**Operators and expressions**

**1)**

**public** **class** Main {

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

Scanner sc = **new** Scanner(System.*in*);

System.*out*.println("Enter the number of dozens of toys purchased");

**int** x = sc.nextInt();

System.*out*.println("Enter the price per dozen");

**int** y = sc.nextInt();

System.*out*.println("Enter the selling price of 1 toy");

**int** z = sc.nextInt();

**float** c = y/12.0f;

**float** g = z-c;

**float** profit = g/c \* 100.0f;

String profitpercent = String.*format*("%.2f", profit);

System.*out*.println("Sam's profit percentage is "+profitpercent+" percent");

}

}

2)

**public** **class** Main {

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

System.*out*.println("Enter the value of x");

Scanner sc = **new** Scanner(System.*in*);

**int** x = sc.nextInt();

**float** b = x\*(3/2.0f);

**float** a = b/3.0f;

**float** both = 1/((1/a)+(1/b));

String two = String.*format*("%.2f", both);

System.*out*.println("Working together, A and B can complete the work in "+two+" days");

}

3) **public** **class** Main {

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

System.*out*.println("Enter the number of overs bowled so far");

Scanner sc = **new** Scanner(System.*in*);

**int** x = sc.nextInt();

System.*out*.println("Enter the current run rate");

**float** y = sc.nextFloat();

System.*out*.println("Enter the target score");

**int** z = sc.nextInt();

**float** req = (z-(y\*x)) / (50-x);

String rr = String.*format*("%.2f",req);

System.*out*.println("Required run rate is "+req);

}

4) **import** java.util.Scanner;

**import** java.lang.Math;

**public** **class** Main {

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

System.*out*.println("Enter the sides of a triangle");

Scanner sc = **new** Scanner(System.*in*);

**int** a = sc.nextInt();

**int** b = sc.nextInt();

**int** c = sc.nextInt();

**double** k = (a+b+c)/2.0;

**double** radius =Math.*sqrt*(k\*(k-a)\*(k-b)\*(k-c))/k;

String rad = String.*format*("%.2f",radius);

System.*out*.println("The radius of the circle is "+rad);

}

}

5)

**import** java.util.Scanner;

**import** java.lang.Math;

**public** **class** Main {

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

System.*out*.println("Enter the X and Y coordinate of friend's house");

Scanner sc = **new** Scanner(System.*in*);

**int** x = sc.nextInt();

**int** y = sc.nextInt();

**float** d =(**float**)Math.*sqrt*((x-3)\*(x-3)+(y-4)\*(y-4));

System.*out*.println("Raju needs "+Math.*round*(d)+" jumps");

}

}

6)

**import** java.util.Scanner;

**import** java.lang.Math;

**public** **class** Main {

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

Scanner sc = **new** Scanner(System.*in*);

System.*out*.println("Price of item 1 :");

**float** item1 = sc.nextFloat();

System.*out*.println("Price of item 2 :");

**float** item2 = sc.nextFloat();

System.*out*.println("Discount in percentage :");

**int** discountPercent = sc.nextInt();

**float** total = item1+item2;

String totalstr = String.*format*("%.2f", total);

System.*out*.println("Total amount : $"+totalstr);

**float** discountValue = (total\*discountPercent)/100;

**float** discounted = total - discountValue;

String discountedstr = String.*format*("%.2f", discounted);

String discountValuestr = String.*format*("%.2f", discountValue);

System.*out*.println("Discounted amount : $"+discountedstr);

System.*out*.println("Saved amount : $"+discountValuestr);

}

}

**Conditional statements**

1) **import** java.util.Scanner;

**public** **class** Main {

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

Scanner sc = **new** Scanner(System.*in*);

System.*out*.println("Enter the first number");

**int** a = sc.nextInt();

System.*out*.println("Enter the second number");

**int** b = sc.nextInt();

**if**(a>b)

System.*out*.println(a+" is greater than "+b);

**else** **if**(a<b)

System.*out*.println(a+" is less than "+b);

**else**

System.*out*.println(a+" is equal to "+b);

}

}

2) **public** **class** Main {

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

Scanner sc = **new** Scanner(System.*in*);

System.*out*.println("Enter a character");

String temp = sc.nextLine();

**char** letter = temp.charAt(0);

**char**[] vowel ={'a','e','i','o','u','A','E','I','O','U'};

**if**((letter>='A' && letter<='Z')||(letter>='a' && letter<='z')){

**int** flag = 0;

**for**(**int** i=0;i<vowel.length;i++){

**if**(vowel[i]==letter)

flag=1;

}

**if**(flag==1)

System.*out*.println("Vowel");

**else**

System.*out*.println("Consonant");

}

**else**

System.*out*.println("Not an alphabet");

}

}

3) **public** **class** Main {

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

Scanner sc = **new** Scanner(System.*in*);

System.*out*.println("Enter the marks");

**int** mark = sc.nextInt();

**if** (mark == 100)

System.*out*.println("The student obtained a S grade");

**else** **if**(mark>=90 && mark<100)

System.*out*.println("The student obtained a A grade");

**else** **if**(mark>=80 && mark<90)

System.*out*.println("The student obtained a B grade");

**else** **if**(mark>=70 && mark<80)

System.*out*.println("The student obtained a C grade");

**else** **if**(mark>=60 && mark<70)

System.*out*.println("The student obtained a D grade");

**else** **if**(mark>=50 && mark<60)

System.*out*.println("The student obtained a E grade");

**else** **if**(mark>=0 && mark<50)

System.*out*.println("The student obtained a F grade");

**else**

System.*out*.println("Invalid Input");

}

}

4) **public** **class** Main {

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

Scanner sc = **new** Scanner(System.*in*);

System.*out*.println("Enter the price of a dozen mangoes");

**float** x = sc.nextFloat();

System.*out*.println("Enter the price at which 1 mango is being sold");

**float** y = sc.nextFloat();

**float** m = x/12.0f;

**if**(m>y){

**float** p = (m-y)\*12;

String profit = String.*format*("%.2f",p);

System.*out*.println("Loss : Rs."+profit);

}

**else** **if**(m<y){

**float** l = (y-m)\*12;

String loss = String.*format*("%.2f",l);

System.*out*.println("Profit : Rs."+loss);

}

**else**

System.*out*.println("No profit nor loss");

}

}

5) **import** java.text.DecimalFormat;

**import** java.util.Scanner;

**public** **class** Main {

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

Scanner sc = **new** Scanner(System.*in*);

System.*out*.println("Enter the student type");

String type = sc.next();

System.*out*.println("Enter tuition fee");

DecimalFormat df = **new** DecimalFormat("#.00");

**float** tution = sc.nextFloat();

System.*out*.println("Enter bus fee");

**float** bus = sc.nextFloat();

System.*out*.println("Enter hostel fee");

**float** hostel = sc.nextFloat();

**float** total=0;

**if**(type.equals("MSDS")){

total = tution+bus;}

**else** **if**(type.equals("MSH"))

total = tution+hostel;

**else** **if**(type.equals("MGSDS"))

total = (tution\*1.5f)+bus;

**else** **if**(type.equals("MGSH"))

total = (tution\*1.5f)+hostel;

System.*out*.println("The fees to be paid by the student is Rs."+df.format(total));

}

}

6)

**import** java.util.Scanner;

**public** **class** Main {

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

Scanner sc = **new** Scanner(System.in);

System.out.println("Enter x");

**int** x = sc.nextInt();

System.out.println("Enter y");

**int** y = sc.nextInt();

System.out.println("Enter z");

**int** z = sc.nextInt();

**if**(x<y && x<z)

System.out.println("L1 has the minimal seating capacity");

**else** **if**(y<z)

System.out.println("L2 has the minimal seating capacity");

**else**

System.out.println("L3 has the minimal seating capacity");

}

}

7)

**import** java.util.Scanner;

**public** **class** Main {

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

Scanner sc = **new** Scanner(System.*in*);

System.*out*.println("Enter x");

**int** x = sc.nextInt();

System.*out*.println("Enter y");

**int** y = sc.nextInt();

System.*out*.println("Enter z");

**int** z = sc.nextInt();

System.*out*.println("Enter the lab allocated for ACE training");

String lab = sc.next();

**if**(lab.equals("L1")){

**if**(y<z)

System.*out*.println("L2 has the minimal seating capacity");

**else**

System.*out*.println("L3 has the minimal seating capacity");

}

**else** **if**(lab.equals("L2")){

**if**(x<z)

System.*out*.println("L1 has the minimal seating capacity");

**else**

System.*out*.println("L3 has the minimal seating capacity");

}

**else**{

**if**(x<y)

System.*out*.println("L1 has the minimal seating capacity");

**else**

System.*out*.println("L2 has the minimal seating capacity");

}

}

}

8) **import** java.util.Scanner;

**public** **class** Main {

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

Scanner sc = **new** Scanner(System.*in*);

System.*out*.println("Enter x");

**int** x = sc.nextInt();

System.*out*.println("Enter y");

