CJ Practical’s

```
// Basic Template

public class hello{
    public static void main(String[] args){
    }
}
```

```
// Hello World

public class hello{
    public static void main(String[] args){
        System.out.println("Hello World");
    }
}
```

Practical 1 -

```
/*
Find Value of a Specific Expression -
1. (101+0)/3
2. 3.0e-6*10000000.1
3. 24 & 35
4. 27<<5
5. (false && false) || (true && true)
*/

class class_name{
public static void main(String ars[]){
  double d = (101+0)/3;
  System.out.println("(101+0)/3 = " +d);

  double w = 3.0e-6 *10000000.1;
  System.out.println("3.0e-6 *10000000.1 = " +w);

  int a = 24&35;
  System.out.println("24&35 = " +a);

  int b = 27<<5;
  System.out.println("27<<5 = " +b);

  boolean c = (false && false)|| (true && true);
  System.out.println("(false && false)|| (true && true) = " +c);
  }
}
```

```
// Take user input for height( inches) and convert into feet and inches.
// Display the result in ft and in.

import java.util.Scanner;

class class_name{
public static void main(String[] args){
  Scanner input=new Scanner(System.in);
  System.out.println("eneter the inch size: ");

  int inch=input.nextInt();
  double foot=inch/12.0;
  System.out.println("the eneterd size is: "+foot+" feet");
  }
}
```

Practical 2 -

```
// Prompt the user for 2 integers using command line argument and print
// sum, difference, product, average, maximum and minimum
```

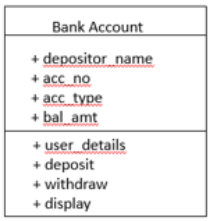
```
class class_name{
public static void main(String[] args){
  int a,b;
  a=Integer.parseInt(args[0]);
  b=Integer.parseInt(args[1]);

  System.out.println("sum="+(a+b));
  System.out.println("difference="+(a-b));
  System.out.println("product="+(a*b));
  System.out.println("average="+((a+b)/2));
  System.out.println("maximum="+Math.max(a,b));
  System.out.println("minimum="+Math.min(a,b));
    }
}
```

```
/*
Get the output as shown below if the user inputs a string ‘D’ -
A
B A
C B A
D C B A
*/

import java.util.*;

class class_name{
public static void main(String[] args){
    Scanner sc=new Scanner(System.in);
    System.out.println("Enter a character: ");
    char a=sc.next().toUpperCase().charAt(0);
    int alpha=65;
    int x=a;

    for(int i=0;i<=x-alpha;i++){
        for(int j=i;j>=0;j--){
            System.out.print((char)(alpha+j)+" ");
        }
        System.out.println();
        }
    }
}
```

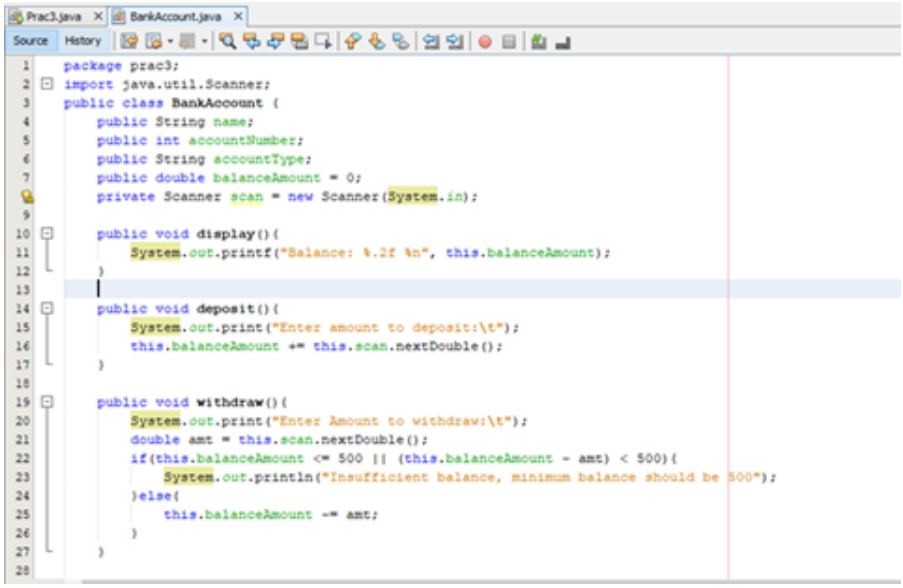
```
/*
Write a program that takes the user to provide a single character from the alphabet.
Print Vowel or Consonant, depending on the user input.
If the user input is not a letter (between a and z or A and Z),
or is a string of length > 1, print an error message.
*/

import java.util.*;

class class_name{
public static void main(String[] args){
    Scanner in = new Scanner(System.in);
    System.out.print("Enter an alphabet:");
    String input=in.next().toLowerCase();
    boolean uppercase=input.charAt(0)>=65 && input.charAt(0)<=90;
    boolean lowercase=input.charAt(0)>=97 && input.charAt(0)<=122;
    boolean vowels=input.equals("a")||input.equals("e")||input.equals("i")||input.equals("0")||input.equals("u");

    if(input.length()>1){
        System.out.println("Error, Not a single character.");
    }
    else if(!(uppercase||lowercase)){
        System.out.println("Error.Not a letter.Enter uppercase or lowercase letter.");
    }
    else if(vowels){
        System.out.println("input letter is vowel");
    }
    else{
        System.out.println("input letter is Consonent");
    }
  }
}
```

