1. Write a program to list all even number less than or equal to number n. Take the value of n input from user.

⇒

```
import java java.util. sanner

public class EvenNumber {

public static void main (String[] args)
{
    Scanner sc Scanners = new Scanner (system.in)

    System.out.print("Enter a number n:");

    int n= 8 scanners.nextInt();

    System.out.println("Even number less than
                    or equal to " +n+ "are:");


    for (int i=2; i<=n; j i+=2)
    {
        System.out.print (i+ "  ");
    }
}
}
```

2. Rectangle with length & breath program with external class.

⇒

```java
public class Rectangle {

    private double length;
    private double breath;

    Public Rectangle() {
        this. length = 0;
        this. breath = 0;
    }

    public Rectangle(double length, double breath) {
        this. length = length;
        this. breath = breadth;
    }

    public double getlength() {
        return length;
    }
    Publi

    Public double getBreath() {
        return breath();
    }
}
```

```java
public void setLength (double length)
{ this.length = length; }

public void setBreadth (double breath)
{ this.breath = breath; }

public double calculatArea () {
        return length * breath; }

public void display () {

    System.out.println ("Rectangle information");
    System.out.println ("Length" + length);
    System.out.println ("Breath" + breath);
    System.out.println (". Area" + calculatArea());
```

TestRectangle. Java.

```java
import java.util.Scanner;

public class TestRectangle {

public static void main (String[] args) {

Scanner sc = new Scanner (system.in)
Rectangle[] rectangle = new Rectangle[5];
```

```java
for (int i=0 ; i<5 ; i++) {
    system.out.println("Enter details for
                        Rectangle" + (i+1));

    system.out.print("Enter length:");
    double length = sc.nextDouble();

    system.out.print("Enter breath");
    double breath = sc.nextDouble();

    rectangle[i] = new Rectangle(length,
                                 breath);

    rectangle[i].display();
}
}
}
```

Q.3. The program for book Titile & price of pr book

⇒

```
import @. java. on util. Scanner;

class Book {

private string bookTitle;
private double bookprice;

public Book (string bookTitl,
                double bookprice)
{
    this. bookTitl = bookTitl;
    this. bookprice = bookprice;  }

public string getBookTitle() {
        return bookTitle;  }

public void SetBookTitle (string bookTitle) {

    this. bookTitle = booktitle;  }

public double getBookprice () {
        return bookprice;  }

public void SetBookprice (double bookprice)
{
    this. bookprice = bookprice;
}
}
```

```java
Class BookManger {

    public static Book[] CreateBook(int n)
    {   Scanner sc = new scanner(System.in);

        Book[] books = new Book[n];

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

        System.out.println("Enter book titile");
        string title = sc.nextline();

        System.out.println("Enter book price");
        double price = sc.nextDouble();

        sc.nextline();

        book[i] = new Book(titile, price),
    }   return books;
```

```java
public static void showBooks(Book[] book){
    System.out.println("Book \t\t price");
    System.out.println("_____");
    for(Book book : books){
        System.out.printf("%-24s, Rs %.24f/n",
                book.getBookTitle(),
                book.getBookprice());
    }
}
public class BookTest(){
    public static void main(String[] args){
        Scanner sc=new Scanner(System.in);
        System.out.print("Enter number book :");
        int n = sc.nextInt();
        sc.nextLine();

        Book[] book =BookManger.createBook(n);
        BookManger.showBooks(books);
        sc.close();
```

Input:-
```
Enter the number of book : 1
Enter book title:
Java
Enter book price:
350.
```

output :

Book Title   price
- - - - - - - - - - - - - - - - - - -
Java   350

Q4. Modify the program No. 2 to
Setting length & breadth to 1.0.
& in setter length & breath between
0.0 & 20.0. create New method
for @ perimeter.

⇒ Modification : →
                    public Rectangle () {
                    this. length = 1.0;
                    this. breadth = 1.0 ; }

creating one New method called calperimt()

public double calpermeter () {
    return 2 * (length + breath);

And in the display method add
this fuction.

system. out. println("perimeter" + (akuperintes):

Q5. The program from Create the date a class is the getting employee Number, Name, join date.