**int** y = sc.nextInt();

System.*out*.println("Enter z");

**int** z = sc.nextInt();

System.*out*.println("Enter n");

**int** n = sc.nextInt();

**int** count = 0;

**if**(x>=n)

count++;

**if**(y>=n)

count++;

**if**(z>=n)

count++;

**if**(count != 0)

System.*out*.println(count+" lab(s) can accommodate "+n+" students");

**else**

System.*out*.println("None of the labs can accommodate "+n+" students");

}

}

9) **import** java.util.Scanner;

**public** **class** Main {

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

Scanner sc = **new** Scanner(System.*in*);

System.*out*.println("Enter x");

**int** x = sc.nextInt();

System.*out*.println("Enter y");

**int** y = sc.nextInt();

System.*out*.println("Enter z");

**int** z = sc.nextInt();

System.*out*.println("Enter n");

**int** n = sc.nextInt();

**int**[] c = {0,0,0};

**int** i=0;

**if**(x>=n)

c[i++] = x;

**if**(y>=n)

c[i++] = y;

**if**(z>=n)

c[i++] = z;

**if**(i!=0){

**int** min = c[0];

**for**(**int** j=0;j<i;j++){

**if**(c[j]<min)

min=c[j];

}

**if**(min==x)

System.*out*.println("L1 should be allocated to this class");

**else** **if**(min==y)

System.*out*.println("L2 should be allocated to this class");

**else** **if**(min==z)

System.*out*.println("L3 should be allocated to this class");

}

**else**

System.*out*.println("None of the labs can be allocated");

}

}

10)

|  |  |
| --- | --- |
| import java.util.Scanner; | |
| 02 |  |

|  |  |
| --- | --- |
| 03 | public class Main { |
| 04 | public static void main(String[] args) { |

|  |  |
| --- | --- |
| 05 | Scanner sc = new Scanner(System.in); |
| 06 | System.out.println("Enter the number of rows"); |

|  |  |
| --- | --- |
| 07 | int row = sc.nextInt(); |
| 08 | System.out.println("Enter the number of columns"); |

|  |  |
| --- | --- |
| 09 | int col = sc.nextInt(); |
| 10 | System.out.println("Enter the roll number of the student"); |

|  |  |
| --- | --- |
| 11 | int roll = sc.nextInt(); |
| 12 |  |

|  |  |
| --- | --- |
| 13 | if(roll<=col || roll%col==0 || roll%col==1) |
| 14 | System.out.println("yes"); |

|  |  |
| --- | --- |
| 15 | else |
| 16 | System.out.println("no"); |

|  |  |
| --- | --- |
| 17 |  |
| 18 | } |

|  |  |
| --- | --- |
| 19 | } |

11)

|  |  |
| --- | --- |
| 01 | import java.util.Scanner; |
| 02 |  |

|  |  |
| --- | --- |
| 03 | public class Main { |
| 04 | public static void main(String[] args) { |

|  |  |
| --- | --- |
| 05 | Scanner sc = new Scanner(System.in); |
| 06 | System.out.println("Enter the number of rows"); |

|  |  |
| --- | --- |
| 07 | int row = sc.nextInt(); |
| 08 | System.out.println("Enter the number of columns"); |

|  |  |
| --- | --- |
| 09 | int col = sc.nextInt(); |
| 10 | System.out.println("Enter the roll number of the student"); |

|  |  |
| --- | --- |
| 11 | int roll = sc.nextInt(); |
| 12 |  |

|  |  |
| --- | --- |
| 13 | if(roll<=row || roll%row==1 || roll>(row\*col-row)) |
| 14 | System.out.println("yes"); |

|  |  |
| --- | --- |
| 15 | else |
| 16 | System.out.println("no"); |

|  |  |
| --- | --- |
| 17 |  |
| 18 | } |

|  |  |
| --- | --- |
| 19 | } |

12) **import** java.util.Scanner;

**public** **class** Main {

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

Scanner input = **new** Scanner(System.*in*);

**float** speed = input.nextFloat();

**float** distance = input.nextFloat();

**float** time = input.nextFloat();

**if** ((time/10.0) < ((distance / speed)\*360)) {

System.*out*.println("no");

} **else** {

System.*out*.println("yes");

}

}

}

13) **import** java.util.Scanner;

**public** **class** Main {

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

Scanner sc = **new** Scanner(System.*in*);

String door = sc.next();

**int** rail = sc.nextInt();

**if**(door.equals("front")){

**if**(rail==1)

System.*out*.println("Left Handed");

**else**

System.*out*.println("Right Handed");

}

**else**

**if**(rail==1)

System.*out*.println("Right Handed");

**else**

System.*out*.println("Left Handed");

}

}

14) **import** java.util.Scanner;

**import** java.text.DecimalFormat;

**public** **class** Main {

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

Scanner sc = **new** Scanner(System.*in*);

System.*out*.println("Enter the number of items");

**int** item = sc.nextInt();

System.*out*.println("Enter the single item heating time");

**float** time = sc.nextFloat();

DecimalFormat df = **new** DecimalFormat("#.00");

**if**(item==1)

System.*out*.println("The recommended heating time is "+df.format(time));

**else** **if**(item==2)

System.*out*.println("The recommended heating time is "+df.format(time\*1.5));

**else** **if**(item==3)

System.*out*.println("The recommended heating time is "+df.format(time\*2));

**else**

System.*out*.println("Number of items is more");

}

}

15) **import** java.util.Scanner;

**public** **class** Main {

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

Scanner in = **new** Scanner(System.*in*);

System.*out*.println("Enter your age");

**int** age = in.nextInt();

System.*out*.println("Enter show timing");

**double** showTime = in.nextDouble();

**double** price = 0;

**if** (age > 13) {

**if** (showTime == 13.30) {

price = 5;

}

**else** {

price = 8;

}

} **else** **if** (age <= 13 && age > 0) {

**if** (showTime == 13.30) {

price = 2;

}

**else** {

price = 4;

}

}

String str = String.*format*("%.2f", price);

System.*out*.println("The ticket price is $" + str);

}

}

**Looping statements**

1) **import** java.util.Scanner;

**public** **class** Main {

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

Scanner sc = **new** Scanner(System.*in*);

**int** n = sc.nextInt();

**int** i=1;

**float** m = n;

**while**(m>1.0){

m=(**float**)m/i;

++i;

}

**if**(m==1)

System.*out*.println("yes");

**else**

System.*out*.println("no");

}

}

2) **import** java.util.Scanner;

**public** **class** Main {

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

Scanner sc = **new** Scanner(System.*in*);

**int** n = sc.nextInt();

Integer[] ar = **new** Integer[n];

**if**(n>=1)

ar[0]=0;

**if**(n>=2)

ar[1]=0;

**if**(n>=3)

ar[2]=1;

**for**(**int** i=3;i<n;i++){

**int** sum=0;

**for**(**int** j=i-3;j<i;j++){

sum =sum + ar[j];

}

ar[i]=sum;

}

**for**(**int** k=0;k<n;k++){

System.*out*.print(ar[k]);

**if**(k!=n-1)

System.*out*.print(" ");

}

}

}

3) **import** java.util.Scanner;

**public** **class** Main {

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

Scanner sc = **new** Scanner(System.*in*);

**int** n = sc.nextInt();

**int** a=0;

**int** b=1;

**int** t=0;

**if**(n!=0){

**while**(b<n){

t=b;

b=a+b;

a=t;

}

**if**(b==n)

System.*out*.println("yes");

**else**

System.*out*.println("no");

}

**else**

System.*out*.println("yes");

}

}

4) **import** java.util.Scanner;

**public** **class** Main {

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

Scanner sc = **new** Scanner(System.*in*);

**int** n = sc.nextInt();

**int** r = 0;

**if**(n>99 && n<1000){

n=n/10;

r=n%10;

**if**(r%3==0)

System.*out*.println("Trendy Number");

**else**

System.*out*.println("Not a Trendy Number");

}

**else**

System.*out*.println("Not a Trendy Number");

}

}

5) **import** java.util.Scanner;

**public** **class** Main {

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

Scanner sc = **new** Scanner(System.*in*);

**int** m = sc.nextInt();

**int** n = sc.nextInt();

**int** s=0;

**int** p=0;

**for**(**int** i=m;i<=n;i++){

**if**(((i/10)+(i%10))+((i/10)\*(i%10)) == i)

System.*out*.println(i);

}

}

}

6) **import** java.util.Scanner;

**public** **class** Main {

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

Scanner sc = **new** Scanner(System.*in*);

**int** n = sc.nextInt();

**int** num = n\*n;

**int** t = num;

**int** i=0, j=0,s=0,m=1;

**while**(t>0){

t = t/10;

++i;

}

**if**(i%2==0)

j=i/2;

**else**

j=i/2 + 1;

**for**(**int** k=1;k<=j;k++)

m=m\*10;

**if**((num%m)+(num/m)==n)

System.*out*.println("Kaprekar Number");

