```
       /* UNIT-4 LOOPING CONSTRUCT PRACTICE EXAMPLES*/
//1. Write a Java program to print all natural numbers from 1 to n. - using while loop
import java.util.*;
class PS2
{
    public static void main(String args[])
    {
     Scanner sc=new Scanner (System.in);
     System.out.println("Eneter number n");
     int n=sc.nextInt();
     int i=1;
     while(i<=n)
     {
         System.out.println(i);
         i++;
     }
    }
}
//2. Write a Java program to print all natural numbers in reverse (from n to 1). - using
whileloop
import java.util.*;
class PS2
{
    public static void main(String args[])
    {
     Scanner sc=new Scanner (System.in);
     System.out.println("Eneter number n");
     int n=sc.nextInt();
     int i=1;
     while(n>=i)
     {
         System.out.println(n);
         n--;
     }
    }
}
//3. Write a Java program to print all alphabets from a to z. - using while loop
import java.util.*;
class PS3
{
    public static void main(String args[])
    {

     char ch='a';
     while(ch<='z')
     {
         System.out.println(ch);
         ch++;
     }
    }
}
//4. Write a Java program to print all even numbers between 1 to 100. - using while loop
import java.util.*;
class PS4
{
    public static void main(String args[])
    {

     int i=2;
     while(i<=100)
     {
         System.out.println(i);
         i+=2;
     }
    }
}
```

```java
//5. Write a Java program to print all odd number between 1 to 100.
import java.util.*;
class PS5
{
    public static void main(String args[])
    {

     int i=1;
     while(i<=100)
     {
         System.out.println(i);
         i+=2;
     }
    }
}
//6. Write a Java program to find sum of all natural numbers between 1 to n.
import java.util.*;
class PS6
{
    public static void main(String args[])
    {
     Scanner sc=new Scanner (System.in);
     System.out.println("Eneter number n");
     int n=sc.nextInt();
     int sum=0,i;
     for(i=0;i<=n;i++)
     {
         sum+=i;

     }
     System.out.println(sum);

    }
}
//7. Write a Java program to find sum of all even numbers between 1 to n.
import java.util.*;
class PS7
{
    public static void main(String args[])
    {
     Scanner sc=new Scanner (System.in);
     System.out.println("Eneter number n");
     int n=sc.nextInt();
     int sum=0,i;
     for(i=0;i<=n;i++)
     {
         if(i%2==0)
         {
            sum+=i;
         }


     }
     System.out.println(sum);

    }
}
//8. Write a Java program to find sum of all odd numbers between 1 to n.
import java.util.*;
class PS8
{
    public static void main(String args[])
    {
     Scanner sc=new Scanner (System.in);
     System.out.println("Eneter number n");
     int n=sc.nextInt();
```

```
      int sum=0,i;
      for(i=0;i<=n;i++)
      {
          if(i%2!=0)
          {
             sum+=i;
          }


      }
      System.out.println(sum);

     }
}
//9. Write a Java program to print multiplication table of any number.
import java.util.*;
class PS9
{
     public static void main(String args[])
     {
      Scanner sc=new Scanner (System.in);
      System.out.println("Eneter number n");
      int n=sc.nextInt();
      int i;
      for(i=1;i<=10;i++)
      {
         System.out.println(n+" * "+i+" = "+(n*i));
      }


     }
}
//10.Write a Java program to count number of digits in a number. Input num: 35419 Number of
digits: 5
import java.util.*;
class PS10
{
     public static void main(String args[])
     {
      Scanner sc=new Scanner (System.in);
      System.out.println("Eneter number n");
      int n=sc.nextInt();
      int i,r,count=0;
      while(n>0)
      {
         r=n%10;
         count++;
         n=n/10;
      }
      System.out.print("Digits="+count);

     }
}