→ public class Date {
private int day;
private int month;
private int year;

public Date() {
this. day = 1;
this. month = 1;
this. year = 2025;
}

public Date (int day, int month, int year)
{ if (isvalidate (day, month; year)) {

this. day = day;
this. mouth = mouth;
this year = year;
} else {
system. out. print ln (" Invalid the setting to default date");

this. day = 1;
this. month = 1;
this. year = 2025;
}}

```java
public Date(int day, int month, year){
    if (isValid date (day, month, year) {
        this. day = day;
        this. month = month;
        this. year = year;
    } else {
        System. oud.println("invalid data provied");

        this. day = 15
        this. month = 8;
        this. year = 2000;
    }


private boolean isValidDate (int day,
                        int month, int year)
{
    if (month < 1 || moth > 12) return false;
    if (daty < 1 || day > getDayInMoth (month,
                                        year))

    return year > 0 ;
```

```java
private int getDayInMonth(int month, int year){

    switch (month){
public Employee (int epmNumber,
String (emp, int day, int month, int year){

    this.empNumber = empNumber;
    this.empName = empName;
    this.joininDate = new Date(day, month, year);
}

public void display(){

    System.out.println("Employee number :"+empNum);
    System.out.println("Employee Name:"+empNa);
    System.out.println("Joining Date" +joinDate);
    System.out.println("------------ -------- ");
}}
```

```java
public class EmployManagement {
public static void main(string [] arg)
{

    Employee emp1 = new Employee (101,
                "Alice", 15, 6, 2025);

    Employee emp2 = new Employee ("102", "Bob",
                        10, 2, 205);

    emp1. display();
    emp2. display();

    System. out. println("Testing Date Addition");

    Date newDate = emp1. joiningDate.addDay(30);

    System. out.print("new date after ading 30
            day's " + new date);
```

Out:-
```
        Employee Number :101
        Employee Name :Alice Johnson
        Joining Date  :15 -06- 2018.
```

Q6. The program to get the out Input from cmd & display String in uppercase.

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

if(arg.length <1){
    system.out.println("please provide a string c-1-argms");
    return; }
    string inputstring = arg[0];
    system.out.println( "Length of string"+ inputstring.length()

string uppercasstring = inputString.toUpperCase();
system.out.println ("string is uppercase"; + uppercagestring)

boolean ispalindrone = isPalindrone (inputstring);
if (isPlaindrone){
    system.out.println( "The string is palindrome"),
    }else { system out.println(" string is not palindrome"); }
}

public static boolean isPalindrome (string str){
    str = str. replaceAll("\\s ", " ").toLower(age);
    string reversedstring = new StringBuilder (str).
                                    reverse (). tostring
    return str.equal (reversedstring);
```

Q7) The program that accept the two number & print 13 no in seque. is sum of periouee.

A ⇒

Public class stringoperations fibonacciseque. {

Public static void main (String [] args) {

if (arg. length != 2) {

system. out. println ("Please provied exactly two no");
return; }

String inputString = args[0];
system.out. println ("Length of the string:" + inputString leng")

String uppercasestring = inputstring. toUppercase();
System. out. println ("string in uppercase:" + uppercatesti

boolean ispalindrome = checkPalindrone (inputstring);

if (ispalindrome) {

system. out. println ("String is not palindro");

} else {

system. out. println ("string is not palindron");

}
}
}

```java
public static boolean CheckPalindrome
                        (String str) {

    int start = 0;
    int end = str.length-1;

    while (start < end) {
        if (str.chatAt(start) != str.charAt(end))

            return false; }

        start++;
        end--;
    }
    return true;
}
```

ii) output :

Length of String : 5
string th is uppercase : MADAM
The string is a palindrome.

Qx. Write a program to get input for Commound line
& use for loop to Single dimension array of
five integer element ranging in value from 1 to 40.
the display the message BINGO If the two inpu

An →

