1. a. Design a class **BankAccount** that simulates a simple bank account. Implement the following:
   1. Instance variables: **accountNumber** (integer), **accountHolderName**

(String), **balance** (double).

* 1. A constructor to initialize the account number and account holder's name. The initial balance should be set to 0.0.
  2. Methods to:
     + Deposit an amount into the account
     + Withdraw an amount from the account (if sufficient balance is available)
     + Display the account information (account number, account holder's name, and balance)

1. b. Design a class **LibraryBook** that represents a book in a library. Implement the following:
   1. Instance variables: **employeeId** (integer), **firstName** (String), **lastName** (String),

**salary** (double).

* 1. A constructor to initialize the employee's ID, first name, and last name. The initial salary should be set to 0.0
  2. Methods to:
     + Set the employee's salary.
     + Increase the employee's salary by a certain percentage.
     + Display the employee's information (ID, full name, and salary)

1. a. Write a program Parentheses.java that reads in a text stream from standard input and uses a stack to determine whether or not its parentheses are properly balanced. For example, your program should print true for [()]{}{[()()]()} and false for [(]).

b. Create a class diagram and Java code for the following system and scenario, considering the possibility of future extensions. “The system is a command line utility that prints a short quote of the day”; on the user’s terminal when run. To begin with the quote is selected randomly from a set of hard-coded strings within the program itself, but that might change later on – the quotes might be based on the user’s history, the time of day, the date, etc..

1. Design a TOLLTAX class to store the number of cars that crossed the bridge and total amount collected. It must support the following activities.

* Receiving toll.
* Display number of cars that crossed the bridge. Tax will be based on car type (such as 2/3/4..wheeler)
* Display the amount of toll collected.
* Mode of toll tax will be either prepaid or instant. So support must be there to check the mode before receiving the toll.