1. **Define a class to represent a bank account. Include the following members:**

   Data Members:

   a. Name of the Depositor

   b. Account Number

   c. Type of Account

   d. Balance amount in the account

   Data Methods:

   a. To assign initial values

   b. To deposit an amount

   c. To withdraw an amount

   d. To display name and balance.

CODE:

```
import java.util.*;
class a1
{
    private String depositorname;
    private int accountnumber;
    private String accounttype;
    private double balance;
    public a1() { this("",0,"saving",0.0);
}
public a1(String name ,int accountnumber)
{
    this(name,accountnumber,"savings",0.0);
}
public a1(String name,int accountnumber,String accounttype,double balance)
{
```

```
        this.depositorname=name; this.accountnumber=accountnumber;
        this.accounttype=accounttype;

        this.balance=balance;

}

public void setInitialValues(String name, int accountNumber, String accountType,
double balance)

{

        this.depositorname = name;

        this.accountnumber = accountnumber;

        this.accounttype = accounttype;

        this.balance = balance;

}

public void deposit(double amount)

{

if(amount > 0)

{

balance += amount;

System.out.println("Deposit successful. New balance is " + balance);

}

else

{

        System.out.println("Invalid amount. Please enter a positive amount to deposit.");

}

}

public void withdraw(double amount)

{

if(amount <= 0)

{
```

```
            System.out.println("Invalid amount. Please enter a positive amount to
            withdraw.");
}
else if(amount > balance)
{
            System.out.println("Insufficient balance. You can withdraw up to " + balance);
}
else
{
            balance -= amount;
            System.out.println("Withdrawal successful. New balance is " + balance);
}
}
public void display()
{
            System.out.println("Depositor name: \n" + depositorname);
            System.out.println("Account number: \n" + accountnumber);
            System.out.println("Account type: \n" + accounttype);
            System.out.println("Current balance: \n" + balance);
}
public static void main(String args[])
{
            Scanner s=new Scanner(System.in);
            a1 account1 = new a1();
            account1.setInitialValues("parth patel", 12345, "Savings",0.0);
            System.out.println("Enter the amount That You want to Deposit:");
            double depositAmount=s.nextDouble(); account1.deposit(depositAmount);
            System.out.println("Enter the amount That You want to Withdrawr:");
            double withdrawAmount=s.nextDouble(); account1.withdraw(withdrawAmount);
}
```

```
}
```

OUTPUT:

```
C:\java journal>javac a1.java

C:\java journal>java a1
Enter the amount That You want to Deposit:
15000
Deposit successful. New balance is 15000.0
Enter the amount That You want to Withdrawr:
8000
Withdrawal successful. New balance is 7000.0
```

2. **Write a program to print Floyd's triangle where n is command line input.**

1

2 3

4 5 6

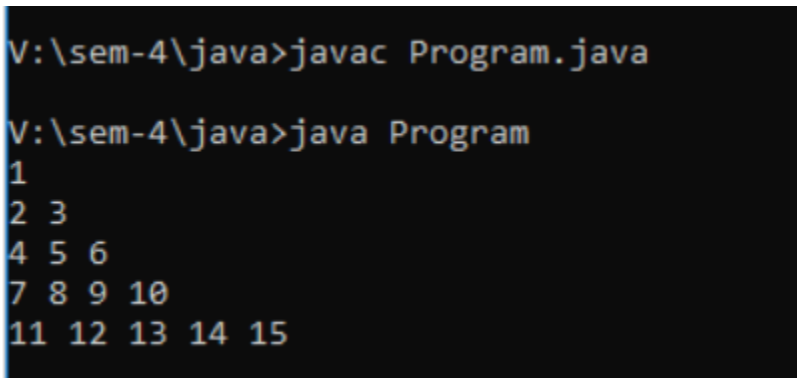
7 8 9 10

CODE:

```
Import java.util.*;
class program
{
    public static void main(String[] args)
    {
        int n = 5;
        int i, j, k = 1;
        for (i = 1; i <= n; i++)
        {
            for (j = 1; j <= i; j++)
            {
                System.out.print(k + " "); k++;
            }
```

```
                    System.out.println();
                }
            }
}
```

