1) Student

```
import java.util.*;
class Student{
   int rollNo;
   String firstName;
   double percentage;
   public void accept(){
      Scanner sc=new Scanner(System.in);
      System.out.println("Enter Your roll no.");
      rollNo=sc.nextInt();
      System.out.println("Enter Your first name");
      firstName=sc.next();
      System.out.println("Enter Your percentage");
      percentage=sc.nextDouble();
   }
   public void display(){
      System.out.println("RollNo:"+rollNo);
      System.out.println("Name:"+firstName);
      System.out.println("Percentage:"+percentage);
   }
}
public class Main
{
        public static void main(String[] args) {
                int n,i;
                Scanner sc=new Scanner(System.in);
                System.out.println("Enter size of array");
                n=sc.nextInt();
                Student[] student=new Student[n];
                for(i=0;i<n;i++){
                   student[i]=new Student();
                   student[i].accept();
                   student[i].display();
                }
        }
}
```

O/P:

```
Enter size of array
3
Enter Your roll no.
101
Enter Your first name
```

```
Nilesh
Enter Your percentage
68
RollNo:101
Name:Nilesh
Percentage:68.0
Enter Your roll no.
102
Enter Your first name
Ganesh
Enter Your percentage
90
RollNo:102
Name:Ganesh
Percentage:90.0
Enter Your roll no.
Thushar       103
Enter Your first name
Suj raj
Enter Your percentage
87
RollNo:103
Name:Suraj
Percentage:87.0
```

2) Book

```
import java.util.*;
class Book{
   int bookId;
   String bookName,bookAuthor;
   double bookPrice;
   public void setBookInformation(){
      Scanner sc=new Scanner(System.in);
      System.out.println("Enter book id");
      bookId=sc.nextInt();
      System.out.println("Enter book name");
      bookName=sc.next();
      System.out.println("Enter book author name");
      bookAuthor=sc.next();
      System.out.println("Enter book price");
      bookPrice=sc.nextDouble();
   }
   public void getBookInformation(){
      System.out.println("Book Id:"+bookId);
```

```
        System.out.println("Book Name:"+bookName);
        System.out.println("Book Author Name:"+bookAuthor);
        System.out.println("Book Price:"+bookPrice);
    }
}
public class Main
{
        public static void main(String[] args) {
                int n,i;
                Scanner sc=new Scanner(System.in);
                System.out.println("Enter size of array");
                n=sc.nextInt();
                Book[] book=new Book[n];
                for(i=0;i<n;i++){
                   book[i]=new Book();
                   book[i].setBookInformation();
                   book[i].getBookInformation();
                }
        }
}
```

O/P:

```
Enter size of array
3
Enter book id
510
Enter book name
C
Enter book author name
VJ
Enter book price
700
Book Id:510
Book Name:C
Book Author Name:VJ
Book Price:700.0
Enter book id
653
Enter book name
C++
Enter book author name
jkshdu
Enter book price
9876
Book Id:653
```

```
Book Name:C++
Book Author Name:jkshdu
Book Price:9876.0
Enter book id
7
Enter book name
MSD
Enter book author name
VJ
Enter book price
900
Book Id:7
Book Name:MSD
Book Author Name:VJ
Book Price:900.0
```