//11.Write a Java program to find first and last digit of a number.
import java.util.*;
class PS11
{
     public static void main(String args[])
     {
      Scanner sc=new Scanner (System.in);
      System.out.println("Eneter number n");
      int n=sc.nextInt();
      int i,r,fd=0;
      int ld=n%10;
      while(n>0)
      {
```

```
        fd=n%10;
        n=n/10;
     }
     System.out.print("fd="+fd+"\n"+"ld="+ld);

    }
}
//12. Write a Java program to find sum of first and last digit of a number.
import java.util.*;
class PS12
{
    public static void main(String args[])
    {
     Scanner sc=new Scanner (System.in);
     System.out.println("Eneter number n");
     int n=sc.nextInt();
     int i,r,fd=0,sum=0;
     int ld=n%10;
     while(n>0)
     {
        fd=n%10;
        n=n/10;
     }
     sum=fd+ld;
     System.out.print("sum of fd and ld="+sum);

    }
}
//13. Write a Java program to swap first and last digits of a number.
import java.util.*;
class PS13
{
    public static void main(String args[])
    {
     Scanner sc=new Scanner (System.in);
     System.out.println("Eneter number n");
     int n=sc.nextInt();
     int i,count=0;
     int r,ld,fd,sum=0;
     int temp=n;
     while(temp>0)
     {
         temp=temp/10;
         count++;
     }
     r=n%10;
     ld=r;

     System.out.println("Count="+count);
     for(i=1;i<=count;i++)
     {
        if(i==1 || i==count)
        {
            r=n%10;
            sum=(sum*10)+r;
            n=n/10;
        }
        else
        {
            r=n%10;
            sum=(sum*10)+r;
            n=n/10;
            r=n%10;
            sum=(sum*10)+r;
            n=n/10;
        }
```

```
      }
      fd=r;
      System.out.println("ld="+ld+"fd="+fd);
      System.out.println("Number="+sum);


    }
}
//14. Write a Java program to calculate sum of digits of a number.
import java.util.*;
class PS14
{
    public static void main(String args[])
    {
     Scanner sc=new Scanner (System.in);
     System.out.println("Eneter number n");
     int n=sc.nextInt();
     int i,r,sum=0;

     while(n>0)
     {
        r=n%10;
        sum=sum+r;
        n=n/10;
     }
     System.out.print("sum="+sum);

    }
}
//15. Write a Java program to calculate product of digits of a number.
import java.util.*;
class PS15
{
    public static void main(String args[])
    {
     Scanner sc=new Scanner (System.in);
     System.out.println("Eneter number n");
     int n=sc.nextInt();
     int i,r,mul=1;

     while(n>0)
     {
        r=n%10;
        mul=mul*r;
        n=n/10;
     }
     System.out.print("Product="+mul);

    }
}
//16. Write a Java program to enter a number and print its reverse.
import java.util.*;
class PS16
{
    public static void main(String args[])
    {
     Scanner sc=new Scanner (System.in);
     System.out.println("Eneter number n");
     int n=sc.nextInt();
     int i,r,rev=0;

     while(n>0)
     {
        r=n%10;
        rev=(rev*10)+r;
        n=n/10;
```

```
     }
     System.out.print("Rev Number="+rev);

    }
}
//17. Write a Java program to check whether a number is palindrome or not.
import java.util.*;
class PS17
{
    public static void main(String args[])
    {
     Scanner sc=new Scanner (System.in);
     System.out.println("Eneter number n");
     int n=sc.nextInt();
     int i,r,rev=0;
     int temp=n;
     while(n>0)
     {
        r=n%10;
        rev=(rev*10)+r;
        n=n/10;
     }
     if(rev==temp)
     {
        System.out.print("Palindrome");
     }
     else
     {
        System.out.print("Not Palindrome");
     }


    }
}
//18. Write a Java program to find frequency of each digit in a given integer. Eg num=35466
//the how many 0,1 … and 9
import java.util.*;
class PS18
{
    public static void main(String args[])
    {
