1st

```
import java.util.Scanner;
public class QuadraticEquationExample1
{
public static void main(String[] Strings)
{
Scanner input = new Scanner(System.in);
System.out.print("Enter the value of a: ");
double a = input.nextDouble();
System.out.print("Enter the value of b: ");
double b = input.nextDouble();
System.out.print("Enter the value of c: ");
double c = input.nextDouble();
double d= b * b - 4.0 * a * c;
if (d> 0.0)
{
double r1 = (-b + Math.pow(d, 0.5)) / (2.0 * a);
double r2 = (-b - Math.pow(d, 0.5)) / (2.0 * a);
System.out.println("The roots are " + r1 + " and " + r2);
}
else if (d == 0.0)
{
double r1 = -b / (2.0 * a);
System.out.println("The root is " + r1);
}
else
{
System.out.println("Roots are not real.");
}
}
}
```

OUTPUT

```
Enter the value of a:1
Enter the value of b:2
Enter the value of c:1
The root is -1.0
Enter the value of a:2
Enter the value of b:3
Enter the value of c:4
The root are not real
```

2nd

```
import java.util.Scanner;
public class Student {
public Student(String stuUSN,String stuName,String stuBranch,String stuPhone)
{
System.out.println("Student USN is:"+stuUSN);
System.out.println("Student Name is:"+stuName);
System.out.println("Student Branch is:"+stuBranch);
System.out.println("Student Phone number is:"+stuPhone);
}
public static void main(String[] args)
```

```
{
Scanner readInput = new Scanner(System.in);
System.out.println("Enter number of student objects to create");
int numberOfStudents = readInput.nextInt();
for(int i =1;i<=numberOfStudents;i++)
{
System.out.println("Enter Student USN");
String usn = readInput.next();
System.out.println("Enter Student Name");
String name = readInput.next();
System.out.println("Enter Student Branch");
String branch = readInput.next();
System.out.println("Enter Student Phone");
String phone = readInput.next();
new Student(usn, name,branch, phone);
}
}
}
```

OUTPUT:

```
Enter number of student objects to create
3
Enter student USN
1ckcs0021
Enter student name
Abhi ram
Enter student Branch
cs
```

3a

```
import java.util.Scanner;
public class CodesCracker
{
   public static void main(String[] args)
   {
      int num, i, count=0;
      Scanner s = new Scanner(System.in);

      System.out.print("Enter a Number: ");
      num = s.nextInt();

      for(i=2; i<num; i++)
      {
         if(num%i == 0)
         {
            count++;
            break;
         }
      }

      if(count==0)
         System.out.println("\nIt is a Prime Number.");
      else
         System.out.println("\nIt is not a Prime Number.");
```

```
   }
}
```

3b

```
import java.util.Scanner;

public class JavaExample {

    public static void main(String[] args) {

      double num1, num2;
        Scanner scanner = new Scanner(System.in);
        System.out.print("Enter first number:");
        num1 = scanner.nextDouble();
        System.out.print("Enter second number:");
        num2 = scanner.nextDouble();

        System.out.print("Enter an operator (+, -, *, /): ");
        char operator = scanner.next().charAt(0);

        scanner.close();
        double output;

        switch(operator)
        {
            case '+':
                 output = num1 + num2;
                break;

            case '-':
                 output = num1 - num2;
                break;

            case '*':
                 output = num1 * num2;
                break;

            case '/':
                 output = num1 / num2;
                break;


                System.out.printf("You have entered wrong operator");
                return;
        }

        System.out.println(num1+" "+operator+" "+num2+": "+output);
    }
}
```