3) Vehicle

```
import java.util.*;
class Vehicle{
   int vehicleId;
   String vehicleName,companyName,color,owner;
   double vehiclePrice;
   public void setVehicleInformation(){
      Scanner sc=new Scanner(System.in);
      System.out.println("Enter Vehicle id");
      vehicleId=sc.nextInt();
      System.out.println("Enter Vehicle name");
      vehicleName=sc.next();
      System.out.println("Enter company name");
      companyName=sc.next();
      System.out.println("Enter Vehicle color");
      color=sc.next();
      System.out.println("Enter owner name");
      owner=sc.next();
      System.out.println("Enter Vehicle price");
      vehiclePrice=sc.nextDouble();
   }
   public void getVehicleInformation(){
      System.out.println("Vehicle Id:"+vehicleId);
      System.out.println("Vehicle Name:"+vehicleName);
      System.out.println("Vehicle company name:"+companyName);
      System.out.println("Vehicle color:"+color);
      System.out.println("Vehicle owner:"+owner);
      System.out.println("Vehicle price:"+vehiclePrice);
```

```
   }
}
public class Main
{
	public static void main(String[] args) {
		int n,i;
		Scanner sc=new Scanner(System.in);
		System.out.println("Enter size of array");
		n=sc.nextInt();
		Vehicle[] vehicle=new Vehicle[n];
		for(i=0;i<n;i++){
		   vehicle[i]=new Vehicle();
		   vehicle[i].setVehicleInformation();
		   vehicle[i].getVehicleInformation();
		}
	}
}
```

O/P:

```
Enter size of array
2
Enter Vehicle id
1
Enter Vehicle name
DreamYuga
Enter company name
Honda
Enter Vehicle color
RedBlack
Enter owner name
VJ
Enter Vehicle price
69999
Vehicle Id:1
Vehicle Name:DreamYuga
Vehicle company name:Honda
Vehicle color:RedBlack
Vehicle owner:VJ
Vehicle price:69999.0
Enter Vehicle id
2
Enter Vehicle name
Jawa
Enter company name
Hero    ^^?  RoyalEnfied Id
```

```
Enter Vehicle color
Blak
Enter owner name
XYZ
Enter Vehicle price
1 21 21568
Vehicle Id:2
Vehicle Name:Jawa
Vehicle company name:RoyalEnfield
Vehicle color:Black
Vehicle owner:XYZ
Vehicle price:221568.0
```

4) Employee

```
import java.util.*;
class Employee{
   int empId;
   String empName,empDesignation;
   double empSalary;
   public void setEmpDetail(){
      Scanner sc=new Scanner(System.in);
      System.out.println("Enter employee id");
      empId=sc.nextInt();
      System.out.println("Enter employee name");
      empName=sc.next();
      System.out.println("Enter employee designation");
      empDesignation=sc.next();
      System.out.println("Enter employee salary");
      empSalary=sc.nextDouble();
   }
   public void getEmpDetail(){
      System.out.println("Employee Id:"+empId);
      System.out.println("Employee Name:"+empName);
      System.out.println("Employee Designation:"+empDesignation);
      System.out.println("Employee Salary:"+empSalary);
   }
}
public class Main
{
        public static void main(String[] args) {
                int n,i;
                Scanner sc=new Scanner(System.in);
                System.out.println("Enter size of array");
                n=sc.nextInt();
```

```
                Employee[] emp=new Employee[n];
                for(i=0;i<n;i++){
                    emp[i]=new Employee();
                    emp[i].setEmpDetail();
                    emp[i].getEmpDetail();
                }
        }
}
```

O/P:

```
Enter size of array
2
Enter employee id
1234
Enter employee name
Ram
Enter employee designation
Manager
Enter employee salary
120000
Employee Id:1234
Employee Name:Ram
Employee Designation:Manager
Employee Salary:120000.0
Enter employee id
12345
Enter employee name
Nilesh
Enter employee designation
CEO
Enter employee salary
12110000
Employee Id:12345
Employee Name:Nilesh
Employee Designation:CEO
Employee Salary:1.211E7
```

5) Area of circle

```
import java.util.Scanner;
 class AreaDemo
{
        double r,A;
        void accept(double r)//double r1
        {
                this.r=r;//r=r1;
        }
```

```
        double cal_area()
        {
                A=3.14*r*r;
                return(A);

        }

}
public class Main
{
   public static void main(String[] args)
        {
                double r,A;
                Scanner sc =new Scanner (System.in);
                AreaDemo a1=new AreaDemo();
                System.out.println("Enter value of r");
                r=sc.nextDouble();
                a1.accept(r);
                A=a1.cal_area();
                System.out.println("Area="+A);
        }

}
```