     Scanner sc=new Scanner (System.in);
     System.out.println("Eneter number n");
     int n=sc.nextInt();
     int i,digit,count;
     int temp;
     for(i=0;i<=9;i++)
     {
        count=0;
        temp=n;
        while(temp>0)
        {
            digit=temp%10;
            if(digit==i)
            {
                count++;
            }
            temp=temp/10;
        }
        if(count>0)
        {
            System.out.println(i+"\t"+count);
        }

     }
```

```
    }
}
//19. Write a Java program to enter a number and print it in words. Eg num=35466 One Two
//Three Four
import java.util.*;
class PS19{
    public static void main(String args[])
    {

      Scanner sc = new Scanner(System.in);
      System.out.println("Enter a number n");
      int n = sc.nextInt();
      int i,r;
      String ch="";

      while(n>0)
      {
          r=n%10;
          switch(r)
        {
          case 0: ch="Zero"+ch;break;
          case 1: ch="One"+ch;break;
          case 2: ch="Two"+ch;break;
          case 3: ch="Three"+ch;break;
          case 4: ch="Four"+ch;break;
          case 5: ch="Five"+ch;break;
          case 6: ch="Six"+ch;break;
          case 7: ch="Seven"+ch;break;
          case 8: ch="Eight"+ch;break;
          case 9: ch="Nine"+ch;break;
        }
        n=n/10;
      }
        System.out.print(ch+" ");

    }

}
//20. Write a Java program to print all ASCII character with their values.
import java.util.*;
class PS20
{
    public static void main(String args[])
    {
     Scanner sc=new Scanner (System.in);
     char i;
     for(i = 'A'; i <= 'Z'; i++)
        {
            System.out.println(" The ASCII value of " + i + "  =  " + (int)i);
        }

    }
}
//21. Write a Java program to find power of a number using for loop.
import java.util.*;
class PS21
{
    public static void main(String args[])
    {
     Scanner sc=new Scanner (System.in);
     System.out.println("Eneter base number n");
     int n=sc.nextInt();
     System.out.println("Eneter exponent number e");
     int e=sc.nextInt();
     int num=1;
     boolean flag=false;
```

```
      while(e!=0)
      {
         num=num*n;
         e--;
      }
      System.out.println(num);

     }
}
//22. Write a Java program to find all factors of a number.
import java.util.*;
class PS22
{
    public static void main(String args[])
    {
     Scanner sc=new Scanner (System.in);
     System.out.println("Eneter number n");
     int n=sc.nextInt();
     int i,j,fact=1;
     boolean flag=false;
     for(i=1;i<n;i++)
     {
        if(n%i==0)
        {
            System.out.print(i+" ");
        }
     }
    }
}
//23. Write a Java program to calculate factorial of a number.
import java.util.*;
class PS23
{
    public static void main(String args[])
    {
     Scanner sc=new Scanner (System.in);
     System.out.println("Eneter number n");
     int n=sc.nextInt();
     int i,j,fact=1;

     for(i=1;i<=n;i++)
     {
        fact=fact*i;



     }
        System.out.print("\nFact="+fact);

    }
}
//24. Write a Java program to find HCF (GCD) of two numbers.
import java.util.*;
class PS24
{
    public static void main(String args[])
    {
        Scanner sc=new Scanner(System.in);
        System.out.println("Eneter first number n1");
        int n1=sc.nextInt();
        System.out.println("Eneter second number n2");
        int n2=sc.nextInt();
        int i,j,HCF=1;
        for(i=1;i<=n1 && i<=n2;i++)
        {
            if(n1%i==0 && n2%i==0)
```

```
            {
                HCF=i;
            }
        }
        System.out.println(HCF+" ");


    }
}
//25. Write a Java program to find LCM of two numbers.
import java.util.*;
class PSQ25
{
    public static void main(String args[])
    {