**else**

System.*out*.println("Not A Kaprekar Number");

}

}

7) **import** java.util.Scanner;

**public** **class** Main {

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

Scanner sc = **new** Scanner(System.*in*);

**int** n = sc.nextInt();

**int** sum = 0,i=0;

**while**(sum<n){

**int** a=sc.nextInt();

sum = sum+a;

i++;

}

System.*out*.println("The number of turns is "+i);

}

}

8) **import** java.util.Scanner;

**public** **class** Main {

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

Scanner sc = **new** Scanner(System.*in*);

**int** n = sc.nextInt();

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

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

System.*out*.print(i+" ");

}

System.*out*.println();

}

}

}

**Arrays and strings**

**1) import** java.util.Scanner;

**public** **class** Main {

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

Scanner sc = **new** Scanner(System.*in*);

Integer[] ar = **new** Integer[10];

Integer[] re =**new** Integer[10];

**for**(**int** i=0;i<10;i++){

**int** ip = sc.nextInt();

ar[i] = ip%42;

}

**int** j=0;

**for**(**int** i=0;i<10;i++){

**int** flag = 0;

**for**(**int** k=0;k<10;k++){

**if**(ar[i]==re[k])

flag = 1;

}

**if**(flag==0)

re[j++]=ar[i];

}

System.*out*.println(j);

}

}

2) **import** java.util.Scanner;

**public** **class** Main {

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

Scanner sc = **new** Scanner(System.*in*);

**long** n1 = sc.nextLong();

**long** n2 = sc.nextLong();

**long** r=0,r1=0;

**int** count=0;

**while**(n1>0 || n2>0){

r=(n1%10)+(n2%10)+r1;

**if**(r>9){

count++;

r1=r/10;

}

**else**

r1=0;

n1=n1/10;

n2=n2/10;

r=0;

}

System.*out*.println(count);

}

}

3) **import** java.util.Scanner;

**public** **class** Main {

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

Scanner sc = **new** Scanner(System.*in*);

**int** n = sc.nextInt();

Integer[] ar = **new** Integer[n];

**int** sum=0,avg=0,op=0;

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

**int** t = sc.nextInt();

ar[i]=t;

sum=sum+t;

}

avg=sum/n;

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

**if**(ar[i]<avg)

op=op+(avg-ar[i]);

}

System.*out*.println(op);

}

}

**4) import** java.util.Scanner;

**public** **class** Main {

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

Scanner sc = **new** Scanner(System.*in*);

**int** n = sc.nextInt();

**int** op=0;

**for**(**int** i=n+1;i<=100000 && op==0;i++){

**int** j = i,flag=1;

**while**(flag==1)

**if**(j%10==4 || j%10==7){

j=j/10;

**if**(j==0){

flag=0;

op=i;

}

}

**else**

flag=0;

}

System.*out*.println(op);

}

}

**5) import** java.util.Scanner;

**public** **class** Main {

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

Scanner sc = **new** Scanner(System.*in*);

**int** count=0;

**int** n = sc.nextInt();

Integer[] r = **new** Integer[n];

Integer[] c = **new** Integer[n];

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

**int** ip1 = sc.nextInt();

r[i]=ip1;

**int** ip2 = sc.nextInt();

c[i]=ip2;

}

**for**(**int** k=0;k<n;k++){

**for**(**int** j=k+1;j<n;j++){

**if**(r[k]==r[j] || c[k]==c[j])

count++;

}

}

**if**(count==0)

System.*out*.println("SAFE");

**else**

System.*out*.println("NOT SAFE");

}

}

**6) import** java.util.Scanner;

**public** **class** Main {

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

Scanner sc = **new** Scanner(System.*in*);

System.*out*.println("Enter the size of matrix:");

**int** n = sc.nextInt();

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

**for**(**int** j=0;j<n;j++){

**if**(i==j || (i+j)==n-1)

System.*out*.print("M ");

**else** **if**(i==0 || j==0 || i==n-1 || j==n-1)

System.*out*.print("F ");

**else**

System.*out*.print("c ");

}

System.*out*.println();

}

}

}

**7) import** java.util.Scanner;

**public** **class** Main {

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

Scanner sc = **new** Scanner(System.*in*);

**int** n = sc.nextInt();

**int** m = sc.nextInt();

Integer[][] ar = **new** Integer[n][m];

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

**for**(**int** j=0;j<m;j++){

**int** z = sc.nextInt();

ar[i][j]=z;

}

}

**int** t = sc.nextInt();

Integer[][] ip = **new** Integer[t][4];

**for**(**int** i=0;i<t;i++){

**for**(**int** j=0;j<4;j++){

**int** x = sc.nextInt();

ip[i][j]=x-1;

}

}

**for**(**int** i=0;i<t;i++){

**int** sum = 0;

**int** x1 = ip[i][0],y1 = ip[i][1],x2 = ip[i][2],y2 = ip[i][3];

**for**(**int** j=x1;j<=x2;j++){

**for**(**int** k=y1;k<=y2;k++){

sum = sum+ar[j][k];

}

}

System.*out*.println(sum);

}

}

}

**8) import** java.util.Scanner;

**public** **class** Main {

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

Scanner sc = **new** Scanner(System.*in*);

String str = sc.nextLine();

StringBuffer str2 = **new** StringBuffer();

StringBuffer sb = **new** StringBuffer(str);

**for**(**int** i=0;i<sb.length();i++){

**char** t = sb.charAt(i);

**int** count=1;

**for**(**int** j=i+1;j<sb.length();j++){

**if**(t==sb.charAt(j)){

count++;

sb.deleteCharAt(j);

--j;

}

}

str2.append(t);

str2.append(count);

}

System.*out*.println(str2);

}

}

9) **import** java.util.Scanner;

**public** **class** Main {

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

Scanner sc = **new** Scanner(System.*in*);

String str = sc.nextLine();

StringBuffer sb = **new** StringBuffer(str);

**for**(**int** i=0;i<sb.length();i++){

**char** t = sb.charAt(i);

**if**(t=='i'){

**if**(sb.charAt(i+1)=='i' && sb.charAt(i+2)=='i' && sb.charAt(i+3)=='n' && sb.charAt(i+4)=='g'){

sb.replace(i, i+5, "th");

}

}

}

System.*out*.println(sb);

}

}

(or)

**import** java.util.Scanner;

**public** **class** Main {

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

Scanner input = **new** Scanner(System.*in*);

String string = input.nextLine();

string = string.replaceAll("iiing", "th");

System.*out*.println(string);

}

}

**10) import** java.util.Scanner;

**public** **class** Main {

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

Scanner sc = **new** Scanner(System.*in*);

String str = sc.nextLine();

String newstr = **new** String();

String[] ar = str.split(" ");

**for**(**int** i=2;i<ar.length;i++){

newstr+=ar[i]+" ";

}

newstr+=ar[0]+" "+ar[1];

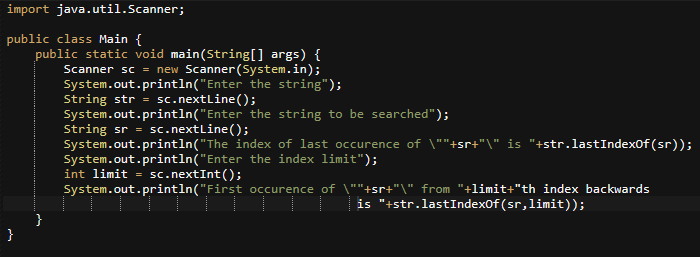
System.*out*.println(newstr);

}

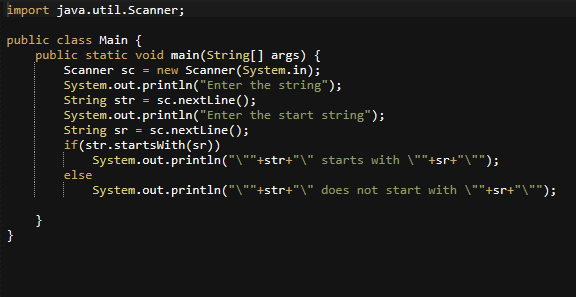
}

**String API**

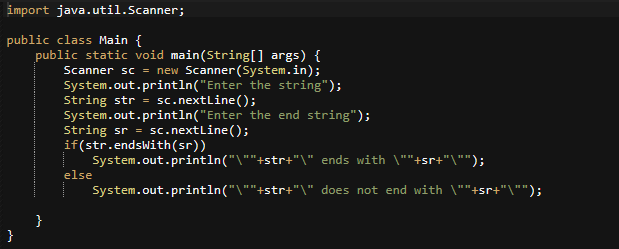
1)



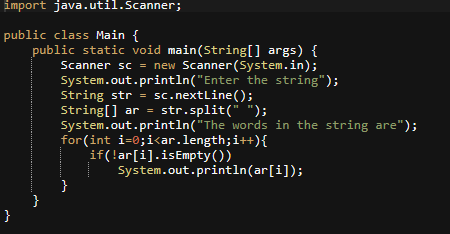
2)