O/P:

```
Enter value of r
2
Area=12.56
```

6) Factorial

```
import java.util.*;
class Fact_Demo
{
        int n,f1=1,i;
        void accept(int n)
        {
                this.n=n;
        }
        int cal_fact()
        {
                for(i=n;i>=1;i--)
                {
                   f1*=i;
                }
                return(f1);
```

```
        }
}
public class Main
{
   public static void main(String[] args)
        {
                int size,n,f1,i;
                Scanner sc =new Scanner (System.in);
                System.out.println("Enter the array of array");
                size=sc.nextInt();
                Fact_Demo[] fd=new Fact_Demo[size];
                for(i=0;i<size;i++){
                   fd[i]=new Fact_Demo();
                   System.out.println("Enter a number");
                   n=sc.nextInt();
                   fd[i].accept(n);
                   f1=fd[i].cal_fact();
                   System.out.println("Fact="+f1);
                }
        }

}
```

O/P:

```
Enter the array of array
4
Enter a number
5
Fact=120
Enter a number
7
Fact=5040
Enter a number
4
Fact=24
Enter a number
2
Fact=2
```

7)

```
import java.util.Scanner;
class ParaMethodDemo
{
        int flag=0,n1,n,x,sum=0,p,f1=1,i;
        void accept(int n)
```

```
	{
		this.n=n;
	}
	void pattern()
	{

	for(int i=1;i<=n;i++)
	{
		for(int j=1;j<=i;j++)
		{
			System.out.print(" "+j);
		}
		System.out.println();
	}
	}
	void prime()
	{

		for(i=2;i<=(n/2);i++)
		{
		if(n%i==0)
		{
		flag=1;
		break;
		}
		}

		if(flag==0)
			System.out.println("No is prime");
		else
			System.out.println("No is not prime");
	}
String pal()
	{
		p=n;
		while(p>0)
		{
		n1=p%10;
		p=p/10;
		sum=(sum*10)+n1;
		}

		if(sum==n)
			return "No is pal";
```

```
                else
                        return "No is not pal";
        }

int power(int x)
{
   this.x=x;//this operator means acces the member of itself
        for(i=1;i<=n;i++)
        {
        f1=f1*x;
        }
        return (f1);

}
}
public class Main{
        public static void main(String[] args)
        {
           int n,x;
                Scanner sc =new Scanner (System.in);
                ParaMethodDemo a1=new ParaMethodDemo();
                System.out.println("Enter value of n");
                n=sc.nextInt();
                a1.accept(n);
                a1.pattern();

                a1.prime();
                System.out.println(""+a1.pal());
                System.out.println("Enter value of x");
                x=sc.nextInt();
                int f1=a1.power(x);
                System.out.println("Power="+f1);

        }

}
```

O/P:

```
Enter value of n
5
1
12
123
1234
12345
```

No is prime
No is pal
Enter value of x
12
Power=248832

8)
```
import java.util.*;
class ParaMethod{
    int n,i,j;
    void accept(int n){
        this.n=n;
    }
    void pattern(){
        for(i=1;i<=n;i++){
            for(j=1;j<=i;j++){
                System.out.print("* ");
            }
            System.out.println();
        }
    }
    String arm(int num){
        int sum=0,temp=num;
        while(num>0){
            int digit=num%10;
            sum+=digit*digit*digit;
            num/=10;
        }
        if(temp==sum){
            return "Number is armstrong";
        }
        else{
            return "Number is not armstrong";
        }
    }
    void reverseNumber(int num){
        int sum=0;
        while(num>0){
            int digit=num%10;
            sum=(sum*10)+digit;
            num/=10;
        }
        System.out.println("Revered number is:"+sum);
    }
    int vowelCount(){
```

```
        Scanner sc=new Scanner(System.in);
        int count=0;
        System.out.println("Enter a string");
        String s=sc.next();
        char[] s1=s.toCharArray();
        for(i=0;i<s.length();i++){
            if(s1[i]=='a' || s1[i]=='e' || s1[i]=='i' || s1[i]=='o' || s1[i]=='u' || s1[i]=='A' || s1[i]=='E' ||
s1[i]=='I' || s1[i]=='O' || s1[i]=='U'){
                count++;
            }
        }
        return count;
    }
}
public class Main
{
        public static void main(String[] args) {
                int n;
                Scanner sc=new Scanner(System.in);
                System.out.println("Enter a number");
                n=sc.nextInt();
                ParaMethod pm=new ParaMethod();
                pm.accept(n);
                pm.pattern();
                System.out.println("Enter a number");
                int num=sc.nextInt();
                System.out.println(pm.arm(num));
                pm.reverseNumber(num);
                System.out.println("Total vowels="+pm.vowelCount());
        }
}
```