        Scanner sc=new Scanner(System.in);
        System.out.println("Eneter first number n1");
        int n1=sc.nextInt();
        System.out.println("Eneter second number n2");
        int n2=sc.nextInt();
        int i,j,HCF=1;
        for(i=1;i<=n1 && i<=n2;i++)
        {
            if(n1%i==0 && n2%i==0)
            {
                HCF=i;
            }
        }
        int LCM=(n1*n2)/HCF;
        System.out.print(LCM);


    }
}
//26. Write a Java program to check whether a number is Prime number or not.
import java.util.*;
class PS26 {
  public static void main(String[] args) {
        Scanner sc=new Scanner(System.in);
        System.out.println("Enter number:");
        int num=sc.nextInt();
        boolean flag = false;
        for (int i = 2; i <= num / 2; ++i) {
          // condition for nonprime number
          if (num % i == 0) {
            flag = true;
            break;
          }
        }

    if (!flag)
      System.out.println(num + " is a prime number.");
    else
      System.out.println(num + " is not a prime number.");
  }
}
//28. Write a Java program to find sum of all prime numbers between 1 to n.
import java.util.*;
class PS28
{
    public static void main(String args[])
    {
     Scanner sc=new Scanner (System.in);
     System.out.println("Eneter number n");
     int n=sc.nextInt();
     int i,j,sum=0;
```

```
     for(i=2;i<=n;i++)
     {
        int count=0;
        for(j=2;j<=i;j++)
        {
            if(i%j==0)
            {
                count++;

            }


        }
        if(count==1)
        {
            sum=sum+i;
            System.out.print(i+" ");
        }



     }
        System.out.print("\nSum="+sum);

    }
}
//29. Write a Java program to find all prime factors of a number.
import java.util.*;
class PS29

{
    public static void main(String args[])
    {

      Scanner sc = new Scanner(System.in);
      System.out.println("Enter a number n");
      int n = sc.nextInt();
      int i;
      for(i = 2; i< n; i++)
      {
         while(n%i == 0)
         {
            System.out.println(i+" ");
            n = n/i;
         }
      }
      if(n>2)
      {
         System.out.println(n);
      }

    }
}
//30. Write a Java program to check whether a number is Armstrong number or not.
import java.util.*;
class PS30

{
    public static void main(String args[])
    {

      Scanner sc = new Scanner(System.in);
      System.out.println("Enter a number m");
      int m = sc.nextInt();
      int i=m,j,r,n=m;
```

```
      double sum=0;
      int count=0;
        while(n>0)
         {
            n=n/10;
            count++;
         }
        while(m>0)
        {
          r=m%10;
          sum=sum+(Math.pow(r,count));
          m=m/10;
        }

        if(sum==i)
          System.out.println("Armstrong");
       else
           System.out.println("Not an Armstrong");

      }
}
//31. Write a Java program to print all Armstrong numbers between 1 to n.
import java.util.*;
class PS31

{
    public static void main(String args[])
    {

      Scanner sc = new Scanner(System.in);
      System.out.println("Enter a number m");
      int m = sc.nextInt();
      int i,j,r,n;
      double sum=0;
      int count=0;

      for(i=1;i<=m;i++)
      {
        n=i;
        while(n>0)
         {
            n=n/10;
            count++;
         System.out.println("count="+count);
         }

         n=i;
        while(n>0)
        {
          r=n%10;
          sum=sum+(Math.pow(r,count));
          n=n/10;
        }

        if(sum==i)
        {
          System.out.println(i+" ");
        }
        sum=0;
        count=0;
      }
    }
}
//32. Write a Java program to check whether a number is Perfect number or not.
import java.util.*;
class PS32
```

