1 Write a program for matrix addition

```
Scanner input = new Scanner(System.in);
int mat1[][]={{1,2},{5,3}};
int mat2[][]={{2,3},{4,1}};
int mat_sum[][]=new int[2][2];
int len=mat1.length;
for(int i=0;i<len;i++)
{
  For(int j=0;j<len;j++)
  {
  mat_sum[i][j]=mat[i][j]+mat2[i][j];
  System.out.print(mat_sum[i][j]+"\t");
  }
  system.out.println();
}
```

2. Write a program to print rectangle symbol pattern alphabetical order Ascending or descending

```
Scanner input = new Scanner(system.in);
String arr[]={"Banana","Apple","carrot","Jack"};
int len = arr.length;
char order = input.next().charAt(0);
if order =='A'){
for(int i=0; i<len; i++){
for(int j=i+1; j<arr.length; j++){
```

```
            if (arr[i].compareTo(arr[j])>0){
                String temp = arr[i];
                arr[i]= arr[j];
                arr[j]= temp;
            }
        }
        System.out.println(Arrays.toString(arr));
    } else if (order=='D'){
        for(int i=0; i<len; i++){
            for(int j=i+1;j<arr.length; j++)
                if (arr[i].compareTo(arr[j])<0){
                    String temp = arr[i];
                    arr[i]=arr[j];
                    arr[j]=temp;
                }
        }
        System.out.println(Arrays.toString(arr));
```

3.) Write a program for matrix multiplication

```
Scanner input=new Scanner(System.in);
int r=input.nextInt();
int c=input.nextInt();
int mat1[][]=new int[r][c];
int mat2[][]=new int[r][c];
for (int i=0;i<r;i++)
{ for(int j=0;j<c;j++)
{
  mat1[i][j]=input.nextInt();
}
for(int i=0;i<r;i++)
{ for(int j=0;j<c;j++)
{
  mat2[i][j]=input.nextInt();
}
int sum[][]=new int[r][c];
for(int i=0;i<r;i++)
{ for(int j=0;j<c;j++)
```

```
{
sum[i][j]=0;
for(int k=0; k<c; k++)
{
sum[i][j]=sum[i][j]+(mat1[i][k]*mat2[k][j]);
}
System.out.print(sum[i][j] +"\t");
}
System.out.println();
}
```

4.) Write a program to print the following pattern

```
Scanner input = new Scanner(System.in);
System.out.print("Enter the number to be printed :");
int x=input.nextInt();
System.out.print("max number of time printed :");
int n=input.nextInt();
for(int i=1; i<=n; i++)
{
  for(int j=1; j<=i; j++)
  {
    System.out.print(x);
  }
  System.out.println();
}
for(int i=n-1; i>=1; i--)
{
  for(int j=1; j<=i; j++)
  {
  }
  System.out.println();
```

5.) Write a program to print the special characters separately and print number of special character in the line?

```
Scanner input=new Scanner(System.in);
String s=input.nextline();
int len=s.length();
char a[]=new char[len];
int sp=0;
for(int i=0; i<len; i++)
{
a[i]=s.charAt(i);
if(a[i]>=65 && a[i]<=90||a[i]>=97
```

```
|| a[i]>=48 && a[i]<=57)
{
}
else
{
  sp++;
  System.out.print(a[i]);
}
}
System.out.println("\n"+sp);
```

6.) Write a program to print all the composite numbers between a and b?

```
Scanner input=new Scanner(System.in);
int a=input.nextInt();
int b=input.nextInt();
for(int i=a+1; i<=b; i++)
{
  int c=0;
  for(int j=1; j<=b; j++)
  {
    if(i%j==0)
      c++;
  }
  if(c>2)
    System.out.print(i+" ");
```

7.) Write a program to print the inverted full pyramid pattern?

```
Scanner input=new Scanner(System.in);
int n=input.nextInt();
for(int i=n; i>=1; i--)
{
  for(int j=0; j<n-i; j++)
  {
    System.out.print(" ");
  }
  for(int k=1; k<=i; k++)
  {
    System.out.print("* ");
  }
  System.out.println();
```

8.) Find the factorial of n

```
Scanner input = new Scanner (System.in);
    int n=input.nextInt();
    int fact=1;
for (int i=1; i<=n; i++)
{
    fact=fact*i;
}
System.out.print(fact);
```

9.) Write a program to print the following pattern

```
Scanner input=new Scanner (System.in);
char c=input.next().charAt(0);
int n=input.nextInt();
for (int i=1; i<=n; i++)
{
    for (int j=1; j<=i; j++)
    {
        System.out.print(c);
    }
System.out.print();
```

10.) Write a program to print the given number is perfect number or not?

```
Scanner input=new Scanner (System.in);
int n=input.nextInt();
int factors=0;
for (int i=1; i<n; i++)
{
    if n%i==0)
        factors=factors+i;
}
if (n==factors)
System.out.print("It's a perfect number");
```