**1.**

import java.util.Scanner;

class Employee {

int eid;

String name;

double salary;

Employee() {

eid = 101;

name = "Raj";

salary = 8500.50;

}

void acceptDetails() {

Scanner sc = new Scanner(System.in);

System.out.println("Enter ID: ");

eid = sc.nextInt();

System.out.println("Enter Name: ");

name = sc.next();

System.out.println("Enter Salary: ");

salary = sc.nextDouble();

}

void display() {

System.out.println("Emp ID = " + eid);

System.out.println("Name = " + name);

System.out.println("Salary = " + salary);

}

}

public class Emp\_Demo {

public static void main(String[] args) {

Employee e1 = new Employee();

e1.acceptDetails();

e1.display();

Employee e2 = new Employee();

e2.acceptDetails();

e2.display(); }

}

**Output:**

Enter ID:

101

Enter Name:

Raj

Enter Salary:

8500.50

Emp ID = 101

Name = Raj

Salary = 8500.5

Enter ID:

102

Enter Name:

Priya

Enter Salary:

9000.75

Emp ID = 102

Name = Priya

Salary = 9000.75

**2.Book Class**

import java.util.Scanner;

class Book {

int bid;

String baname;

String author;

double price;

Book() {

bid = 1001;

baname = "The Alchemist";

author = "Paulo Coelho";

price = 299.99;

}

void acceptDetails() {

Scanner sc = new Scanner(System.in);

System.out.println("Enter Book ID: ");

bid = sc.nextInt();

sc.nextLine();

System.out.println("Enter Book Name: ");

baname = sc.nextLine();

System.out.println("Enter Author Name: ");

author = sc.nextLine();

System.out.println("Enter Price: ");

price = sc.nextDouble();

}

void display() {

System.out.println("Book ID = " + bid);

System.out.println("Book Name = " + baname);

System.out.println("Author = " + author);

System.out.println("Price = " + price);

}

}

public class Book\_Demo {

public static void main(String[] args) {

Book b1 = new Book();

b1.acceptDetails();

b1.display();

Book b2 = new Book();

b2.acceptDetails();

b2.display();

}

}

**Output:**

Enter Book ID:

2001

Enter Book Name:

Atomic Habits

Enter Author Name:

James Clear

Enter Price:

450.75

Book ID = 2001

Book Name = Atomic Habits

Author = James Clear

Price = 450.75

Enter Book ID:

2002

Enter Book Name:

Rich Dad Poor Dad

Enter Author Name:

Robert Kiyosaki

Enter Price:

350.50

Book ID = 2002

Book Name = Rich Dad Poor Dad

Author = Robert Kiyosaki

Price = 350.5

**3.Vehicle Class**

import java.util.Scanner;

class Vehicle {

int vid;

String vaname;

String color;

double price;

Vehicle() {

vid = 101;

vaname = "Toyota Corolla";

color = "White";

price = 20000.00;

}

void acceptDetails() {

Scanner sc = new Scanner(System.in);

System.out.println("Enter Vehicle ID: ");

vid = sc.nextInt();

sc.nextLine();

System.out.println("Enter Vehicle Name: ");

vaname = sc.nextLine();

System.out.println("Enter Color: ");

color = sc.nextLine();

System.out.println("Enter Price: ");

price = sc.nextDouble();

}

void display() {

System.out.println("Vehicle ID = " + vid);

System.out.println("Vehicle Name = " + vaname);

System.out.println("Color = " + color);

System.out.println("Price = " + price);

}

}

public class Vehicle\_Demo {

public static void main(String[] args) {

Vehicle v1 = new Vehicle();

v1.acceptDetails();

v1.display();

Vehicle v2 = new Vehicle();

v2.acceptDetails();

v2.display();

}

}

**Output:**

Enter Vehicle ID:

202

Enter Vehicle Name:

Honda Civic

Enter Color:

Black

Enter Price:

22000.00

Vehicle ID = 202

Vehicle Name = Honda Civic

Color = Black

Price = 22000.0

Enter Vehicle ID:

203

Enter Vehicle Name:

Ford Mustang

Enter Color:

Red

Enter Price:

30000.00

Vehicle ID = 203

Vehicle Name = Ford Mustang

Color = Red

Price = 30000.0

### **4. Employee Class**

#### 

import java.util.Scanner;

class Employee {

int eid;

String name;

double salary;

Employee(int eid, String name, double salary) {

this.eid = eid;

this.name = name;

this.salary = salary;

}

void show() {

System.out.println("Emp ID = " + eid);

System.out.println("Name = " + name);

System.out.println("Salary = " + salary);

}

}

public class Emp\_Demo {

public static void main(String[] args) {

int eid;

String name;

double salary;

Scanner sc = new Scanner(System.in);

System.out.println("Enter ID, Name, and Salary:");

eid = sc.nextInt();

name = sc.next();

salary = sc.nextDouble();

Employee e1 = new Employee(eid, name, salary);

e1.show();

}

}

### **Output:**

Enter ID, Name, and Salary:

101

John

50000.0

Emp ID = 101

Name = John

Salary = 50000.0

### **5. Student Class**

#### 

import java.util.Scanner;

class Student {

int id;

String name;

String address;

double per;

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("Student ID = " + id);

System.out.println("Name = " + name);

System.out.println("Address = " + address);

System.out.println("Percentage = " + per);

}

}

public class Student\_Demo {

public static void main(String[] args) {

int id;