Practical 3 -

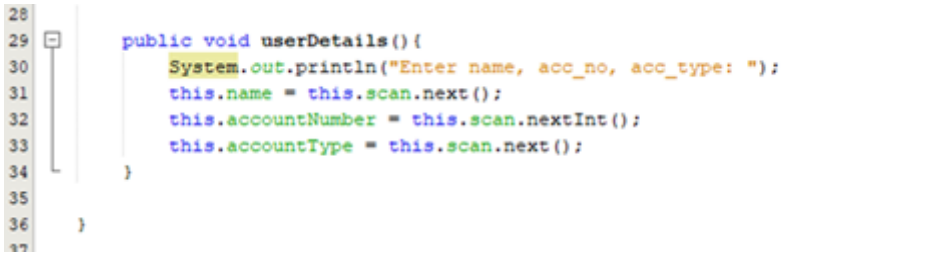
a) Write a program to represent a bank account with the information given below:



- Minimum balance amount should be 500
- Deposited amount should be added to the available amount



```java
package prac3;
import java.util.Scanner;
public class BankAccount {
    public String name;
    public int accountNumber;
    public String accountType;
    public double balanceAmount = 0;
    private Scanner scan = new Scanner(System.in);

    public void display(){
        System.out.printf("Balance: %.2f %n", this.balanceAmount);
    }

    public void deposit(){
        System.out.print("Enter amount to deposit:\t");
        this.balanceAmount += this.scan.nextDouble();
    }

    public void withdraw(){
        System.out.print("Enter Amount to withdraw:\t");
        double amt = this.scan.nextDouble();
        if(this.balanceAmount <= 500 || (this.balanceAmount - amt) < 500){
            System.out.println("Insufficient balance, minimum balance should be 500");
        }else{
            this.balanceAmount -= amt;
        }
    }
```



```java
    public void userDetails(){
        System.out.println("Enter name, acc_no, acc_type: ");
        this.name = this.scan.next();
        this.accountNumber = this.scan.nextInt();
        this.accountType = this.scan.next();
    }

}
```

Main Class -

Prac3.java | BankAccount.java

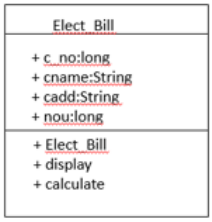
Source | History

```java
import java.util.Scanner;
public class Prac3 {
    public static void main(String[] args) {
        Scanner sc = new Scanner(System.in);
        BankAccount ba = new BankAccount();
        int choice;
        ba.userDetails();
        while(true){
            System.out.print("\nEnter choice\n1. Deposit  2. Withdraw 3. Display 4. Exit:\t");
            choice = sc.nextInt();
            switch(choice){
                case 1:
                    ba.deposit();
                    break;
                case 2:
                    ba.withdraw();
                    break;
                case 3:
                    ba.display();
                    break;
                case 4:
                    System.exit(0);
                default:
                    System.out.println("Invalid choice");
                    System.out.println("");
            }
        }
    }
}
```

Output - prac3 (run) #4

```
run:
Enter name, acc_no, acc_type:
Darwin
10001
savings

Enter choice
1. Deposit  2. Withdraw 3. Display 4. Exit:     1
Enter amount to deposit:        600

Enter choice
1. Deposit  2. Withdraw 3. Display 4. Exit:     2
Enter Amount to withdraw:       100

Enter choice
1. Deposit  2. Withdraw 3. Display 4. Exit:     3
Balance: 500.00

Enter choice
1. Deposit  2. Withdraw 3. Display 4. Exit:     2
Enter Amount to withdraw:       100
Insufficient balance, minimum balance should be 500

Enter choice
1. Deposit  2. Withdraw 3. Display 4. Exit:     4
BUILD SUCCESSFUL (total time: 39 seconds)
```

b) Design a class on the basis of the following information:



Monthly bill should be calculated according to the slabs mentioned below. It should also display the total amount to be paid.