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

      Scanner sc = new Scanner(System.in);
      System.out.println("Enter a number m");
      int m = sc.nextInt();
      int i,count=0;
      int sum=0;
      int temp=m;
      for(i=1;i<m;i++)
      {
        if(m%i==0)
        {
            sum+=i;
        }
      }
      if(sum==m)
      {
          System.out.print("Yes perfect");
      }
      else
      {
          System.out.print("Not perfect");
      }
    }
}
//33. Write a Java program to print all Perfect numbers between 1 to n.
import java.util.*;
class PS33

{
    public static void main(String args[])
    {

      Scanner sc = new Scanner(System.in);
      System.out.println("Enter a number n");
      int n = sc.nextInt();
      int i,j,count=0;
      int sum=0;

      for(i=1;i<n;i++)
      {
          for(j=1;j<i;j++)
          {
             if(i%j==0)
             {
                 sum+=j;
             }

          }
          if(sum==i)
          {
              System.out.print(sum+" ");
          }
          sum=0;
      }
    }

}
//34. Write a Java program to print Fibonacci series up to n terms.
import java.util.*;

class PS34
{
```

```
    public static void main(String args[])
    {
        int i,n;
        Scanner sc = new Scanner(System.in);
        System.out.println("Enter a number to generate fibonacci series upto nth term");
        n=sc.nextInt();
        int a=0;
        int b=1,c;

        System.out.println("Fibonacci series upto "+n+" is :-");
        while(c<=n)
        {
                c=a+b;
                System.out.print(a+" ");
                a=b;
                b=c;

        }
    }
}
//PATTERN EXAMPLES
/*
       *****
       *    *
        *    *
         *    *
           *****
           Hollow Mirrored Rhombus Star Pattern
*/
import java.util.*;
public class temp{
    public static void main(String args[])
    {
        int N, i,j;
        Scanner sc = new Scanner(System.in);
        System.out.println("Enter number of rows");
        N = sc.nextInt();

        for(i=1; i<=N; i++)
        {
            /* Print trailing spaces */
            for(j=1; j<i; j++)
            {
                System.out.print(" ");
            }

            /* Print hollow rhombus */
            for(j=1; j<=N; j++)
            {
                if(i==1 || i==N  || j==1|| j==N)
                System.out.print("*");

                else
                System.out.print(" ");
            }

            System.out.println();
        }
}}
/*
*
**
***
****
*****
Right Triangle Star Pattern
```

```
*/
import java.util.*;
public class temp{
    public static void main(String args[])
    {
        int N, i,j;
        Scanner sc = new Scanner(System.in);
        System.out.println("Enter number of rows");
        N = sc.nextInt();
        for(i=1; i<=N; i++)
        {
            for(j=1; j<i; j++)
            {
              System.out.print("*");
            }
           System.out.println();
        }
    }
}
/*
*
**
* *
*  *
*****

Hollow Right Triangle Star Pattern
*/
import java.util.*;
public class temp{
    public static void main(String args[])
    {
        int N, i,j;
        Scanner sc = new Scanner(System.in);
        System.out.println("Enter number of rows");
        N = sc.nextInt();

        for(i=1; i<=N; i++)
        {

            for(j=1; j<=i; j++)
            {
                if(j==1 || j==i || i==N)
                {
                    System.out.print("*");
                }
                else{
                    System.out.print(" ");

                }
            }

            System.out.println();
        }
    }
}
/*
        *
       **
      ***
     ****
    *****
Mirrored Right Triangle Star Pattern
*/
import java.util.*;
public class temp{
```

```
    public static void main(String args[])
    {
        int N, i,j,k;
        Scanner sc = new Scanner(System.in);
        System.out.println("Enter number of rows");
        N = sc.nextInt();

        for(i=1; i<=N; i++)
        {

            for(j=N; j>i; j--)
            {
                    System.out.print(" ");
            }

            for(k=1;k<=i;k++)
            {
                System.out.print("*");

            }
            System.out.println();
        }


    }
}
/*
*****
****
***
**
*
Inverted Right Triangle Star Pattern
*/
import java.util.*;
public class temp{
    public static void main(String args[])
    {
        int N, i,j,k;
        Scanner sc = new Scanner(System.in);
        System.out.println("Enter number of rows");
        N = sc.nextInt();

        for(i=1; i<=N; i++)
        {

            for(j=N;j>=i;j--)
            {
                System.out.print("*");

            }
            System.out.println();
        }
    }
}
/*
    *****
     ****
      ***
       **
        *
Inverted Mirrored Right Triangle Star Pattern
*/
import java.util.*;
public class temp{
    public static void main(String args[])
```