3)



4)



5)

|  |  |
| --- | --- |
| 01 | import java.util.Scanner; |
| 02 |  |

|  |  |
| --- | --- |
| 03 | public class Main { |
| 04 | public static void main(String[] args) { |

|  |  |
| --- | --- |
| 05 | Scanner sc = new Scanner(System.in); |
| 06 | System.out.println("Enter the content of the document"); |

|  |  |
| --- | --- |
| 07 | String str = sc.nextLine(); |
| 08 | System.out.println("Enter the old name of the company"); |

|  |  |
| --- | --- |
| 09 | String c\_old = sc.nextLine(); |
| 10 | System.out.println("Enter the new name of the company"); |

|  |  |
| --- | --- |
| 11 | String c\_new = sc.nextLine(); |
| 12 | String str2 = str.replace(c\_old, c\_new); |

|  |  |
| --- | --- |
| 13 | System.out.println("The content of the modified document is"); |
| 14 | System.out.println(str2); |

|  |  |
| --- | --- |
| 15 | } |
| 16 | } |

6)

|  |  |
| --- | --- |
| 01 | import java.util.Scanner; |
| 02 |  |

|  |  |
| --- | --- |
| 03 | public class Main { |
| 04 | public static void main(String[] args) { |

|  |  |
| --- | --- |
| 05 | Scanner sc = new Scanner(System.in); |
| 06 | System.out.println("Enter the string"); |

|  |  |
| --- | --- |
| 07 | String str = sc.nextLine(); |
| 08 | StringBuffer sb = new StringBuffer(str); |

|  |  |
| --- | --- |
| 09 | for(int i=0;i<sb.length()-1;i++){ |
| 10 | if(sb.charAt(i)==' '){ |

|  |  |
| --- | --- |
| 11 | while(sb.charAt(i+1)==' ') |
| 12 | sb.deleteCharAt(i+1); |

|  |  |
| --- | --- |
| 13 | } |
| 14 | } |

|  |  |
| --- | --- |
| 15 | System.out.println("The processed string is "+sb); |
| 16 | } |

|  |  |
| --- | --- |
| 17 | } |

7)

|  |  |
| --- | --- |
| 01 | import java.util.Scanner; |
| 02 |  |

|  |  |
| --- | --- |
| 03 | public class Main { |
| 04 | public static void main(String[] args) { |

|  |  |
| --- | --- |
| 05 | Scanner sc = new Scanner(System.in); |
| 06 | System.out.println("Enter the string"); |

|  |  |
| --- | --- |
| 07 | String str = sc.nextLine(); |
| 08 | System.out.println("The string printed vertically forwards and backwards is"); |

|  |  |
| --- | --- |
| 09 | int n = str.length(); |
| 10 | for(int i=0;i<n;i++){ |

|  |  |
| --- | --- |
| 11 | System.out.print(str.charAt(i)); |
| 12 | System.out.println(" "+str.charAt(n-i-1)); |

|  |  |
| --- | --- |
| 13 | } |
| 14 | } |

|  |  |
| --- | --- |
| 15 | } |

8)

|  |  |
| --- | --- |
| import java.util.Scanner; | |
| 02 |  |

|  |  |
| --- | --- |
| 03 | public class Main { |
| 04 | public static void main(String[] args) { |

|  |  |
| --- | --- |
| 05 | Scanner sc = new Scanner(System.in); |
| 06 | System.out.println("Enter the string"); |

|  |  |
| --- | --- |
| 07 | String str = sc.nextLine(); |
| 08 | StringBuffer sb = new StringBuffer(str); |

|  |  |
| --- | --- |
| 09 | for(int i=0;i<sb.length()-1;i++){ |
| 10 | if(sb.charAt(i)==sb.charAt(i+1)){ |

|  |  |
| --- | --- |
| 11 | sb.insert(i+1,'\*'); |
| 12 | i++; |

|  |  |
| --- | --- |
| 13 | } |
| 14 | } |

|  |  |
| --- | --- |
| 15 | System.out.println("The processed string is "+sb); |
| 16 | } |

|  |  |
| --- | --- |
| 17 | } |

9)

|  |  |
| --- | --- |
| import java.util.Scanner; | |
| 02 |  |

|  |  |
| --- | --- |
| 03 | public class Main { |
| 04 | public static void main(String[] args) { |

|  |  |
| --- | --- |
| 05 | Scanner sc = new Scanner(System.in); |
| 06 | System.out.println("Enter the string"); |

|  |  |
| --- | --- |
| 07 | String str = sc.nextLine(); |
| 08 | StringBuffer sb = new StringBuffer(str); |

|  |  |
| --- | --- |
| 09 | StringBuffer sb2 = new StringBuffer(); |
| 10 | int count = 0; |

|  |  |
| --- | --- |
| 11 | int n = sb.length(); |
| 12 | for(int i=0;i<sb.length();i++){ |

|  |  |
| --- | --- |
| 13 | if(sb.charAt(i)!='x') |
| 14 | sb2.append(sb.charAt(i)); |

|  |  |
| --- | --- |
| 15 | else |
| 16 | count++; |

|  |  |
| --- | --- |
| 17 | } |
| 18 | for(int j=0;j<count;j++){ |

|  |  |
| --- | --- |
| 19 | sb2.append('x'); |
| 20 | } |

|  |  |
| --- | --- |
| 21 | System.out.println("The processed string is "+sb2); |
| 22 | } |

|  |  |
| --- | --- |
| 23 |  |
| 24 | } |

10)

|  |  |
| --- | --- |
| import java.util.Scanner; | |
| 02 |  |

|  |  |
| --- | --- |
| 03 | public class Main { |
| 04 | public static void main(String[] args) { |

|  |  |
| --- | --- |
| 05 | Scanner sc = new Scanner(System.in); |
| 06 | System.out.println("Enter the string"); |

|  |  |
| --- | --- |
| 07 | String str = sc.nextLine(); |
| 08 | StringBuffer sb = new StringBuffer(str); |

|  |  |
| --- | --- |
| 09 | Character t = new Character(' '); |
| 10 | System.out.println("Capitalized version:"); |

|  |  |
| --- | --- |
| 11 | for(int i=0;i<sb.length()-1;i++){ |
| 12 | if(sb.charAt(i)==' '){ |

|  |  |
| --- | --- |
| 13 | char m = t.toUpperCase(sb.charAt(i+1)); |
| 14 | sb.deleteCharAt(i+1); |

|  |  |
| --- | --- |
| 15 | sb.insert(i+1,m); |
| 16 | } |

|  |  |
| --- | --- |
| 17 | } |
| 18 | System.out.println(sb); |

|  |  |
| --- | --- |
| 19 | } |
| 20 | } |

**Object oriented programming 1**

1) **public** **class** Product {

**private** **long** id=0;

**private** String productName;

**private** String supplierName;

**public** **long** getId() {

**return** id;

}

**public** **void** setId(**long** id) {

**this**.id = id;

}

**public** String getProductName() {

**return** productName;

}

**public** **void** setProductName(String productName) {

**this**.productName = productName;

}

**public** String getSupplierName() {

**return** supplierName;

}

**public** **void** setSupplierName(String supplierName){

**this**.supplierName = supplierName;

}

}

**import** java.util.Scanner;

**public** **class** Main {

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

Scanner sc = **new** Scanner(System.*in*);

Product p = **new** Product();

System.*out*.println("Enter the product id");

p.setId(sc.nextLong());

sc.nextLine();

System.*out*.println("Enter the product name");

p.setProductName(sc.nextLine());

System.*out*.println("Enter the supplier name");

p.setSupplierName(sc.nextLine());

System.*out*.println("Product Id is "+p.getId());

System.*out*.println("Product Name is "+p.getProductName());

System.*out*.println("Supplier Name is "+p.getSupplierName());

}

}

2) **public** **class** Product {

**private** **long** id;

**private** String productName;

**private** String supplierName;

**public** **long** getId() {

**return** id;

}

**public** **void** setId(**long** id) {

**this**.id = id;

}

**public** String getProductName() {

**return** productName;

}

**public** **void** setProductName(String productName) {

**this**.productName = productName;

}

**public** String getSupplierName() {

**return** supplierName;

}

**public** **void** setSupplierName(String supplierName){

**this**.supplierName = supplierName;

}

**public** Product()

{

}

**public** Product(**long** id,String productName,String supplierName){

**this**.id = id;

**this**.productName=productName;

**this**.supplierName = supplierName;

}

**void** display(){

System.*out*.println("Product Id is "+id);

System.*out*.println("Product Name is "+productName);

System.*out*.println("Supplier Name is "+supplierName);

}

}

**import** java.util.Scanner;

**public** **class** Main {

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

Scanner sc = **new** Scanner(System.*in*);

Product p = **new** Product();

System.*out*.println("Enter the product id");

p.setId(sc.nextLong());

sc.nextLine();