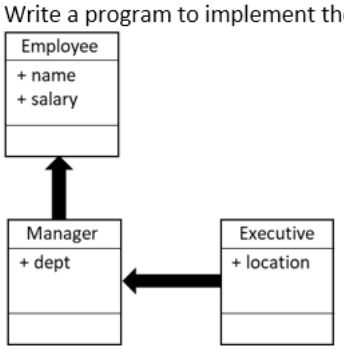
Number of units consumed	Rate
1 – 100	Rs 500/-rental charges only
101 - 200	Rs 1.00 per call + rental charges of Rs. 500
201 - 300	Rs 1.20 per call + rental charges of Rs. 500
Above 300	Rs 1.50 per call + rental charges of Rs. 500

```
package eb;

import java.util.Scanner;

public class EB {
    public long consumerNumber;
    public String consumerName;
    public String consumerAddress;
    public long noUnits;

    EB(long consumerNumber, String consumerName, String consumerAddress, long noUnits){
        this.consumerNumber = consumerNumber;
        this.consumerName = consumerName;
        this.consumerAddress = consumerAddress;
        this.noUnits = noUnits;
    }

    public void display() {
        System.out.println("EletricityBill{" + "consumerNumber=" + consumerNumber + ", consumerName=" + consumerName + ", consumerAddr
    }

    public void calculate(){
        long toPay = 0;
        if(this.noUnits <= 100){
            toPay = 500;
        }else if(this.noUnits <= 200){
            toPay = (1 * (this.noUnits - 100)) + 500;
        }else if(this.noUnits <= 300){
            toPay = (long)(1.20 * (this.noUnits - 200)) + 100 * 1 + 500;
        }else if(this.noUnits > 300){
            toPay = (long)((1.50 * (this.noUnits - 300)) + (100 * 1) + (100 * 1.2) + 500);
        }
        System.out.println("TOPAY = " + toPay);
    }

    public static void main(String[] args){
        Scanner sc = new Scanner(System.in);
        System.out.println("enter all");
        String cname = sc.next();
   String add = sc.next();
        long cnum = sc.nextLong();
        long units = sc.nextLong();
        EB eb = new EB(cnum, cname, add, units);
        eb.calculate();
        eb.display();
    }
}
```

https://s3-us-west-2.amazonaws.com/secure.notion-static.com/f7306e0e-5ac8-4dc0-a876-d6f7b616c545/CJ_Practical_4_-_Composition_in_Java_Classes.docx

Practical 5 -

a) Write a program to implement the following logic:

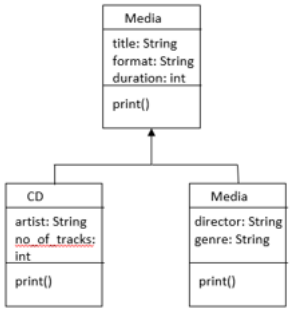


Write the class definitions, constructors and methods that are necessary for the above class diagram to work properly.

```
// Multilevel Inheritance

// Main Class

package practical5;

public class Practical5 {

    public static void main(String[] args) {
        Executive e = new Executive("Amaan", 200000, "Manager", "Sion");
        e.print();
    }

}

// Employee class

package practical5;
public class Employee {
    String name;
    int salary;

    public Employee(String name, int salary) {
        this.name = name;
        this.salary = salary;
    }

    public void print() {
        System.out.println("name=" + name + "\nsalary=" + salary);
    }
}

// Manager class

package practical5;

public class Manager extends Employee{
    String dept;

    public Manager(String name, int salary, String dept) {
        super(name, salary);
        this.dept = dept;
    }

    public void print(){
        super.print();
        System.out.println("\nDept:" + dept );
    }
}

// Executive Class

package practical5;

    public class Executive extends Manager{
    String location;

    public Executive(String name, int salary, String dept, String location) {
        super(name, salary, dept);
```

```
        this.location = location;
    }

    public void print(){
        super.print();
        System.out.println("\nLocattion:" + location );
    }
}
```

b) Write a program to implement following logic



Write the class definitions, constructors and methods that are necessary for the above class diagram to work properly.

```
// Hierarchical Inheritance

// Main class

package practical5;
public class Practical5 {

    public static void main(String[] args) {

       CD c= new CD("Amaan",3,"XYZ","MP3",5);
       DVD d= new DVD("Mahesh Bhatt","Drama","POR","MP4",10);
          c.print();
          d.print();
    }

}

// Media Class

package practical5;
public class Media{
    String title,format;
    int duration;

    public Media(String title, String format, int duration) {
        this.title = title;
        this.format = format;
        this.duration = duration;
    }
    public void print(){

        System.out.println("Title"+title + "\nFormat" + format + "\nDuration" + duration);
    }

}

// CD Class

package practical5;

public class CD extends Media {
    String Artist;
    int no_of_tracks;

    public CD(String Artist, int no_of_tracks, String title, String format, int duration) {
        super(title, format, duration);
        this.Artist = Artist;
        this.no_of_tracks = no_of_tracks;
    }
    public void print(){
        super.print();
```

```
        System.out.println("\nArtist :" +Artist+"\nNo of Tracks"+no_of_tracks);
    }

}

// DVD Class

package practical5;


public class DVD extends Media {
    String Director;
    String Genere;

    public DVD(String title, String format, int duration) {
        super(title, format, duration);

    }

    public DVD(String Director, String Genere, String title, String format, int duration) {
        super(title, format, duration);
        this.Director = Director;
        this.Genere = Genere;
    }
    public void print(){
        super.print();
        System.out.println("\nDirector" +Director +"\nGenre"+Genere);
    }
}
```