```
Public class BingoGame {

Public static void main (String[] args){

    if (args. length != 2) {
        System. out. println (" please provid
                            exactly two numbes");
        return;

    int num1 = Integer. parseInt (args[0]);
    int num2 = Integer. parseInt (args[1]);

    if (num <1 || num1 >40 || num2 <1 || num >40
    {
        System. out. println ("Number must be
                            between 1 to 40);
        System. exit (1);

    int[] bingoArray = {7, 14, 21, 32, 39};
```

```java
boolean found1 = false;
boolean found2 = false;

for (int num : bingoArray) {

if (num == num1) {
    found1 = true; }

if (num = num2) {

} found2 = true;
} }

if (found1 && found2) {

    system.out.println("BINGO");
} else {
        system.out.println("Number not fo");
}
Catch (NumberFormException e) {
    system.out.println("please enter vaild
                        number");
System.exit(1); } } }
```

Output:-
    Case1: if 5 to 3 in array.
            java BingoGame 5 30
Case 2: one or both number not in array.
        Java BingoGame 7 15
        NO BINGO Tryagi.

Q9. Write program that allows you to create Inter array of 18 element with given arr. The program computes to sum of 0 to 14 and store it element 16 & identifies.

⇒

```java
public Class ArrayOperations{

public static void main (string[] args){

int A[] = {3, 2, 4, 5, 6, 4, 5, 7, 3, 2, 3, 4, 7, 1, 2, 0, 0, 0};

int sum = 0 ;
       for (int i= 0; i<=14; i++){
           sum += A[i] ; }
A[15] = Sum ;

double avg = sum /15.0;
A[16] = (int) avg ;

int smallest = A[0];

for (int i= 1; i<=14; i++){

if (A[i] < smallest){

smallest = A[i]; } }

A[15] = sum ;
```

```
double avg = sum / 15.0
A[17] = smallest;
System.out.println("Updated Array");
    for (int i=0; i<A.length, i++) {
    System.out.println("A[" +i+ "] = A[i]);
}}}
```

output:-

```
A[0] = 3
A[1] = 2
A[L] = 4
[3] = 5
```

Q (4) Create the class Term This class
represents a term of a polynomial such
as $2x^4$ where 2 is cofficient & 4 is
expoent of term.

A →

```java
import java.util.Arrays;

Class Term {

    int coff;
    int exp;

    public Term (int coff, int exp) {
        this.coff = coff;
        this.exp = exp;
    }
}
class Polynomial {

    private static final int max_Term = 10;
    private Term[] terms;
    private int termCount;

    public Polyomial () {

        terms = new Term[max_TERMs];
        for (int i=0; i < MAX_TERMS; i++) {
            terms[i] = new Term (0,0);
            termCount = 0;
        }
    }
```

```java
public void setTerm (int coff, int exp) {
    if (exp <0) {
        System.out.println("can not ve");
        return; }

    if (termcount >= MAX_TERMS) {
        System.out.println("The maximum of te");
        return; }

    for(int i=0, i< termcount, i++) {

        if (terms[i].exponent == exponent) {

            System.out.println("A term with exponent
                     "+exp + "aredy exits");
            return; } }

        terms [termcount] = new Term(coff, exp);
        termcount++;

public void Sort () {

    Array.sort (term, 0, termcount, (t1,t2) =>
            Integer.compar (t1.exponent, t2.expond);
```

```
Public void display () {
if (termcount ==0) {
  system.out. println(" 0 empty polymoial");
  retun; }

StringBuilder Polynomialstr = new string.
                                 Bulider();
for (int i = 0; i < term count; i++) {
  Term t = terms[i];
  if (i > 0) {
     Polynomialstr . append(" + "); }
  } polynomialstr. append (t. coff). app("x").
    app (t. exp); }

system. out.println( "Polynomial: " + polynomialstr.
                                 tostring());
```

```
public class PolynomialTest {
    public static void main (string[] args)
    {
        Polyomial poly = new polyomial();

        poly.setTerm(2,4);
        poly.setTerm(3,2);
        poly.setTerm(5,5);
        poly.setTerm(1,0);
        poly.setterm(6,3);

        poly.setTerm(4,3);

        poly.setTerm(7,-1);

        poly.soot();

        poly.print.po

        poly.display();
```

Output :-
        can not found.