System.*out*.println("Enter the product name");

p.setProductName(sc.nextLine());

System.*out*.println("Enter the supplier name");

p.setSupplierName(sc.nextLine());

p.display();

}

}

3) **public** **class** Product {

**private** **long** id;

**private** String productName;

**private** String supplierName;

**public** **long** getId() {

**return** id;

}

**public** **void** setId(**long** id) {

**this**.id = id;

}

**public** String getProductName() {

**return** productName;

}

**public** **void** setProductName(String productName) {

**this**.productName = productName;

}

**public** String getSupplierName() {

**return** supplierName;

}

**public** **void** setSupplierName(String supplierName){

**this**.supplierName = supplierName;

}

**public** Product()

{

}

**public** Product(**long** id,String productName){

supplierName = "Nivas";

**this**.id = id;

**this**.productName=productName;

}

**public** Product(**long** id,String productName,String supplierName){

**this**.id = id;

**this**.productName=productName;

**this**.supplierName = supplierName;

}

**void** display(){

System.*out*.println("Product Id is "+id);

System.*out*.println("Product Name is "+productName);

System.*out*.println("Supplier Name is "+supplierName);

}

}

**import** java.util.Scanner;

**public** **class** Main {

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

Scanner sc = **new** Scanner(System.*in*);

Product p = **new** Product();

System.*out*.println("Enter the product id");

p.setId(sc.nextLong());

sc.nextLine();

System.*out*.println("Enter the product name");

p.setProductName(sc.nextLine());

System.*out*.println("Is the product supplied by Nivas Suppliers? Type yes or no (not case sensitive)");

String ip = sc.nextLine();

**if**(ip.equalsIgnoreCase("yes"))

p.setSupplierName("Nivas");

**else**{

System.*out*.println("Enter the supplier name");

p.setSupplierName(sc.nextLine());

}

p.display();

}

}

4) **public** **class** Product {

**private** **long** id;

**private** String productName;

**private** String supplierName;

**public** **long** getId() {

**return** id;

}

**public** **void** setId(**long** id) {

**this**.id = id;

}

**public** String getProductName() {

**return** productName;

}

**public** **void** setProductName(String productName) {

**this**.productName = productName;

}

**public** String getSupplierName() {

**return** supplierName;

}

**public** **void** setSupplierName(String supplierName){

**this**.supplierName = supplierName;

}

**public** Product()

{

}

**public** Product(**long** id,String productName,String supplierName){

**this**.id = id;

**this**.productName=productName;

**this**.supplierName = supplierName;

}

**public** String toString(){

String str = **new** String(id+" : "+productName+" : "+supplierName);

**return** str;

}

}

**import** java.util.Scanner;

**public** **class** Main {

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

Scanner sc = **new** Scanner(System.*in*);

Product p = **new** Product();

System.*out*.println("Enter the product id");

p.setId(sc.nextLong());

sc.nextLine();

System.*out*.println("Enter the product name");

p.setProductName(sc.nextLine());

System.*out*.println("Enter the supplier name");

p.setSupplierName(sc.nextLine());

System.*out*.println(p.toString());

System.*out*.println("Invoking getClass() method : "+p.getClass());

}

}

5) **public** **class** Product {

**private** **long** id;

**private** String productName;

**private** String supplierName;

**public** **long** getId() {

**return** id;

}

**public** **void** setId(**long** id) {

**this**.id = id;

}

**public** String getProductName() {

**return** productName;

}

**public** **void** setProductName(String productName) {

**this**.productName = productName;

}

**public** String getSupplierName() {

**return** supplierName;

}

**public** **void** setSupplierName(String supplierName){

**this**.supplierName = supplierName;

}

**public** Product()

{

}

**public** Product(**long** id,String productName,String supplierName){

**this**.id = id;

**this**.productName=productName;

**this**.supplierName = supplierName;

}

**public** **void** display(){

System.*out*.println("Product Id is "+id);

System.*out*.println("Product Name is "+productName);

System.*out*.println("Supplier Name is "+supplierName);

}

**public** **boolean** equals(Product t){

**if**(**this**.id==t.id && **this**.productName.equals(t.productName)&&

**this**.supplierName.equals(t.supplierName))

**return** **true**;

**else**

**return** **false**;

}

}

**import** java.util.Scanner;

**public** **class** Main {

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

Scanner sc = **new** Scanner(System.*in*);

Product p1 = **new** Product();

System.*out*.println("Enter the product id");

p1.setId(sc.nextLong());

sc.nextLine();

System.*out*.println("Enter the product name");

p1.setProductName(sc.nextLine());

System.*out*.println("Enter the supplier name");

p1.setSupplierName(sc.nextLine());

p1.display();

Product p2 = **new** Product();

System.*out*.println("Enter the product id");

p2.setId(sc.nextLong());

sc.nextLine();

System.*out*.println("Enter the product name");

p2.setProductName(sc.nextLine());

System.*out*.println("Enter the supplier name");

p2.setSupplierName(sc.nextLine());

p2.display();

**if**(p1.equals(p2))

System.*out*.println("The two products are the same");

**else**

System.*out*.println("The two products are different");

}

}

6) **public** **class** StaticIllustration {

**int** i1;

**public** **int** getI1() {

**return** i1;

}

**public** **void** setI1(**int** i1) {

**this**.i1 = i1;

}

**static** **int** *i2*;

**public** **static** **int** getI2() {

**return** *i2*;

}

**public** **static** **void** setI2(**int** i2) {

StaticIllustration.*i2* = i2;

}

**public** String toString(){

String str = **new** String("i1 = "+i1+",i2 = "+*i2*);

**return** str;

}

}

**import** java.util.Scanner;

**public** **class** Main {

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

Scanner sc = **new** Scanner(System.*in*);

StaticIllustration obj1 = **new** StaticIllustration();

StaticIllustration obj2 = **new** StaticIllustration();

System.*out*.println("Enter Object 1 details");

System.*out*.println("Enter i1");

obj1.setI1(sc.nextInt());

System.*out*.println("Enter i2");

obj1.*setI2*(sc.nextInt());

System.*out*.println("Object 1 Details : "+obj1.toString());

System.*out*.println("Enter Object 2 details");

System.*out*.println("Enter i1");

obj2.setI1(sc.nextInt());

System.*out*.println("Enter i2");

obj2.*setI2*(sc.nextInt());

System.*out*.println("Object 2 Details : "+obj2.toString());

System.*out*.println("Object 1 Details : "+obj1.toString());

}

}

7) **public** **class** Dummy {

**private** **int** a;

**private** **static** **int** *count*;

**public** **int** getA() {

**return** a;

}

**public** **void** setA(**int** a) {

**this**.a = a;

}

**public** **static** **int** getCount() {

**return** *count*;

}

**public** **static** **void** setCount(**int** count) {

Dummy.*count* = count;

}

**public** Dummy(){

*count*++;

}

**public** Dummy(**int** a){

**this**.a=a;

*count*++;

}

**void** display(){

System.*out*.println("The value of a is "+a);

System.*out*.println("The number of objects created is "+*count*);

}

}

**import** java.util.Scanner;

**public** **class** Main {

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

Scanner sc = **new** Scanner(System.*in*);

String s = "yes";

**int** i = 1;

**while**(s.equalsIgnoreCase("yes")){

Dummy d = **new** Dummy();

System.*out*.println("Enter Object "+i+" \"a\" value");

d.setA(sc.nextInt());

System.*out*.println("Object "+i+" details");

d.display();

System.*out*.println("Do you want to create another object? Type yes or no (not case sensitive)");

s = sc.next();

++i;

}

System.*out*.println("The number of objects created so far is "+Dummy.*getCount*());