O/P:

```
Enter a number
5
*
* *
* * *
* * * *
* * * * *
Enter a number
153
Number is armstrong
Revered number is:351
Enter a string
```

Vishvtej
Total vowels=2

Constructor

1) Employee

```
import java.util.*;
class Employee{
   int eid;
   String name;
   double salary;
   Employee(){
      eid=101;
      name="Ram";
      salary=8756437;
   }
   Employee(int eid,String name,double salary){
      this.eid=eid;
      this.name=name;
      this.salary=salary;
   }
   void display(){
      System.out.println(eid+"\t"+name+"\t"+salary);
   }
}
public class Main
{
        public static void main(String[] args) {
                Employee e=new Employee();
                e.display();
                int eid,i;
                String name;
                double salary;
                Scanner sc=new Scanner(System.in);
                System.out.println("Enter number of records");
                int n=sc.nextInt();
                Employee[] e1=new Employee[n];
                for(i=0;i<n;i++){
                   eid=sc.nextInt();
                   name=sc.next();
                   salary=sc.nextDouble();
                   e1[i]=new Employee(eid,name,salary);
                }
                System.out.println("Eid\tName\tSalary");
                System.out.println("_____");
```

```
                for(i=0;i<n;i++)
                    e1[i].display();
        }
}
```

O/P:

```
101     Ram     8756437.0
Enter number of records
1
12
sham
34.89
Eid     Name    Salary
_____________________
12      sham    34.89
```

2) Book (bid,baname,author,price)

```
import java.util.*;
class Book{
    int bid;
    String bname;
    String author;
    double price;
    Book(){
        Scanner sc=new Scanner(System.in);
        System.out.println("Enter book id, name, author & price");
        bid=sc.nextInt();
        bname=sc.next();
        author=sc.next();
        price=sc.nextDouble();
    }
    Book(int bid, String bname, String author, double price){
        this.bid=bid;
        this.bname=bname;
        this.author=author;
        this.price=price;
    }
    void display(){
        System.out.println(bid+"\t"+bname+"\t"+author+"\t"+price);
    }
}
public class Main
{
        public static void main(String[] args) {
            Scanner sc=new Scanner(System.in);
```

```
        Book b=new Book();
            int bid,i,size;
    String bname;
    String author;
    double price;
    System.out.println("Enter array size");
    size=sc.nextInt();
    Book[] b1=new Book[size];
    for(i=0;i<size;i++){
        System.out.println("Enter book id, name, author & price");
        bid=sc.nextInt();
        bname=sc.next();
        author=sc.next();
        price=sc.nextDouble();
        b1[i]=new Book(bid,bname,author,price);
    }
    System.out.println("Book id \t Book Name \t Book author \t Book price");

System.out.println("_____");
    b.display();
    for(i=0;i<size;i++)
        b1[i].display();
        }
}
```

O/P:

```
Enter book id, name, author & price
12
C
Pearson
499
Enter array size
2
Enter book id, name, author & price
23
CPP
Stroustrup
3654.47
Enter book id, name, author & price
43
Java
Balagurusamy
643
Book id          Book Name     Book author    Book price
_____
```

```
12      C       Pearson         499.0
23      CPP     Stroustrup      3654.47
43      Java    Balagurusamy    643.0
```