OUTPUT:



3. **Design a class Cricketer having data member name and a number of matches and appropriate member function to set the values. Derived two classes Batsman and Bowler from cricketer class with data member total number of runs and wickets respectively. Batsman class is having method to calculate average wicket. Write a program to create two objects and display information of one batsman and bowler along with average run and wicket.**

CODE:

```
class Crickter
{
    public String name;
    public double matchPlayed;
    public void setValues(String name,double matchPlayed)
    {
        this.name=name;
        this.matchPlayed=matchPlayed;
    }
    class Batsman extends Crickter
    {
    public double totalruns;
```

```
public double avarageRuns(double totalruns)
{
        this.totalruns=totalruns;
        return this.totalruns/matchPlayed;
}
}
class Bowler extends Crickter
{
public double wickets;
public double avarageWickets(double wickets)
{
        this.wickets=wickets;
        return this.wickets/matchPlayed;
}
}
class main
{
        public static void main(String args[])
        {
                Batsman bm=new Batsman(); bm.setValues("Sachin
                Tendulkar",782);
                double avgRuns=bm.avarageRuns(34357);
                System.out.println("Batsman Information\n");
                System.out.println("Batsman Name:"+bm.name);
                System.out.println("BatsmanRun:"+bm.totalruns);
                System.out.println("Batsman Match Played:"+bm.matchPlayed);
                System.out.println("Batsman Avg Runs:"+avgRuns);
                Bowler br=new Bowler();
                br.setValues("Muttiah Muralitharan",583);
                double avgWickets=br.avarageWickets(1347);
                System.out.println("\nBowler Information\n");
```

```
                System.out.println("Bpwler Name:"+br.name);
                System.out.println("Bpwler Wicketcs:"+br.wickets);
                System.out.println("Bpwler Match Played:"+br.matchPlayed);
                System.out.println("Bpwler Avg Wickets:"+avgWickets);
        }
}
```

OUTPUT:

```
V:\sem-4\java>javac main.java

V:\sem-4\java>java main
Batsman Information

Batsman Name:Sachin Tendulkar
Batsman Run:34357.0
Batsman Match Played:782.0
Batsman Avg Runs:43.934782608695652

Bowler Information

Bpwler Name:Muttiah Muralitharan
Bpwler Wicketcs:1347.0
Bpwler Match Played:583.0
Bpwler Avg Wickets:2.3104631217838767
```

4. **Write a program that will accept two strings or two numbers from command line and create overloaded method that add these two numbers or concate two strings.**

CODE:

```
Class CommandLineArguments
{
        public void display(String s1,String s2)
        {
                System.out.println("The Concated Stringis:"+(s1+s2));
        }
        public void display(int a,int b)
```

```
        {
            System.out.println("The Addition of "+a+" and "+b+" is:"+(a+b));
        }
        public static void main(String args[])
        {
            OverloadMethod o=new OverloadMethod();
            o.display("kashish","panchal");
            o.display(13,11);
        }
    }
```

OUTPUT:

```
E:\SEM-4\JAVA>javac CommandLineArguments.java

E:\SEM-4\JAVA>java CommandLineArguments Kashish Panchal
Result of concatenation: KashishPanchal
```

5. **Write a program that accept a number from command line and check whether it is palindrome or not.**

CODE:

```
import java.util.*;
class Palindrome
{
    public static void main(String args[])
    {
        String original, reverse = "";
        Scanner in = new Scanner(System.in); System.out.println("Enter a string to check if it is a palindrome");
        original = in.nextLine();
        int length = original.length();
        for ( int i = length - 1; i >= 0; i-- ) reverse = reverse + original.charAt(i);
```

```
                if (original.equals(reverse))
                {
                        System.out.println("Entered is a palindrome.");
                }
                else
                {
                System.out.println("Entered isn't a palindrome.");
                }
        }
}
```

OUTPUT:

```
V:\sem-4\java>javac Palid.java

V:\sem-4\java>java Palid
Enter a string to check if it is a palindrome
60
Entered isn't a palindrome.
```