}

}

8)

|  |  |
| --- | --- |
| import java.util.Scanner; | |
| 02 |  |

|  |  |
| --- | --- |
| 03 | public class Main { |
| 04 |  |

|  |  |
| --- | --- |
| 05 | public static void main(String[] args) { |
| 06 | Scanner sc = new Scanner(System.in); |

|  |  |
| --- | --- |
| 07 | System.out.println("Enter the first integer"); |
| 08 | Integer i1 = sc.nextInt(); |

|  |  |
| --- | --- |
| 09 | System.out.println("Enter the second integer"); |
| 10 | Integer i2 = sc.nextInt(); |

|  |  |
| --- | --- |
| 11 | System.out.println("Absolute value of "+i1+" is "+Math.abs(i1)); |
| 12 | System.out.println("Absolute value of "+i2+" is "+Math.abs(i2)); |

|  |  |
| --- | --- |
| 13 | if(i1.equals(i2)) |
| 14 | System.out.println(i1+" = "+i2); |

|  |  |
| --- | --- |
| 15 | else |
| 16 | System.out.println(i1+" != "+i2); |

|  |  |
| --- | --- |
| 17 | } |
| 18 | } |

9)

|  |  |
| --- | --- |
| import java.util.Scanner; | |
| 02 |  |

|  |  |
| --- | --- |
| 03 | public class Main { |
| 04 |  |

|  |  |
| --- | --- |
| 05 | public static void main(String[] args) { |
| 06 | Scanner sc = new Scanner(System.in); |

|  |  |
| --- | --- |
| 07 | System.out.println("Enter an integer"); |
| 08 | Integer n = sc.nextInt(); |

|  |  |
| --- | --- |
| 09 | System.out.println("The binary equivalent of "+n+" is "+n.toBinaryString(n)); |
| 10 | System.out.println("The hexadecimal equivalent of "+n+" is "+n.toHexString(n)); |

|  |  |
| --- | --- |
| 11 | System.out.println("The octal equivalent of "+n+" is "+n.toOctalString(n)); |
| 12 | System.out.println("Byte value of "+n+" is "+n.byteValue()); |

|  |  |
| --- | --- |
| 13 | System.out.println("Short value of "+n+" is "+n.shortValue()); |
| 14 | System.out.println("Long value of "+n+" is "+n.longValue()); |

|  |  |
| --- | --- |
| 15 | System.out.println("Float value of "+n+" is "+n.floatValue()); |
| 16 | System.out.println("Double value of "+n+" is "+n.doubleValue()); |

|  |  |
| --- | --- |
| 17 |  |
| 18 | } |

|  |  |
| --- | --- |
| 19 | } |

10)

|  |  |
| --- | --- |
| import java.util.Scanner; | |
| 02 |  |

|  |  |
| --- | --- |
| 03 | public class Main { |
| 04 | public static void main(String[] args) { |

|  |  |
| --- | --- |
| 05 | Scanner sc = new Scanner(System.in); |
| 06 | System.out.println("Enter the binary number"); |

|  |  |
| --- | --- |
| 07 | String bin = sc.next(); |
| 08 | System.out.println("Enter the octal number"); |

|  |  |
| --- | --- |
| 09 | String oct = sc.next(); |
| 10 | System.out.println("Enter the hexadecimal number"); |

|  |  |
| --- | --- |
| 11 | String hex = sc.next(); |
| 12 | System.out.println("The integer value of the binary number "+bin+" is "+Integer.parseInt(bin,2)); |

|  |  |
| --- | --- |
| 13 | System.out.println("The integer value of the octal number "+oct+" is "+Integer.parseInt(oct, 8)); |
| 14 | System.out.println("The integer value of the hexadecimal number "+hex+" is "+Integer.parseInt(hex, 16)); |

|  |  |
| --- | --- |
| 15 | } |
| 16 | } |

11)

|  |  |
| --- | --- |
| import java.util.Scanner; | |
| 02 |  |

|  |  |
| --- | --- |
| 03 | public class Main { |
| 04 | public static void main(String[] args) { |

|  |  |
| --- | --- |
| 05 | System.out.println("The number of arguments passed is "+args.length); |
| 06 | if(args.length>0){ |

|  |  |
| --- | --- |
| 07 | System.out.println("The command line arguments passed are"); |
| 08 | for(int i=0;i<args.length;i++){ |

|  |  |
| --- | --- |
| 09 | System.out.println(args[i]); |
| 10 | } |

|  |  |
| --- | --- |
| 11 | } |
| 12 | } |

|  |  |
| --- | --- |
| 13 | } |

12)

|  |  |
| --- | --- |
| public class Main { | |
| 02 |  |

|  |  |
| --- | --- |
| 03 | public static void main(String[] args) { |
| 04 | if(args.length==2) |

|  |  |
| --- | --- |
| 05 | System.out.println("The sum of "+args[0]+" and "+args[1]+" is "+(Integer.parseInt(args[0]) |
| 06 | +Integer.parseInt(args[1]))); |

|  |  |
| --- | --- |
| 07 | else |
| 08 | System.out.println("Invalid Input"); |

|  |  |
| --- | --- |
| 09 | } |
| 10 | } |

**Object oriented programming 2**

1)

2)

3) **public** **class** Product {

**private** **long** id=0;

**private** String productName;

**private** String supplierName;

**private** **int** price;

**public** **int** getPrice() {

**return** price;

}

**public** **void** setPrice(**int** price) {

**this**.price = price;

}

**public** **long** getId() {

**return** id;

}

**public** **void** setId(**long** id) {

**this**.id = id;

}

**public** String getProductName() {

**return** productName;

}

**public** **void** setProductName(String productName) {

**this**.productName = productName;

}

**public** String getSupplierName() {

**return** supplierName;

}

**public** **void** setSupplierName(String supplierName) {

**this**.supplierName = supplierName;

}

**public** Product(){

}

**public** Product(**long** id,String supplierName,String productName,**int** price){

**this**.id = id;

**this**.productName=productName;

**this**.supplierName = supplierName;

**this**.price = price;

}

}

**public** **class** ProductBO {

**public** **void** displayAllProductDetails(Product productList[], **int** count){

System.*out*.format("%-10s %-20s %-20s %-10s\n", "Id","ProductName","SupplierName","Price");

**for**(**int** i=0;i<count;i++){

System.*out*.format("%-10s %-20s %-20s %-10s\n",productList[i].getId(),

productList[i].getProductName(),productList[i].getSupplierName(),

productList[i].getPrice());

}

}

}

**import** java.util.Scanner;

**public** **class** Main {

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

Scanner sc = **new** Scanner(System.*in*);

String ip = "yes";

Product[] p = **new** Product[100];

**int** i=0;

**while**(ip.equalsIgnoreCase("yes")){

p[i] = **new** Product();

System.*out*.println("Enter the product id");

p[i].setId(sc.nextLong());

sc.nextLine();

System.*out*.println("Enter the product name");

p[i].setProductName(sc.nextLine());

System.*out*.println("Enter the supplier name");

p[i].setSupplierName(sc.nextLine());

System.*out*.println("Enter the product price");

p[i].setPrice(sc.nextInt());

System.*out*.println("Do you want to enter the details of another product? Enter yes or no (not case sensitive)");

ip = sc.next();

i++;

}

ProductBO pbo = **new** ProductBO();

pbo.displayAllProductDetails(p, i);

}

}

8) **public** **class** Product {

**private** **long** id=0;

**private** String productName;

**private** String supplierName;

**private** **int** price;

**public** **int** getPrice() {

**return** price;

}

**public** **void** setPrice(**int** price) {

**this**.price = price;

}

**public** **long** getId() {

**return** id;

}

**public** **void** setId(**long** id) {

**this**.id = id;

}

**public** String getProductName() {

**return** productName;

}

**public** **void** setProductName(String productName) {

**this**.productName = productName;

}

**public** String getSupplierName() {

**return** supplierName;

}

**public** **void** setSupplierName(String supplierName) {

**this**.supplierName = supplierName;

}

**public** Product(){

}

**public** Product(**long** id,String supplierName,String productName,**int** price){

**this**.id = id;

**this**.productName=productName;

**this**.supplierName = supplierName;

**this**.price = price;

}

}

**import** java.util.Iterator;

**import** java.util.List;

**public** **class** ProductBO {

**public** **void** displayAllProductDetails (List<Product> productList){

System.*out*.format("%-10s %-20s %-20s %-10s\n", "Id","ProductName","SupplierName","Price");

Iterator<Product> i = productList.iterator();

**while**(i.hasNext()){

Product p = i.next();

System.*out*.format("%-10s %-20s %-20s %-10s\n",p.getId(),p.getProductName(),p.getSupplierName(),p.getPrice());

}

}

**public** **void** deleteProduct (List<Product> productList, String pname){

Iterator<Product> it = productList.iterator();

**while**(it.hasNext()){

Product p = it.next();

**if**(p.getProductName().equals(pname)){

productList.remove(productList.indexOf(p));

it = productList.iterator();

}

}

}

}

import java.util.ArrayList;

import java.util.List;

import java.util.Scanner;

public class Main {

public static void main(String[] args) {

Scanner sc = new Scanner(System.in);

String ip = "yes";

Product p = new Product();

List<Product> ls = new ArrayList<Product>();

int i=0;

while(ip.equalsIgnoreCase("yes")){

p = new Product();

System.out.println("Enter the product id");

p.setId(sc.nextLong());

sc.nextLine();

System.out.println("Enter the product name");

p.setProductName(sc.nextLine());

System.out.println("Enter the supplier name");

p.setSupplierName(sc.nextLine());

System.out.println("Enter the product price");

p.setPrice(sc.nextInt());

ls.add(p);

System.out.println("Do you want to enter the details of another product? Enter yes or no (not case sensitive)");

ip = sc.next();

i++;

}

sc.nextLine();

ProductBO pbo = new ProductBO();

pbo.displayAllProductDetails(ls);

System.out.println("Enter the name of the product to be deleted");

String del = sc.nextLine();

pbo.deleteProduct(ls, del);

pbo.displayAllProductDetails(ls);

}

}

**Collections**

1) **public** **class** EmployeeRegister **implements** Comparable<EmployeeRegister>{

String firstName;

String lastName;

String mobileNumber;

String email;

