CSCI212 Summer 2019
Assignment 2

This assignment can only be submitted once. Make sure that you are finished before submitting. The code layout is important. If your code lacks comments before any method or normal 4 space indentation points will be taken off.

In this assignment you are going to create a Bank Account class named **Account** that has the following components.

1. Instance variables:
    - id - an int variable which is the id number of the account.
    - balance - A double variable with a minimum value of $100.0
    - annualInterestRate, a double variable that takes a percent.
    - dateCreated - LocalDate that represents the date this account is created.
    - LocalDate is the type of dateCreated and initialize it using *LocalDate.now()* method.
    - Study java's LocalDate, LocalTime and LocalDateTime classes and their methods for the time zone you are in. If you are interested in a different zone, the study ZonedDateTime API. All these are introduced in Java 8.
2. A default constructor to initialize the id, the balance and the interest rate.
3. A constructor that creates an account with a specified id and initial balance.
4. Accessor and mutator methods for id, balance and annualInterestRate.
5. Accessor method for dateCreated.
6. A method named **getMonthlyInterestRate()** that returns the monthly interest rate. Make sure you divide the annual interest rate by 100 and then by 12 to get the monthly rate.

7. A method named **getMonthlyInterest()** not rate but the actual amount.
8. A method named **withdraw()** that withdraws a specified amount. Make sure there is enough balance.
9. A method named **deposit()** that deposits a specified amount.
10. Write the static main method this class to test this class.
11. create a new account with the following parameters:
    - id: 1122
    - balance: $20,000
    - annualInterestRate: 4.5
    - withdraw() : $2,500
    - deposit() : $3,000
12. Print the balance, the monthly interest, and the date this account was created.

Now create a class called **ATMxxxx** (xxxx is the last 4 digits of your CUNYfirst ID)that simulates the ATM machine. This class makes use of the *Account* class that you created and should do the following:

- Create 10 accounts in an array with id *0, 1, 2, . . . , 9* with initial balance $100.
- The system prompts the user to enter an id.
- If the id entered is incorrect, ask the user to enter correct id.
- Once an id is accepted, the main menu is displayed as shown in the sample run.
- A user can enter 1 to view the current balance, 2 for withdrawing money, 3 to deposit money and four to exiting the menu.
- Once it exits the menu, it prompts for the id.
- The method doesn't stop just like a real ATM.

Sample Run:

```
Enter an id: 1

Main menu
1: check balance
2: withdraw
3. deposit
4. exit
Enter a choice: 1
Your current balance is \$100.0

Main menu
1: check balance
2: withdraw
3. deposit
4. exit
Enter a choice: 2
Enter the amount you want to withdraw: 20

Main menu
1: check balance
2: withdraw
3. deposit
4. exit
Enter a choice: 1
Your current balance is \$80.0

Main menu
1: check balance
2: withdraw
3. deposit
4. exit
Enter a choice: 2
Enter the amount you wan to deposit: 250

Main menu
1: check balance
```

```
2: withdraw
3. deposit
4. exit
Enter a choice: 1
Your current balance is \$320.0

Main menu
1: check balance
2: withdraw
3. deposit
4. exit
Enter a choice: 4

Enter your id:
```

- Test the ATM class with the Account class.
- ATMxxxx class and Account class both should be in a single java file that is to be named ATMxxxx.java with xxxx replaced by the last 4 digits of your CUNYFirst ID. Remember, there can only be one public class in a file. So remove public from Account class. Remove all package statements before you submit.

The due date for this assignment is 07/21/2019 (11:59 pm). The cut off date is 07/23/2019.
After that expect a 10% reduction in score for every delayed day.
The assignment **will not** be available for submission after **07/29/2019**.