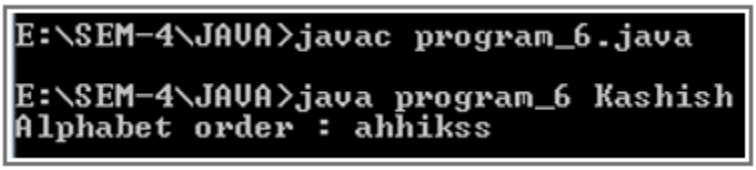
6. **Write a program that will accept a string from command line and arrange all the characters in alphabetical order.**

CODE:

```
 import java.util.Arrays;
 import java.util.Scanner;
 public class program_6
{
public static void main(String args[])
{
        Scanner sc = new Scanner(System.in);
        System.out.println("Enter a string value: ");
        String str = sc.nextLine();
        char charArray[] = str.toCharArray();
        Arrays.sort(charArray);
```

```
        System.out.println (new String(charArray));
    }
    }
```

OUTPUT:



7. **Write a program to create interface Area. Create three classes called rectangle, triangle and square calculate areas respectively.**

CODE:

```
interface Area
{
 public void Calculatearea();
}
 class rectangle implements Area
 {
        float x,y;
        public rectangle(float x,float y)
        {
        this.x=x;
        this.y=y;
        }
        public void Calculatearea()
        {
                System.out.println("The Area of Rectangle is:"+(this.x*this.y));
        }
 }
 class triangle implements Area
```

```
 {
        float x,y;
        public triangle(float x,float y)
        {
        this.x=x; this.y=y;
        }
        public void Calculatearea()
        {
                System.out.println("The Area of Triangle is:"+((this.x*this.y)/2));
        }
 }
 class square implements Area
 {
        float x;
        public square(float x)
        {
        this.x=x;
        }
        public void Calculatearea()
        {
                System.out.println("The Area of Square is:"+(this.x*this.x));
        }
}
class CalculateArea
{
        public static void main(String args[])
        {
                hight=20 and width=40 rectangle re=new rectangle(20,40);
```

```
                re.Calculatearea();
                base=20 and hight=40 triangle tr=new triangle(20,40);
                tr.Calculatearea();
                hight=40 square sq=new square(40);
                sq.Calculatearea();
        }
 }
```

OUTPUT:

```
V:\sem-4\java>javac CalculateArea.java

V:\sem-4\java>java CalculateArea
The Area of Rectangle is:800.0
The Area of Triangle is:400.0
The Area of Square is:1600.0
```

8. **Write a program that will accept a number from command line and raise a user defined exception if the number consists of odd number of digits.**

CODE:

```
class OddException extends Exception
{
 OddException(String str)
 {
        System.out.println(str);
  }
  }
class ExceptionHandaling
{
        public static void main(String args[])
        {
                int a=Integer.parseInt(args[0]);
```

```
                try
                {
                if(a%2==0)
                {
                        System.out.println("The "+a+" is Even.");
                 }
                Else
                {
                        throw new OddException("Number Consist Odd Value.");
                 }
                }
                catch(OddException e)
                {
                        System.out.println(e);
                }
        }
}
```

OUTPUT:

```
V:\sem-4\java>javac ExceptionHandaling.java

V:\sem-4\java>java ExceptionHandaling 45
Number Consist Odd Value.
OddException
```

9. **Write a java application which accepts 10 names of student and their age. Sort names and age in descending order. (Using Array).**

CODE:

```
import java.util.*;

class StudentDetail

{

        public static void main(String args[])

        {
StringStdName[]={"janvi","om","twinkle","maya","khushi","Shivani","ais
ha ","veera","Vina","jitesh"};

        int age[]={18,18,18,18,19,19,19,19,18,18};

        int n=9;

        String temp;

        for (int i=0; i<=n;i++)

        {

                for (int j=i+1;j<=n;j++)

                {

                        // to compare one string with other strings if
                        (StdName[i].compareTo(StdName[j]) > 0)

                        {

                                temp = StdName[i]; StdName[i] = StdName[j];

                                StdName[j] = temp;

                        }

                }

        }

        for(int i=0;i<=n;i++)

        {

                for(int j=i+1;j<=n;j++)

                {
```

```
                    //to set the age in descnding order int temp1;
                    if(age[i]>age[j])
                    {
                        temp1=age[i];
                        age[i]=age[j];
                        age[j]=temp1;
                    }
                }
            }
            System.out.println("Names & Age in descnding order.");
            System.out.println("Names\t\t\tAge");
            System.out.println("====================
            \t====================");
            for (int i = n; i >=0; i--)
            {
                System.out.println(StdName[i]+"\t\t\t"+age[i]);
            }
        }
```

