Vavuniya Campus of the University of Jaffna

First Examination in Information Technology - 2018

Second Semester - April/May - 2020

IT1214 Object Oriented Design and Programming (Practical)

Answer All Questions

Time Allowed : **Three** hours

Instruction:

Create a folder on Desktop with your INDEX NUMBER as the FOLDER NAME. Save all your files in that folder.

1. (a) Implement a class **Customer** in Java with the following properties:

   i. Fields (Private):

   - An instance variable with integer data type is to store the customer id.
   - An instance variable with string data type is to store the name of the customer.
   - An instance variable with char data type is to store the gender of the customer.

   ii. Constructor:

   - A constructor to initialise all the instance variables.

[This question is continued on the next page]

iii. Methods (Public):

- Getters for each of the instance variables.
- A **toString()** method that returns the details of a customer. [30%]

(b) Implement a class **Account** with the following properties:

i. Fields (Private):

- An instance variable with integer data type is to store the account number.
- An instance variable with customer data type is to store the details of the customer.
- An instance variable with double data type is to store the account balance amount.

ii. Constructor:

- A constructor to initialise all the instance variables.
- Another constructor is to create an account with the default account balance 2000.

iii. Methods (Public):

- Getters for each of the fields.
- A setter for the balance field.
- A method with boolean type is to check whether there is enough balance in the account.
- A **toString()** method is to return the account details. [30%]

(c) Implement a class **Transaction** with the following methods:

i. A method to implement deposit transaction.

- Input: deposit amount and account.
- Output: acknowledgement message for the deposit.

[This question is continued on the next page]

ii. A method to implement withdrawal transaction.

- Input: withdrawal amount and account.
- Output: acknowledgement message for the withdrawal.

iii. A method to implement balance checking transaction.

- Input: account.
- Output: available balance.

[20%]

(d) Implement a class **TransactionDemo** to attain each of the following tasks:

i. Create two customers with the following details:

- **Customer 1:**
  - Id: 100112
  - Name: Mala
  - Gender: F
- **Customer 2:**
  - Id: 100115
  - Name: Vimal
  - Gender: M

ii. Create two accounts with the following details:

- **Account 1:**
  - Account No: 8001
  - Customer: Customer 1
  - Balance: LKR 50,000.00
- **Account 2:**
  - Account No: 8002
  - Customer: Customer 2
  - Balance: LKR 25,000.00

[This question is continued on the next page]

iii. Execute each of the following transaction:

- Deposit LKR 5,000.00 to Account 1.
- Withdraw LKR 10,000.00 from Account 1.
- Print the available balance of Account 1 and Account 2. [20%]

Sample Output:

```
Customer 1
--------------
Account No.:  8001
Name:  Mala
Customer ID: 100112
Gender:  F
Balance:  50000.0

Customer 2
--------------
Account No.:  8002
Name:  Vimal
Customer ID: 100115
Gender:  M
Balance:  25000.0

Deposited the amount of Rs.  5000.0
Details
Account No.:  8001
Name:  Mala
```

[This question is continued on the next page]

Customer ID: 100112

Gender: F

Balance: 55000.0

Withdrawn the amount of Rs. 10000.0

Details:

Account No.: 8001

Name: Mala

Customer ID: 100112

Gender: F

Balance: 45000.0

Available Balance in Account 1: LKR 45000.0

Available Balance in Account 2: LKR 25000.0