```
    {
        int N, i,j,k;
        Scanner sc = new Scanner(System.in);
        System.out.println("Enter number of rows");
        N = sc.nextInt();

        for(i=1; i<=N; i++)
        {

            for(j=1;j<=i;j++)
            {

                System.out.print(" ");
            }
            for(k=N;k>=i;k--)
            {
                System.out.print("*");

            }
            System.out.println();
        }


    }
}
/*
          *
         * *
        *   *
       *     *
      *********
*/
import java.util.*;
class Pattern{
    public static void main(String[] args) {
    Scanner sc = new Scanner(System.in);
    System.out.print("Enter number of rows:");
    int n=sc.nextInt();
    System.out.print("Enter Symbol : ");
    char c = sc.next().charAt(0);
    for(int i=1;i<=n;i++){
        for(int j=1;j<=n-i;j++){
            System.out.print(" ");
        }
        if(i==1 || i==n)
            for(int j=1;j<=i*2-1;j++){
            System.out.print(c);
        }
        else
        {
            for(int j=1;j<=i*2-1;j++)

        {
        if(j==1 || j==i*2-1)
            System.out.print(c);
        else

            System.out.print(" ");
    }
    }
    System.out.println();
    }
  }
}
/*
1
```

```
22
333
4444
55555
*/
import java.util.*;
class Pattern{
    public static void main(String[] args) {
    Scanner sc = new Scanner(System.in);
    System.out.print("Enter number of rows:");
    int n=sc.nextInt();
    for(int i=1;i<=n;i++){
                for(int j=1;j<=i;j++){
                            System.out.print(i);
                }
                System.out.print("\n");
    }
  }
}
/*
55555
4444
333
22
1
*/
import java.util.*;
class Pattern{
    public static void main(String[] args) {
    Scanner sc = new Scanner(System.in);
    System.out.print("Enter number of rows:");
    int n=sc.nextInt();
    for(int i=n;i>=1;i--){
                for(int j=1;j<=i;j++){
                                        System.out.print(i);
                }
                System.out.println();
    }
  }
}
/*
11111
2222
333
44
5
*/
import java.util.*;
class Pattern{
    public static void main(String[] args) {
    Scanner sc = new Scanner(System.in);
    System.out.print("Enter number of rows:");
    int n=sc.nextInt();
    for(int i=1;i<=n;i++){
                for(int j=1;j<=(n-i+1);j++){
                                        System.out.print(i);
                }
                System.out.println();
    }
  }
}
/*
5
44
333
2222
```

```
11111
*/
import java.util.*;
class Pattern{
    public static void main(String[] args) {
    Scanner sc = new Scanner(System.in);
    System.out.print("Enter number of rows:");
    int n=sc.nextInt();
    for(int i=n;i>=1;i--){
                for(int j=1;j<=(n-i+1);j++){
                                        System.out.print(i);
                }
                System.out.println();
    }
  }
}
/*
1
12
123
1234
12345
*/
import java.util.*;
class Pattern{
    public static void main(String[] args) {
    Scanner sc = new Scanner(System.in);
    System.out.print("Enter number of rows:");
    int n=sc.nextInt();
    for(int i=1;i<=n;i++){
                for(int j=1;j<=i;j++){
                            System.out.print(j);
                }
                System.out.println();
    }
  }
}
/*
12345
1234
123
12
1
*/
import java.util.*;
class Pattern{
    public static void main(String[] args) {
    Scanner sc = new Scanner(System.in);
    System.out.print("Enter number of rows:");
    int n=sc.nextInt();
    for(int i=1;i<=n;i++){
                for(int j=1;j<=(n-i+1);j++){
                                        System.out.print(j);
                }
                System.out.println();
    }
  }
}
/*
1
21
321
4321
54321
*/
import java.util.*;
```