4th

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

```
import java.util.Scanner;
import java.util.StringTokenizer;
public class StaffDetails
{
public static void main(String [] args)
{
staff s=new staff();
teaching t=new teaching();
technical te=new technical();
contract c=new contract();
Scanner sc=new Scanner(System.in);
System.out.println("Enter number of staff");
 int n=sc.nextInt();
 for(int i=1;i<=n;i++)
 {
 System.out.println("Enter staffid");
 s.staffid=sc.next();
 System.out.println("Enter staffname");
 s.name=sc.next();
 System.out.println("Enter staffphone");
 s.phone=sc.nextLong();
 System.out.println("Enter staffsalary");
 s.salary=sc.nextDouble();
 System.out.println("Enter staffdomain");
System.out.println("Enter staffpublications");
 t.publications=sc.next();
 System.out.println("Enter staffskills");
 te.skills=sc.next();
 System.out.println("Enter staffperiod");
 c.period=sc.nextInt();
 System.out.println("Enter staffid:"+s.staffid);
 System.out.println("Enter staffname:"+s.name);
 System.out.println("Enter staffphone:"+s.phone);
 System.out.println("Enter staffsalary:"+s.salary);
 System.out.println("Enter staffdomain:"+t.domain);
 System.out.println("Enter staffpublications:"+t.publications);
 System.out.println("Enter staffskills:"+te.skills);
 System.out.println("Enter staffperiod:"+c.period);

 }
}
}
class staff
{
String staffid;
String name;
long phone;
double salary;
}
class technical extends staff
{
String skills;
}
class teaching extends staff
```

```
{
String domain;
String publications;
}
class contract extends staff
{
int period;
}
OUT PUT:
Enter number of staff
3
Enter staff id
1111
Enter staff name
Rani
Enter staff phone
8565237859

5th

Method overloading
class DisplayOverloading3
{
 public void disp(char c, int num)
 {
 System.out.println("I'm the first definition of method disp");
 }
 public void disp(int num, char c)
 {
 System.out.println("I'm the second definition of method disp" );
 }
}
public class Sample3
{
 public static void main(String args[])
 {
 DisplayOverloading3 obj = new DisplayOverloading3();
 obj.disp('a',1);
 obj.disp(2,'b');
 }
}
OUTPUT:
I'm the first definition of method disp
I'm the second definition of method disp
Constructor overloading
public class Student {
int id;
String name;

Student(){
System.out.println("this a default constructor");
}

Student(int i, String n){
```

```
id = i;
name = n;
}

public static void main(String[] args) {
Student s = new Student();
System.out.println("\nDefault Constructor values: \n");
System.out.println("Student Id : "+s.id + "\nStudent Name : "+s.name);

System.out.println("\nParameterized Constructor values: \n");
Student student = new Student(10, "David");
System.out.println("Student Id : "+student.id + "\nStudent Name :
"+student.name);
}
}
OUTPUT:
this a default constructor
 Defualt Constructor values:
Student ID : 0
Student Name: null
Parameterized Constructor values:
Student ID : 10
Student Name: David

6th

package currencyconversion;
import java.util.*;
public class currency
{
double inr,usd;
double euro,yen;
Scanner in=new Scanner(System.in);
public void dollartorupee()
{
System.out.println("Enter dollars to convert into Rupees:");
usd=in.nextInt();
inr=usd*67;
System.out.println("Dollar ="+usd+"equal to INR="+inr);
}
public void rupeetodollar()
{
System.out.println("Enter Rupee to convert into Dollars:");
inr=in.nextInt();
usd=inr/67;
System.out.println("Rupee ="+inr+"equal to Dollars="+usd);
}
public void eurotorupee()
{
System.out.println("Enter euro to convert into Rupees:");
euro=in.nextInt();
inr=euro*79.50;
System.out.println("Euro ="+euro +"equal to INR="+inr);
}
```

```
public void rupeetoeuro()
{
System.out.println("Enter Rupees to convert into Euro:");
inr=in.nextInt();
euro=(inr/79.50);
System.out.println("Rupee ="+inr +"equal to Euro="+euro);
}
public void yentorupee()
{
System.out.println("Enter yen to convert into Rupees:");
yen=in.nextInt();
inr=yen*0.61;
System.out.println("YEN="+yen +"equal to INR="+inr);
}
public void rupeetoyen()
{
System.out.println("Enter Rupees to convert into Yen:");
inr=in.nextInt();
yen=(inr/0.61);
System.out.println("INR="+inr +"equal to YEN"+yen);
}
}
Distance.java
package distanceconversion;
import java.util.*;
public class distance
{
double km,m,miles;
Scanner sc = new Scanner(System.in);
public void kmtom()
{
System.out.print("Enter in km ");
km=sc.nextDouble();
m=(km*1000);
System.out.println(km+"km" +"equal to"+m+"metres");
}
public void mtokm()
{
System.out.print("Enter in meter ");
m=sc.nextDouble();
km=(m/1000);
System.out.println(m+"m" +"equal to"+km+"kilometres");
}
public void milestokm()
{
System.out.print("Enter in miles");
miles=sc.nextDouble();
km=(miles*1.60934);
System.out.println(miles+"miles" +"equal to"+km+"kilometres");
}
public void kmtomiles()
{
System.out.print("Enter in km");
km=sc.nextDouble();
```

```
miles=(km*0.621371);
System.out.println(km+"km" +"equal to"+miles+"miles");
}
}
```

timer.java

```
package timeconversion;
import java.util.*;
public class timer
{
int hours,seconds,minutes;
int input;
Scanner sc = new Scanner(System.in);
public void secondstohours()
{
System.out.print("Enter the number of seconds: ");
input = sc.nextInt();
hours = input / 3600;
minutes = (input % 3600) / 60;
seconds = (input % 3600) % 60;
System.out.println("Hours: " + hours);
System.out.println("Minutes: " + minutes);
System.out.println("Seconds: " + seconds);
}
public void minutestohours()
{
System.out.print("Enter the number of minutes: ");
minutes=sc.nextInt();
hours=minutes/60;
minutes=minutes%60;
System.out.println("Hours: " + hours);
System.out.println("Minutes: " + minutes);
}
public void hourstominutes()
{
System.out.println("enter the no of hours");
hours=sc.nextInt();
minutes=(hours*60);
System.out.println("Minutes: " + minutes);
}
public void hourstoseconds()
{
System.out.println("enter the no of hours");
hours=sc.nextInt();
seconds=(hours*3600);
System.out.println("Minutes: " + seconds);
}
}
```

