CSC345_Lab02: “ATM”

Points: **100** points

Mission:

- **Write a C Program for an ATM machine by implementing functions.**
- To protect your program from suspicious activities.
- Attackers, thieves, invaders, and users acting smart will do every possible act to steal data and money, and ruin your program.

Objectives:

- To use welcoming and closing messages.
- When it comes to outputs, be creative. Make your application friendly and easy to use.
  - o Implement **\n**, **\t**, **“ “, and $** sign as needed.
- To use numerical calculations and Mathematical operations **“+, -, *, /, %”** to solve a real-life challenge.
- To catch invalid numerical inputs (Negative numbers and Zeroes)
- To use **`exit(0)`** to end the program. To do so, add **`#include <stdlib.h>`** to your program.

Rules:

Write a C Program for an ATM machine.

The types of ATM transaction are:

1. *Balance*.
2. *Cash withdrawal*.
3. *Cash deposition*.
4. *Quit*.

All ATM transactions (menu options) need to be **implemented** in terms of **functions**.
You will call those functions based on the menu option.

- Initially, Nana has one checking account with a balance of $5000 with PIN number of **3014**.
  - o (declare PIN# as **CONSTANT**)
- Money amount validation:
  - o *Catch invalid numerical inputs (Negative numbers and Zeroes).*
  - o *Users can enter numbers only.*
  - o *Remember any ATM has numpad only. This numpad has neither letters nor special characters.*
  - o *Don’t worry about entering other inputs rather than numbers for now.*
  - o *I mean don’t worry what would happen if the user enters a string, a char, or a special characters instead of a number. We will discuss this later in another chapter.*
  - o *In short, if the Nana enters wrong amount, ask her to enter amount again, after 3 unsuccessful attempts, display an error message and terminate the program.*
- PIN validation:
  - o *Nana has 3 attempts to enter PIN. After that the program logs them off, and end the program*.
- Once Nana chooses to finish using the ATM, print out Thank You message and tell her the number of transactions she has made (*cash withdrawal, cash deposit, and check balance*).
- All ATM transactions (menu options) need to be implemented in terms of functions.
  - o You will call those functions based on the menu option.
- All ATM transactions have receipts, but it is up to the user to choose.
  - o Use 1 for yes, and 2 for No.

  - The receipt is virtual. No need to display the receipt on screen.

- *Balance*:
  - Nothing special about it. Basically it prints out the balance.

- *Cash withdrawal*:
  - The limit is $1000 a day.
  - For every withdrawal transaction, there is a receipt.
  - Nana enters the amount to withdraw in multiples of 20s. (i.e.; 20, 40, 60, 80, and so on).
  - ATM machine cannot output 1s, 5s, or 10s paper bills only, and of course No coins.

- *Cash deposition*:
  - The limit is $10000 a day.
  - For every withdrawal transaction, there is a receipt.
  - Nana enters the amount to deposit.
  - ATM machine accepts any paper bills including 1s, 5s, and 10s, but of course No coins.

- *Quit*:
  - From its name, you will print the number of transactions and Thank You message program.
  - Finally, end the program.

Note:

Question: *Can I add more functions*?

Of course, you need at least those four functions given above, but you can add as many as you want.

Exceptions *(I will leave it for your imagination to figure it out)*

- How to react if Nana asks to withdraw money >= $1,000?
- How to react if Nana asks to withdraw money less than $20?
- How to react if Nana asks to deposit money >= $10,000?

Submission:

- Be sure to document your code (add comments on top of your C file). In the comments add your name, date, course, homework number, and statement of problem.
- Once you are done, upload one C program called **`atm.c`** through D2L.