```
class Pattern{
    public static void main(String[] args) {
    Scanner sc = new Scanner(System.in);
    System.out.print("Enter number of rows:");
    int n=sc.nextInt();
    for(int i=1;i<=n;i++){
                for(int j=i;j>=1;j--){
                            System.out.print(j);
                }
                System.out.println();
    }
  }
}
/*
54321
4321
321
21
1
*/
import java.util.*;
class Pattern{
    public static void main(String[] args) {
    Scanner sc = new Scanner(System.in);
    System.out.print("Enter number of rows:");
    int n=sc.nextInt();
    for(int i=1;i<=n;i++){
                for(int j=(n-i+1);j>=1;j--){
                                        System.out.print(j);
                }
                System.out.println();
    }
  }
}
/*
5
54
543
5432
54321
*/
import java.util.*;
class Pattern{
    public static void main(String[] args) {
    Scanner sc = new Scanner(System.in);
    System.out.print("Enter number of rows:");
    int n=sc.nextInt();
    for(int i=n;i>=1;i--){
                for(int j=n;j>=i;j--){
                            System.out.print(j);
                }
                System.out.println();
    }
  }
}
/*
54321
5432
543
54
5
*/
import java.util.*;
class Pattern{
   public static void main(String[] args) {
   Scanner sc = new Scanner(System.in);
```

```
   System.out.print("Enter number of rows:");
   int n=sc.nextInt();
   for(int i=n;i>=1;i--){
        for(int j=n;j>=(n-i+1);j--){
                    System.out.print(j);
        }
        System.out.println();
   }
  }
}
/*
5
45
345
2345
12345
 */
import java.util.*;
class Pattern{
    public static void main(String[] args) {
    Scanner sc = new Scanner(System.in);
    System.out.print("Enter number of rows:");
    int n=sc.nextInt();
    for(int i=1;i<=n;i++){
                for(int j=n-i+1;j<=n;j++){
                            System.out.print(j);
                }
                System.out.println();
    }
  }
}
/*
12345
2345
345
45
5
*/
import java.util.*;
class Pattern{
    public static void main(String[] args) {
    Scanner sc = new Scanner(System.in);
    System.out.print("Enter number of rows:");
    int n=sc.nextInt();
    for(int i=1;i<=n;i++){
                for(int j=i;j<=n;j++){
                                        System.out.print(j);
                }
                System.out.println();
    }
  }
}
/*
1
23
345
4567
56789
*/
import java.util.*;
class Pattern{
    public static void main(String[] args) {
    Scanner sc = new Scanner(System.in);
    System.out.print("Enter number of rows:");
    int n=sc.nextInt();
    int a=0;
```

```
    for(int i=1;i<=n;i++){
                for(int j=1;j<=i;j++){
                                        System.out.print(a+j);
                }
                ++a;
                System.out.println();
    }
  }
}
/*
56789
4567
345
23
1
*/
import java.util.*;
class Pattern{
    public static void main(String[] args) {
    Scanner sc = new Scanner(System.in);
    System.out.print("Enter number of rows:");
    int n=sc.nextInt();
    for(int i=n;i>=1;i--){
                for(int j=i;j<(2*i);j++){
                                        System.out.print(j);
                }
                System.out.println();
    }
  }
}
/*
13579
3579
579
79
9
*/
 import java.util.*;
class Pattern{
    public static void main(String[] args) {
    Scanner sc = new Scanner(System.in);
    System.out.print("Enter number of rows:");
    int n=sc.nextInt();
    for(int i=1;i<=(2*n);i=i+2){
            for(int j=i;j<(2*n);j=j+2){
                        System.out.print(j);
            }
            System.out.println();
    }
  }
}
/*
1
10
101
1010
10101
 */
import java.util.*;
class Pattern{
    public static void main(String[] args) {
    Scanner sc = new Scanner(System.in);
    System.out.print("Enter number of rows:");
    int n=sc.nextInt();
    for(int i=1;i<=n;i++){
                for(int j=1;j<=i;j++){
```