String Address;

**public** String getAddress() {

**return** Address;

}

**public** **void** setAddress(String address) {

Address = address;

}

**public** String getFirstName() {

**return** firstName;

}

**public** **void** setFirstName(String firstName) {

**this**.firstName = firstName;

}

**public** String getLastName() {

**return** lastName;

}

**public** **void** setLastName(String lastName) {

**this**.lastName = lastName;

}

**public** String getMobileNumber() {

**return** mobileNumber;

}

**public** **void** setMobileNumber(String mobileNumber) {

**this**.mobileNumber = mobileNumber;

}

**public** String getEmail() {

**return** email;

}

**public** **void** setEmail(String email) {

**this**.email = email;

}

**public** **int** compareTo(EmployeeRegister o) {

**return** **this**.firstName.compareTo(o.firstName);

}

}

**import** java.util.\*;

**public** **class** Main {

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

Scanner sc = **new** Scanner(System.*in*);

List<EmployeeRegister> ls = **new** ArrayList<EmployeeRegister>();

System.*out*.println("Enter The Number of Employees");

**int** n = sc.nextInt();

sc.nextLine();

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

EmployeeRegister e = **new** EmployeeRegister();

System.*out*.println("Enter Employee 1 Details:");

System.*out*.println("Enter the Firstname");

e.setFirstName(sc.nextLine());

System.*out*.println("Enter the Lastname");

e.setLastName(sc.nextLine());

System.*out*.println("Enter the Mobile");

e.setMobileNumber(sc.nextLine());

System.*out*.println("Enter the Email ");

e.setEmail(sc.nextLine());

System.*out*.println("Enter the Address");

e.setAddress(sc.nextLine());

ls.add(e);

}

Set<EmployeeRegister> set = **new** TreeSet<EmployeeRegister>(ls);

Iterator<EmployeeRegister> it = set.iterator();

System.*out*.println("Employee List:");

System.*out*.format("%-15s %-15s %-15s %-30s %-15s\n","Firstname","Lastname","Mobile","Email","Address");

**while**(it.hasNext()){

EmployeeRegister emp = it.next();

System.*out*.format("%-15s %-15s %-15s %-30s %-15s\n",emp.getFirstName(),emp.getLastName()

,emp.getMobileNumber(),emp.getEmail(),emp.getAddress());

}

}

}

2)

3) **public** **class** Card **implements** Comparable<Card>{

Character symbol;

**int** number;

**public** **char** getSymbol() {

**return** symbol;

}

**public** **void** setSymbol(**char** symbol) {

**this**.symbol = symbol;

}

**public** **int** getNumber() {

**return** number;

}

**public** **void** setNumber(**int** number) {

**this**.number = number;

}

**public** **int** compareTo(Card c) {

**return** **this**.symbol.compareTo(c.symbol);

}

}

**import** java.util.\*;

**public** **class** Main {

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

Scanner sc = **new** Scanner(System.*in*);

**int** flag = 0;

Set<Card> set = **new** TreeSet<Card>();

Character[] ar = **new** Character[4];

**int** j = 0, k = 0;

**while**(flag==0){

System.*out*.println("Enter a card :");

Card c = **new** Card();

String temp = sc.next();

Character ch =temp.charAt(0);

c.setSymbol(ch);

c.setNumber(sc.nextInt());

sc.nextLine();

k++;

**int** count = 0;

**for**(**int** i=0; i<4;i++){

**if**(ch.equals(ar[i]))

count++;

}

**if**(count==0){

ar[j++]=ch;

set.add(c);

}

**if**(ar[3]!= **null**)

flag=1;

}

System.*out*.println("Four symbols gathered in "+k+" cards.");

System.*out*.println("Cards in Set are :");

**for**(Card cd : set){

System.*out*.println(cd.getSymbol()+" "+cd.getNumber());

}

}

}

4) **import** java.util.\*;

**public** **class** Main {

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

Scanner sc = **new** Scanner(System.*in*);

System.*out*.println("Enter Number of Cards : ");

**int** n = sc.nextInt();

Set<Character> set = **new** TreeSet<Character>();

sc.nextLine();

Map<Character,List<Integer>> card = **new** HashMap<Character, List<Integer>>();

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

System.*out*.println("Enter card "+i+":");

Character sym = sc.nextLine().charAt(0);

Integer val = sc.nextInt();

sc.nextLine();

**if**(card.containsKey(sym)){

List<Integer> ls = **new** ArrayList<Integer>();

ls = card.get(sym);

ls.add(val);

}

**else**{

set.add(sym);

List<Integer> ls = **new** ArrayList<Integer>();

ls.add(val);

card.put(sym, ls);

}

}

System.*out*.println("Distinct Symbols are : ");

**for**(Character ch:set )

System.*out*.print(ch+" ");

System.*out*.println();

List<Integer> list = **new** ArrayList<Integer>();

**for**(Character ch: set){

System.*out*.println("Cards in "+ch+" Symbol");

list = card.get(ch);

**int** count = 0;

**int** sum=0;

**for**(Integer in : list){

System.*out*.println(ch+" "+in);

++count;

sum=sum+in;

}

System.*out*.println("Number of cards : "+count);

System.*out*.println("Sum of Numbers : "+sum);

}

}

}

5) **public** **class** Box **implements** Comparable<Box> {

**double** length;

**double** width;

**double** height;

**public** **double** getLength() {

**return** length;

}

**public** **void** setLength(**double** length) {

**this**.length = length;

}

**public** **double** getWidth() {

**return** width;

}

**public** **void** setWidth(**double** width) {

**this**.width = width;

}

**public** **double** getHeight() {

**return** height;

}

**public** **void** setHeight(**double** height) {

**this**.height = height;

}

**public** **boolean** equalsTo(Box b){

**return** **true**;

}

@Override

**public** **int** compareTo(Box b) {

**double** v1 = **this**.length\***this**.height\***this**.width;

**double** v2 = b.height\*b.length\*b.width;

**return** (**int**)(v1-v2);

}

}

**import** java.text.DecimalFormat;

**import** java.util.\*;

**public** **class** Main {

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

Scanner sc = **new** Scanner(System.*in*);

Set<Box> set = **new** TreeSet<Box>();

System.*out*.println("Enter the number of Box");

**int** n = sc.nextInt();

**int** k =0;

DecimalFormat df1 = **new** DecimalFormat("0.#");

DecimalFormat df2 = **new** DecimalFormat("0.0#");

Double[] ar = **new** Double[n];

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

Box b = **new** Box();

System.*out*.println("Enter the Box "+i+" details");

System.*out*.println("Enter Length");

**double** l = sc.nextDouble();

b.setLength(l);

System.*out*.println("Enter Width");

**double** w = sc.nextDouble();

b.setWidth(w);

System.*out*.println("Enter Height");

**double** h = sc.nextDouble();

b.setHeight(h);

**double** v = l\*w\*h;

**int** flag=0;

**for**(**int** j=0;j<n;j++){

**if**(ar[j]!=**null** && ar[j]==v){

flag=1;

}

}

**if**(flag==0){

set.add(b);

ar[k++]=v;

}

}

System.*out*.println("Unique Boxes in the Set are");

**for**(Box a : set){

System.*out*.println("Length ="+df1.format(a.getLength())+" Width ="+df1.format(a.getWidth())+" Height ="+df1.format(a.getHeight())+

" Volume ="+df2.format(a.getLength()\*a.getHeight()\*a.getWidth()));

}

}

}

**Exception handling**

1) **import** java.util.Scanner;

**public** **class** Main {

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

Scanner sc = **new** Scanner(System.*in*);

System.*out*.println("Enter an integer:");

String str=sc.nextLine();

**try**{

**int** n = Integer.*parseInt*(str);

System.*out*.println("The square value is "+n\*n);

System.*out*.println("The work has been done successfully");

}

**catch**(Exception e){

System.*out*.println("Entered input is not a valid format for an integer.");

}

}

}

2)

3) import java.io.\*;

import java.util.Scanner;

public class Main {

public static void main(String[] args) {

BufferedReader br = new BufferedReader(new InputStreamReader(System.in));

try{

System.out.println("Enter the number of elements in the array");

String str =br.readLine();

int n = Integer.parseInt(str);

Integer[] ar = new Integer[n];

System.out.println("Enter the elements in the array");

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

ar[i]=Integer.parseInt(br.readLine());

}

System.out.println("Enter the index of the array element you want to access");

int j = Integer.parseInt(br.readLine());

System.out.println("The array element at index "+j+" = "+ar[j]);

System.out.println("The array element successfully accessed");

}

catch(Exception e){

String[] str = e.getClass().toString().split(" ");

System.out.println(str[1]);

}

}

}

4) **import** java.io.\*;

**import** java.util.Scanner;

**public** **class** Main {

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

BufferedReader br = **new** BufferedReader(**new** InputStreamReader(System.*in*));

**try**{

System.*out*.println("Enter the number of elements in the array");

String str =br.readLine();