3) Vehicle (vid,vaname,color,price)

```
import java.util.*;
class Vehicle{
   int vid;
   String vname;
   String color;
   double price;
   Vehicle(){
      vid=2023;
      vname="Shine";
      color="Black";
      price=89500;
   }
   Vehicle(int vid,String vname,String color,double price){
      this.vid=vid;
      this.vname=vname;
      this.color=color;
      this.price=price;
   }
   void display(){
      System.out.println(vid+"\t"+vname+"\t"+color+"\t"+price);
   }
}
public class Main
{
        public static void main(String[] args) {
            Scanner sc=new Scanner(System.in);
            Vehicle v=new Vehicle();
            int vid,size,i;
      String vname;
      String color;
      double price;
      System.out.println("Enter array size");
      size=sc.nextInt();
      Vehicle[] v1=new Vehicle[size];
      for(i=0;i<size;i++){
         System.out.println("Enter vehicle id,name,color,price");
         vid=sc.nextInt();
         vname=sc.next();
         color=sc.next();
```

```
            price=sc.nextDouble();
            v1[i]=new Vehicle(vid,vname,color,price);
        }
        System.out.println("Vehicle id Vehicle name Vehicle color Vehicle price");
        System.out.println("_____");
        v.display();
        for(i=0;i<size;i++)
            v1[i].display();
            }
}
```

O/P:

```
Enter array size
2
Enter vehicle id,name,color,price
5809
Jawa
r Red
245000
Enter vehicle id,name,color,price
88  4141
FZ
Blue
169000
Vehicle id Vehicle name Vehicle color Vehicle price
_____
2023        Shine           Black       89500.0
5809        Jawa            Red         245000.0
4141        FZ              Blue        169000.0
```

4) Student (id,name,address,per)

```
import java.util.*;
class Student{
    int id;
    String name;
    String address;
    double per;
    Student(){
        id=20;
        name="Nilesh";
        address="Pune";
        per=65.9;
    }
    Student(int id,String name,String address,double per){
        this.id=id;
```

```
        this.name=name;
        this.address=address;
        this.per=per;
    }
    void display(){
        System.out.println(id+"\t"+name+"\t"+address+"\t"+per);
    }
}
public class Main
{
            public static void main(String[] args) {
                Scanner sc=new Scanner(System.in);
                Student stud=new Student();
                int id,size,i;
        String name;
        String address;
        double per;
        System.out.println("Enter array size");
        size=sc.nextInt();
        Student[] stud1=new Student[size];
        for(i=0;i<size;i++){
            System.out.println("Enter student id,name,address,per");
            id=sc.nextInt();
            name=sc.next();
            address=sc.next();
            per=sc.nextDouble();
            stud1[i]=new Student(id,name,address,per);
        }
        System.out.println("Student id Student name Student address Student percentage");
        System.out.println("_____________________________________________________________");
        stud.display();
        for(i=0;i<size;i++)
            stud1[i].display();
            }
}
```

O/P:

```
Enter array size
2
Enter student id,name,address,per
21
Tushar
Solapur
91
Enter student id,name,address,per
```

22
Suraj
Satar tara
85.7
Student id Student name Student address Student percentage

---

20 Nilesh Pune 65.9
21 Tushar Solapur 91.0
22 Suraj Satara 85.7

5) Area of circle

```
import java.util.Scanner;
class Area_Demo
{
	double r,A;
	Area_Demo()
	{
		r=0.0;
	}
	Area_Demo(double r)
	{
		this.r=r;
	}
	double cal_area()
	{
		A=3.14*r*r;
		return(A);
	}
}
public class Main{
   public static void main(String[] args)
	{
		double r1,A;
		int n,i;
		Scanner sc=new Scanner (System.in);
		System.out.println("Enter no of records");
		n=sc.nextInt();
	Area_Demo  a1[ ]=new Area_Demo [n];//array creation
	for(i=0;i<n;i++)
	{
		  System.out.println("Enter value of r");
		  r1=sc.nextDouble();
		  a1[i]=new Area_Demo(r1);
		  A=a1[i].cal_area();
```

```
                    System.out.println("Area="+A);
            }
        }
}
```