```
                        if(j%2==0)
                                System.out.print(0);
                        else
                                System.out.print(1);
                }
                System.out.println();
    }
  }
}
/*
1
00
111
0000
11111
*/
import java.util.*;
class Pattern{
    public static void main(String[] args) {
    Scanner sc = new Scanner(System.in);
    System.out.print("Enter number of rows:");
    int n=sc.nextInt();
    for(int i=1;i<=n;i++){
                for(int j=1;j<=i;j++){
                        if(i%2==0)
                                System.out.print(0);
                        else
                                System.out.print(1);
                }
                System.out.println();
    }
  }
}
/*
1
01
010
1010
10101
*/
import java.util.*;
class Pattern{
    public static void main(String[] args) {
    Scanner sc = new Scanner(System.in);
    System.out.print("Enter number of rows:");
    int n=sc.nextInt();
    for(int i=1;i<=n;i++){
                for(int j=1;j<=i;j++){
                        if((i+j)%2==0)
                                System.out.print(1);
                        else
                                System.out.print(0);
                }
                System.out.println();
    }
  }
}
/*
1
11
101
1001
11111
*/
import java.util.*;
class Pattern{
```

```
    public static void main(String[] args) {
    Scanner sc = new Scanner(System.in);
    System.out.print("Enter number of rows:");
    int n=sc.nextInt();
    for(int i=1;i<=n;i++){
                for(int j=1;j<=i;j++){
                                        if(i==1 || i==n || j==1 || j==i){
                                                System.out.print(1);
                                        }
                                        else{
                                                System.out.print(0);
                                        }
                }
                System.out.println();
    }
  }
}
/*
1
123
12345
1234567
123456789
*/
import java.util.*;
class Pattern{
    public static void main(String[] args) {
    Scanner sc = new Scanner(System.in);
    System.out.print("Enter number of rows:");
    int n=sc.nextInt();
    for(int i=1;i<=n;i++){
                for(int j=1;j<2*i;j++){
                                        System.out.print(j);
                }
                System.out.println();
    }
  }
}
/*
1
24
135
2468
13579
*/
import java.util.*;
class Pattern{
    public static void main(String[] args) {
    Scanner sc = new Scanner(System.in);
    System.out.print("Enter number of rows:");
    int n=sc.nextInt();
    int odd,even;
    for(int i=1;i<=n;i++){
                odd=1;
                even=2;
                for(int j=1;j<=i;j++){
                                        if(i%2==0){
                                                System.out.print(even);
                                                even+=2;
                                        }
                                        else{
                                                System.out.print(odd);
                                                odd+=2;
                                        }
                }
                System.out.println();
```

```
    }
  }
}
/*
1
22
333
2222
11111
*/
import java.util.*;
class Pattern{
   public static void main(String[] args) {
   Scanner sc = new Scanner(System.in);
   System.out.print("Enter number of rows:");
   int n=sc.nextInt();
   for(int i=1;i<=n;i++){
        for(int j=1;j<=i;j++){
                    if(i <= (n/2)){
                System.out.print(i);
            }
            else{
                System.out.print(n - i + 1);
            }
        }
        System.out.println();
   }
  }
}
/*
N = 12345

12345
1234
123
12
1
*/
import java.util.*;
class Pattern{
    public static void main(String[] args) {
    Scanner sc = new Scanner(System.in);
    System.out.print("Enter number:");
    int n=sc.nextInt();
    while(n>0)
    {
        System.out.print(n);
        n=n/10;
        System.out.println();
    }
  }
}
/*
OR
12345
1234
123
12
1
*/
import java.util.*;
class Pattern{
   public static void main(String[] args) {
   Scanner sc = new Scanner(System.in);
   System.out.print("Enter number of rows:");
   int n=sc.nextInt();
```

```
    for(int i=1;i<=n;i++){
         for(int j=1;j<=(n-i+1);j++){
                 System.out.print(j);
         }
         System.out.println();
    }
   }
}
/*
12345
2345
345
45
5
*/
import java.util.*;
class Pattern{
    public static void main(String[] args) {
    Scanner sc = new Scanner(System.in);
    System.out.print("Enter number of rows:");
    int n=sc.nextInt();
    for(int i=1;i<=n;i++){
         for(int j=i;j<=n;j++){
                 System.out.print(j);
         }
         System.out.println();
    }
   }
}
```