**int** n = Integer.*parseInt*(str);

Integer[] ar = **new** Integer[n];

System.*out*.println("Enter the elements in the array");

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

ar[i]=Integer.*parseInt*(br.readLine());

}

System.*out*.println("Enter the index of the array element you want to access");

**int** j = Integer.*parseInt*(br.readLine());

System.*out*.println("The array element at index "+j+" = "+ar[j]);

System.*out*.println("The array element successfully accessed");

}

**catch**(ArrayIndexOutOfBoundsException ar){

System.*out*.println("ArrayIndexOutOfBoundsException caught");

}

**catch**(NumberFormatException n){

System.*out*.println("NumberFormatException caught");

}

**catch**(IOException e){

System.*out*.println("IOException caught");

}

}

}

5) **import** java.util.Scanner;

**public** **class** Main {

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

Scanner sc = **new** Scanner(System.*in*);

System.*out*.println("Enter the 2 numbers");

**int** n = sc.nextInt();

**int** m = sc.nextInt();

**try**{

System.*out*.println("The quotient of "+n+"/"+m+" = "+n/m);

}

**catch**(ArithmeticException a){

System.*out*.println("DivideByZeroException caught");

}

**finally**{

System.*out*.println("Inside finally block");

}

}

}

6) **import** java.util.Scanner;

**public** **class** Main {

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

Scanner sc = **new** Scanner(System.*in*);

System.*out*.println("Enter your age");

**int** age = sc.nextInt();

**try**{

**if**(age>18){

System.*out*.println("welcome to vote");

}

**else**

**throw** **new** Exception();

}

**catch**(Exception e){

System.*out*.println("Exception occured: InvalidAgeException: not valid");

}

}

}

**Iostreams**

1) **import** java.io.\*;

**import** java.util.Scanner;

**public** **class** Main {

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

String ip = "";

Scanner sc = **new** Scanner(System.*in*);

**try**{

System.*out*.println("Enter the input file name");

String str1 = sc.nextLine();

FileInputStream fileip = **new** FileInputStream(str1);

**int** c;

**while**((c = fileip.read())!= -1){

ip = ip+(**char**)(c);

}

}

**catch**(FileNotFoundException nf){

nf.printStackTrace();

}

**catch**(IOException ioe){

ioe.printStackTrace();

}

**try**{

System.*out*.println("Enter the output file name");

String str2 = sc.nextLine();

FileOutputStream fileop = **new** FileOutputStream(str2);

**byte**[] b = **new** **byte**[ip.length()];

b = ip.getBytes();

fileop.write(b);

}

**catch**(FileNotFoundException nf2){

nf2.printStackTrace();

}

**catch**(IOException ioe2){

ioe2.printStackTrace();

}

}

}

2) **import** java.io.\*;

**import** java.util.Scanner;

**public** **class** Main {

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

Scanner sc = **new** Scanner(System.*in*);

**int** count = 0;

**try**{

System.*out*.println("Enter the file name");

String str = sc.nextLine();

System.*out*.println("Enter the character to be counted");

String str1 = ""+sc.nextLine().charAt(0);

FileInputStream fileip = **new** FileInputStream(str);

**int** c;

**while**((c = fileip.read())!= -1){

Character ch = (**char**)(c);

String str2 = ""+ch;

**if**(str2.equalsIgnoreCase(str1)){

count++;

}

}

System.*out*.println("File '"+str+"' has "+count+" instances of letter '"+str1+"'.");

}

**catch**(FileNotFoundException nf){

nf.printStackTrace();

}

**catch**(IOException ioe){

ioe.printStackTrace();

}

}

}

3) **import** java.io.File;

**import** java.io.FileNotFoundException;

**import** java.util.Scanner;

**public** **class** Main {

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

Scanner sc = **new** Scanner(System.*in*);

System.*out*.println("Enter the file name");

String fileip = sc.nextLine();

**try**{

Scanner s = **new** Scanner(**new** File(fileip));

**while**(s.hasNextLine()){

System.*out*.println(s.nextLine());

}

}

**catch**(FileNotFoundException nf){

nf.printStackTrace();

}

}

}

**Multithreading**

1) **public** **class** SineClass **extends** Thread {

**int** val;

**double** sin;

**public** SineClass(**int** val) {

**this**.val = val;

}

**public** **void** run(){

sin = Math.*sin*(Math.*toRadians*(val));

}

}

**public** **class** CosClass **extends** Thread {

**int** val;

**double** cos;

**public** CosClass(**int** val) {

**this**.val = val;

}

**public** **void** run(){

cos = Math.*cos*(Math.*toRadians*(val));

}

}

**public** **class** TanClass **extends** Thread{

**int** val;

**double** tan;

**public** TanClass(**int** val) {

**this**.val = val;

}

**public** **void** run(){

tan = Math.*tan*(Math.*toRadians*(val));

}

}

**import** java.text.DecimalFormat;

**import** java.util.Scanner;

**public** **class** Main {

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

Scanner sc = **new** Scanner(System.*in*);

DecimalFormat df = **new** DecimalFormat("0.0#");

System.*out*.println("Enter the Degree for Sin : ");

SineClass s = **new** SineClass(sc.nextInt());

System.*out*.println("Enter the Degree for Cos : ");

CosClass c = **new** CosClass(sc.nextInt());

System.*out*.println("Enter the Degree for Tan : ");

TanClass t = **new** TanClass(sc.nextInt());

s.start();

c.start();

t.start();

**try** {

s.join();

c.join();

t.join();

} **catch** (InterruptedException e) {

// **TODO** Auto-generated catch block

e.printStackTrace();

}

**double** sum = s.sin+c.cos+t.tan;

System.*out*.println("Sum of sin, cos, tan = "+df.format(sum));

}

}

2) **import** java.util.\*;

**public** **class** Counter **extends** Thread{

String str;

**static** Map<Character,Integer> *vowels* = **new** HashMap<Character,Integer>();

**static** **int** *a*=0,*e*=0,*i*=0,*o*=0,*u*=0;

**public** Counter(String str) {

**this**.str = str;

**this**.start();

}

**public** **void** run(){

**for**(**int** j=0;j<str.length();j++){

**if**(str.charAt(j)=='a'||str.charAt(j)=='A'){

*a*++;

*vowels*.put('a',*a*);

}

**if**(str.charAt(j)=='e'||str.charAt(j)=='E'){

*e*++;

*vowels*.put('e',*e*);

}

**if**(str.charAt(j)=='i'||str.charAt(j)=='I'){

*i*++;

*vowels*.put('i',*i*);

}

**if**(str.charAt(j)=='o'||str.charAt(j)=='O'){

*o*++;

*vowels*.put('o',*o*);

}

**if**(str.charAt(j)=='u'||str.charAt(j)=='U'){

*u*++;

*vowels*.put('u',*u*);

}

}

}

**public** **static** **void** display(){

System.*out*.println("a:"+*vowels*.get('a')+" e:"+*vowels*.get('e')+" i:"+*vowels*.get('i')+"" +

" o:"+*vowels*.get('o')+" u:"+*vowels*.get('u'));

}

}

**import** java.util.Scanner;

**public** **class** Main {

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

Scanner sc = **new** Scanner(System.*in*);

System.*out*.println("Enter Number of Counters :");

**int** n = sc.nextInt();

sc.nextLine();

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

System.*out*.println("Enter text for counter "+i+" :");

Counter c = **new** Counter(sc.nextLine());

**try** {

c.join();

} **catch** (InterruptedException e) {

e.printStackTrace();

}

}

System.*out*.println("Vowels count in given text are :");

Counter.*display*();

}

}

3) **import** java.util.\*;

**public** **class** Counter **extends** Thread {

String str;

**public** Map<Character,Integer> hs = **new** HashMap<Character,Integer>();

**public** Counter(){}

**public** Counter(String str) {

**this**.str = str;

**this**.start();

}

**public** **void** run(){

**for**(**int** j=0;j<str.length();j++){

**char** ch = str.charAt(j);

**if**(hs.get(ch)==**null**)

hs.put(ch,1);

**else**{

**int** count=hs.get(ch);

++count;

hs.put(ch,count);

}

}

}

**public** **void** display(){

**for**(**int** k=0;k<256;k++){

**char** t = (**char**)(k);

**if**(hs.containsKey(t))

System.*out*.print(t+":"+hs.get(t)+" ");

}

System.*out*.println();

}

}

**import** java.util.\*;

**public** **class** Main {

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

Scanner sc = **new** Scanner(System.*in*);

System.*out*.println("Enter Number of Counters :");

**int** n=sc.nextInt();

sc.nextLine();

Counter[] c = **new** Counter[n];

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

System.*out*.println("Enter text for counter "+(i+1)+" :");

c[i]=**new** Counter(sc.nextLine());

**try** {

c[i].join();

}

**catch** (InterruptedException e) {

e.printStackTrace();

}

}

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

System.*out*.println("Counter "+(i+1)+" Result :");

c[i].display();

}

}

}