Then I realized that I joined the Python bootcamp and since they have the small project for the last part, I decided to use that as my final project. Since they have the specification needed for the algorithm and programming final project.

I start my project on 21st of December 2021 and for this project, I use the Pycharm as my IDE. I’ll be uploading the full code at <https://github.com/raissaazaria/FinalProject_RaissaAzaria_AlgoProg>

**Chapter II: Project Specifications:**

**Project Purpose:**

To build a simple program which is able to simulate an ATM in general with a simple and basic menu that an ATM have. This project is also a requirement to finish our first semester and as a sign that we understand the subject and can implement it to a different type of problems.

**Project Audience:**

The target audience of this project are the young people who wants to know about the basic menu of ATM since they don’t have much experience about ATM. This program will show them about the basic menu that will included in the real-life ATM machine.

**Project aim:**

To create a simple ATM machine in a form of program. It will simulate the basic menu that ATM machine capable to do. …

**Project requirements:**

* Use of primitive data
* Use of instance variables and objects
* Use of imported modules, packages, and functions
* Use of custom-built classes & methods
* Detailed Code Commenting

**Chapter III: Solution Design**

1. **Overview**

This program is a simple simulator of an ATM machine in real life. It has several functions such as debiting, checking balance, change pin etc. This ATM program uses python 3.9 with no external libraries.

1. **Main class**

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For the first file, I made one class which have an innit function which will used as tools to take the argument for the start pin and the first balance which I later named the parameter as default pin and default balance. Next, I made two method which later both will return each value of default pin and default balance

1. **Customer function**

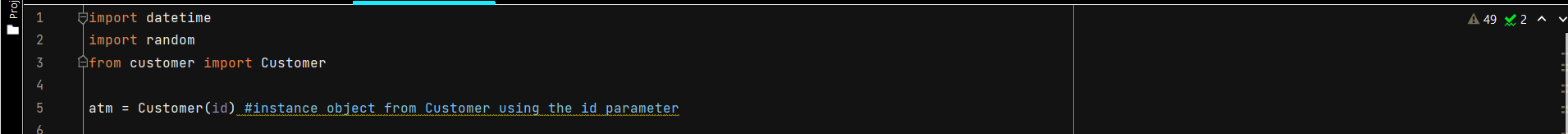
Text

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For the next one, I made a different file containing the function that will used later by the customer itself. Make a new class this time. I’ll named it the customer class which contain an innit function that supposed to take argument like customer ID, their pin number, and their balance. To make it easy, I use an easy pin and balance as an example. New method will be made which will return the value of the last function we have already made.

Next, we are going to make new feature which is debiting and saving. Before making this feature, we need to know the formula of debiting and saving. First debiting, means that the customer's balance will be reduced with a "nominal" that will be determined later on and for saving, means that the customer's balance will be added by "nominal" to be determined later on. If both are written as in formula, it will be as in the code above.

1. **ATM program**



In this file, basically all of the menus are going to be build here. So before starting, we need to import the class customer so we can use the method and the properties that they have. We also need to import the datetime and random number for the receipt. Next, we are going to make instance object from customer with id parameter. Instance is another term for object of a class. An object created from the prototype of the Circle class for example is called an instance of the class

1. **Entering Pin**

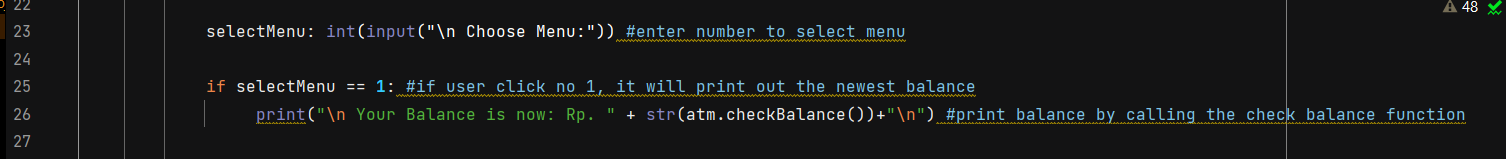
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In this part, I am going to use the first looping part which contain the true value. The program will ask the user to input their pin but, we will make the maximum input. So, if user input the wrong value of their pin maximum 3 times, the program will tell the user that they have reach the maximum try and the program will exit. But if user have successfully entered their pin, the program will show the menu list. If the condition is fulfilled, user will be asked to enter the pin and will be written as one try.

1. **Menu**

**6.1 Checking Balance**



If user choose number one, it will show their balance. It will recall the check balance method.

* 1. **Debiting**

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If users choose the second menu, it will lead them into a debiting program. This program will ask the user to input the value of money that they want to debit, and they will verify to recheck before debiting. The nominal will be compared with their balance. If their nominal is smaller than the balance, withdraw balance method will be recall and the remaining balance will be shown.

* 1. **Saving**

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The third menu will recall the deposit balance method and lastly, they will show the recent balance.

* 1. **Pin**

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This time, this program will help user to change their pin. But user need to verify their pin after changing into the new one.

* 1. **Exit**

Graphical user interface, text

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If user choose number 5, the program will exit. But instead of directly exit, the program will print the receipt while printing the record number based on random integer between 100000 – 1000000, datetime and last balance.