7th

converter.java

```
import java.util.*;
import java.io.*;
import currencyconversion.*;
```

```
import distanceconversion.*;
import timeconversion.*;
class converter
{
public static void main(String args[])
{
Scanner s=new Scanner(System.in);
int choice,ch;
currency c=new currency();
distance d=new distance();
timer t=new timer();
do
{
System.out.println("1.dollar to rupee ");
System.out.println("2.rupee to dollar ");
System.out.println("3.Euro to rupee ");
System.out.println("4..rupee to Euro ");
System.out.println("5.Yen to rupee ");
System.out.println("6.Rupee to Yen ");
System.out.println("7.Meter to kilometer ");
System.out.println("8.kilometer to meter ");
System.out.println("9.Miles to kilometer ");
System.out.println("10.kilometer to miles");
System.out.println("11.Hours to Minutes");
System.out.println("12.Hours to Seconds");
System.out.println("13.Seconds to Hours");
System.out.println("14.Minutes to Hours");
System.out.println("Enter ur choice");
choice=s.nextInt();
switch(choice)
{
case 1:
{
c.dollartorupee();
break;
}
case 2:
{
c.rupeetodollar();
break;
}
case 3:
{
c.eurotorupee();
break;
}
case 4:
{
c.rupeetoeuro();
break;
}
case 5:
{c.yentorupee();
break;}
```

```
case 6 :
{
c.rupeetoyen();
break;
}
case 7 :
{
d.mtokm();
break;
}
case 8 :
{
d.kmtom();
break;
}
case 9 :
{
d.milestokm();
break;
}
case 10 :
{
d.kmtomiles();
break;
}
case 11 :
{
t.hourstominutes();
break;
}
case 12 :
{
t.hourstoseconds();
break;
}
case 13 :
{
t.secondstohours();
break;
}
case 14 :
{
t.minutestohours();
break;
}}
System.out.println("Enter 0 to quit and 1 to continue ");
ch=s.nextInt();
}while(ch==1);
}
}
```

8th

```
import java.util.Scanner;
```

```
public class division
{
public static void main(String[] args)
{
int a,b,result;
Scanner input =new Scanner(System.in);
System.out.println("Input two integers");
a=input.nextInt();
b=input.nextInt();
try
{
result=a/b;
System.out.println("Result="+result);
}
catch(ArithmeticException e)
{
System.out.println("exception caught: Divide by zeroerror"+e);
}
}
}
```

9th

```
import java.util.ArrayList;
import java.util.Scanner;

public class Array {

public static void main(String[] args) {

ArrayList<String>listOfStrings = new ArrayList<String>();
Scanner scan = new Scanner(System.in);

String choice;
String value;
String element;
do {
System.out.println("---------------------- MENU --------------------------");
System.out.println("a - Append the string");
System.out.println("b - Insert the string at the particular index");
System.out.println("c - Search for the string");
System.out.println("d - List all the strings that begins with a character");
System.out.println("e - Exit the Menu");
System.out.println("----------------------------------------------------");
System.out.print("Enter your choice : ");
choice = scan.nextLine();
if(choice.equals("a")) {
System.out.print("Enter the string to be appended : ");
value = scan.nextLine();
listOfStrings.add(value);
System.out.println("Content after append is : ");
System.out.println(listOfStrings);
}
else if(choice.equals("b")) {
```

```
System.out.print("Enter the string to be added : ");
value = scan.nextLine();
System.out.print("Enter the index : ");
int index = Integer.parseInt(scan.nextLine());
if(index >listOfStrings.size()) {
System.out.println("Invalid Index....");
continue;
}
listOfStrings.add(index,value);
System.out.println("Content after inserting "+value+" at "+index+" location is
: ");
System.out.println(listOfStrings);
}
else if(choice.equals("c")) {
System.out.print("Enter the element to be searched : ");
element = scan.nextLine();
int location = Array.findElement(listOfStrings, element);
if(location == -1) {
System.out.println(element+" is not found in the list "+listOfStrings);
}
else {
System.out.println(element+" is found at location "+(location+1)+" in the list
"+listOfStrings);
}
}
else if(choice.equals("d")) {
System.out.print("Enter the first character of the strings to be searched and
listed : ");
element = scan.nextLine();
//Array.list The Strings StartsWithElement(listOfStrings,element);
}
else if(choice.matches("[f-z]*")){
System.out.println("Invalid Choice... Try again...");
}
}while(!choice.equals("e"));
scan.close();
}
public static void
listTheStringsStartsWithElement(ArrayList<String>stringList,String element){
System.out.print("The elements that starts with "+element+" character are - ");
for(String item  :stringList)
if(item.startsWith(element)) {
System.out.print(item+" ");
}
System.out.println();
}
public static int findElement(ArrayList<String>stringList,String element){
for(int index = 0 ; index <stringList.size() ; index++ )
if(stringList.get(index).equals(element)) {
return index;
}
return -1;
}
}
```