O/P:

```
Enter no of records
2
Enter value of r
21
Area=1384.74
Enter value of r
12
Area=452.15999999999997
```

6) Max(int a,int b)

```
import java.util.Scanner;
class Max
{
        int a,b;
        Max()
        {
                a=10;
                b=5;
        }
        Max(int a,int b)
        {
                this.a=a;
                this.b=b;
        }
        void displayMax(){
           if(a>b)
              System.out.println(a+" is Max");
           else if(b>a)
              System.out.println(b+" is Min");
           else
              System.out.println("Both are equal");
        }
}
public class Main{
   public static void main(String[] args)
        {
           Max m=new Max();
           m.displayMax();
                int a,b;
```

```
                int n,i;
                Scanner sc=new Scanner (System.in);
                System.out.println("Enter no of records");
                n=sc.nextInt();
        Max a1[]=new Max[n];//array creation
        for(i=0;i<n;i++)
        {
                    System.out.println("Enter two numbers");
                    a=sc.nextInt();
                    b=sc.nextInt();
                    a1[i]=new Max(a,b);
                    a1[i].displayMax();
           }
        }

}
```

O/P:

```
10 is Max
Enter no of records
3
Enter two numbers
1321
234
1321 is Max
Enter two numbers
687
546
687 is Max
Enter two numbers
32
8
32 is Max
```

7) Factorial(int n)

```
import java.util.Scanner;
class Fact
{
        int n;
        Fact()
        {
                n=5;
        }
        Fact(int n)
        {
```

```
                this.n=n;
        }
        int display(){
           int f1=1,i;
           for(i=n;i>=1;i--){
              f1=f1*i;
           }
           return(f1);
        }
}
public class Main{
   public static void main(String[] args)
        {
           Fact f=new Fact();
           System.out.println("Fact="+f.display());
                int n;
                int size,i;
                Scanner sc=new Scanner (System.in);
                System.out.println("Enter no of records");
                size=sc.nextInt();
        Fact a1[]=new Fact[size];//array creation
        for(i=0;i<size;i++)
        {
                    System.out.println("Enter a numbers");
                    n=sc.nextInt();
                    a1[i]=new Fact(n);
                    System.out.println("Fact="+a1[i].display());
           }
        }
}
```

O/P:

```
Fact=120
Enter no of records
2
Enter a numbers
4
Fact=24
Enter a numbers
6
Fact=720
```

8) Palindrome(int n)

```
import java.util.Scanner;
class Palindrome
```

```
{
        int n;
        Palindrome()
        {
                n=5;
        }
        Palindrome(int n)
        {
                this.n=n;
        }
        void display(){
           int temp=n,sum=0;
           while(n>0){
              int digit=n%10;
              sum=(sum*10)+digit;
              n/=10;
           }
           if(temp==sum)
              System.out.println("Number is Palindrome");
           else
              System.out.println("Number is not Palindrome");
        }
}
public class Main{
   public static void main(String[] args)
        {
           Palindrome p=new Palindrome();
           p.display();
                int n;
                int size,i;
                Scanner sc=new Scanner (System.in);
                System.out.println("Enter no of records");
                size=sc.nextInt();
        Palindrome p1[]=new Palindrome[size];//array creation
        for(i=0;i<size;i++)
        {
                    System.out.println("Enter a numbers");
                    n=sc.nextInt();
                    p1[i]=new Palindrome(n);
                    p1[i].display();
           }
        }

}
```

O/P:

```
Number is Palindrome
Enter no of records
121   2
Enter a numbers
121
Number is Palindrome
Enter a numbers
23
Number is not Palindrome
```