OUTPUT:

```
V:\sem-4\java>javac StudentDetail.java

V:\sem-4\java>java StudentDetail
Names & Age in descnding order.
Names                   Age
====================    ====================
veera                   19
twinkle                 19
om                      19
maya                    19
khushi                  18
jitesh                  18
janvi                   18
aisha                   18
Vina                    18
Shivani                 18
```

10. Design a class MyString having a data member of type String and add member functions to achieve following task. (i) Reverse string (ii) String in Titlecase. (iii) Extract N-characters from right-end of the string Write a menu driven program to call these methods of MyString class. The program should not terminate abruptly.

CODE:

```
import java.util.*;
```

```
public class MyString
{
        private String str;
        public MyString(String str)
        {
                this.str = str;
        }
        public String reverse()
        {
                return new StringBuilder(str).reverse().toString();
         }
        public String toTitleCase()
         {
                StringBuilder result = new StringBuilder(str.length()); String[]
                words = str.split("\\s");
                for (String word : words)
                {
                if (!word.isEmpty())
                { result.append(Character.toUpperCase(word.charAt(0)));
                result.append(word.substring(1).toLowerCase());
                }
                result.append(" ");
          }
                return result.toString().trim();
 }
 public String extractNFromRight(int n)
 {
 if (n >= str.length())
 {
```

```
            return str;
}
return str.substring(str.length() - n);
}
public static void main(String[] args)
{
            Scanner scanner = new Scanner(System.in); System.out.print("Enter a
            string: ");
            String str = scanner.nextLine();
            MyString myString = new MyString(str);
            char ch;
            do
            {
                        System.out.println();
                        System.out.println("Menu:");
                        System.out.println("1. Reverse string"); System.out.println("2.
                        String in Titlecase"); System.out.println("3. Extract N-characters
                        from right-end of the string");
                        System.out.println("4. Exit");
                        System.out.print("Enter your choice: ");
                        int choice = scanner.nextInt();
                        scanner.nextLine();
                        switch (choice)
                        {
                                    case 1:
                                                System.out.println("Reversed string: " +
                                                myString.reverse());
                                    break;
                                    case 2:
```

```
                    System.out.println("Titlecased string: " +
                    myString.toTitleCase());
                break;
                case 3:
                    System.out.print("Enter N: ");
                    int n = scanner.nextInt(); scanner.nextLine();
                    System.out.println("Extracted " + n + " characters
                    from right: " + myString.extractNFromRight(n));
                break;
                case 4:
                    System.out.println("Exiting..."); System.exit(0);
                break;
                default:
                    System.out.println("Invalid choice. Try again.");
            }
            System.out.println("Do you want tocontinue?(press=y)");
            ch=scanner.next().charAt(0);
        }
        while(ch=='y');
    }
```

OUTPUT:

```
:\sem-4\java>javac MyString.java

:\sem-4\java>java MyString
nter a string: 89

lenu:
. Reverse string
. String in Titlecase
. Extract N-characters from right-end of the string
. Exit
nter your choice: 1
eversed string: 98
o you want to continue?(press=y)


lenu:
. Reverse string
. String in Titlecase
. Extract N-characters from right-end of the string
. Exit
nter your choice: 2
itlecased string: 89
o you want to continue?(press=y)


lenu:
. Reverse string
. String in Titlecase
. Extract N-characters from right-end of the string
. Exit
nter your choice: 3
nter N: 4
xtracted 4 characters from right: 89
o you want to continue?(press=y)


lenu:
. Reverse string
. String in Titlecase
. Extract N-characters from right-end of the string
. Exit
nter your choice: 4
xiting...
```