String name, address;

double per;

Scanner sc = new Scanner(System.in);

System.out.println("Enter ID, Name, Address, and Percentage:");

id = sc.nextInt();

sc.nextLine();

name = sc.nextLine();

address = sc.nextLine();

per = sc.nextDouble();

Student s1 = new Student(id, name, address, per);

s1.display();

}

}

### **Output:**

Enter ID, Name, Address, and Percentage:

201

Alice

123 Elm St

85.5

Student ID = 201

Name = Alice

Address = 123 Elm St

Percentage = 85.5

### **6. Area of Circle**

#### 

import java.util.Scanner;

class AreaDemo {

double r;

AreaDemo(double r) {

this.r = r;

}

double cal\_area() {

return 3.14 \* r \* r;

}

}

public class AreaDemo\_Demo {

public static void main(String[] args) {

double r;

Scanner sc = new Scanner(System.in);

System.out.println("Enter the radius of the circle:");

r = sc.nextDouble();

AreaDemo a1 = new AreaDemo(r);

double area = a1.cal\_area();

System.out.println("Area = " + area);

}

}

### **Output:**

Enter the radius of the circle:

5

Area = 78.5

### **7. ParaMethodDemo Class**

#### 

import java.util.Scanner;

class ParaMethodDemo {

int flag = 0, n, x, sum = 0, p, f1 = 1, i;

ParaMethodDemo(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("Number is prime");

else

System.out.println("Number is not prime");

}

String pal() {

p = n;

while (p > 0) {

int n1 = p % 10;

p = p / 10;

sum = (sum \* 10) + n1;

}

if (sum == n)

return "Number is palindrome";

else

return "Number is not palindrome";

}

int power(int x) {

this.x = x;

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

f1 = f1 \* x;

}

return f1;

}

}

public class ParaMethodDemo\_Demo {

public static void main(String[] args) {

int n, x;

Scanner sc = new Scanner(System.in);

System.out.println("Enter the value of n:");

n = sc.nextInt();

ParaMethodDemo a1 = new ParaMethodDemo(n);

a1.pattern();

a1.prime();

System.out.println(a1.pal());

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

x = sc.nextInt();

int f1 = a1.power(x);

System.out.println("Power = " + f1);

}

}

### **Output:**

Enter the value of n:

5

1

1 2

1 2 3

1 2 3 4

1 2 3 4 5

Number is not prime

Number is not palindrome

Enter the value of x:

2

Power = 32

### **8. Max from 2 Numbers**

#### 

import java.util.Scanner;

class MaxDemo {

int num1, num2;

MaxDemo(int num1, int num2) {

this.num1 = num1;

this.num2 = num2;

}

int max() {

return (num1 > num2) ? num1 : num2;

}

}

public class MaxDemo\_Demo {

public static void main(String[] args) {

int num1, num2;

Scanner sc = new Scanner(System.in);

System.out.println("Enter two numbers:");

num1 = sc.nextInt();

num2 = sc.nextInt();

MaxDemo m1 = new MaxDemo(num1, num2);

int max = m1.max();

System.out.println("Maximum = " + max);

}

}

### **Output:**

Enter two numbers:

12

34

Maximum = 34

### **9. Factorial**

#### 

import java.util.Scanner;

class FactorialDemo {

int number;

FactorialDemo(int number) {

this.number = number;

}

long factorial() {

long fact = 1;

for (int i = 1; i <= number; i++) {

fact \*= i;

}

return fact;

}

}

public class FactorialDemo\_Demo {

public static void main(String[] args) {

int number;

Scanner sc = new Scanner(System.in);

System.out.println("Enter a number:");

number = sc.nextInt();

FactorialDemo f1 = new FactorialDemo(number);

long fact = f1.factorial();

System.out.println("Factorial = " + fact);

}

}

### **Output:**

Enter a number:

5

Factorial = 120

### **10. Class with Four Functions**

#### 

import java.util.Scanner;

class FavoriteFunctions {

int a, b;

FavoriteFunctions(int a, int b) {

this.a = a;

this.b = b;

}

FavoriteFunctions() {

this.a = 0;

this.b = 0;

}

int add() {

return a + b;

}

int subtract() {

return a - b;

}

static int maxOfThree(int x, int y, int z) {

return Math.max(Math.max(x, y), z);

}

boolean isEven() {

return a % 2 == 0;

}

void printDetails() {

System.out.println("a = " + a);

System.out.println("b = " + b);

System.out.println("Sum = " + add());

System.out.println("Difference = " + subtract());

System.out.println("Is 'a' even? " + isEven());

}

}

public class FavoriteFunctions\_Demo {

public static void main(String[] args) {

Scanner sc = new Scanner(System.in);

System.out.println("Enter two numbers:");

int num1 = sc.nextInt();

int num2 = sc.nextInt();

FavoriteFunctions obj1 = new FavoriteFunctions(num1, num2);

obj1.printDetails();

FavoriteFunctions obj2 = new FavoriteFunctions();

System.out.println("\nUsing non-parameterized constructor:");

obj2.printDetails();

System.out.println("\nEnter three numbers to find the maximum:");

int num3 = sc.nextInt();

int num4 = sc.nextInt();

int num5 = sc.nextInt();

int max = FavoriteFunctions.maxOfThree(num3, num4, num5);

System.out.println("Maximum of the three numbers = " + max);

}

}

### **Output:**

Enter two numbers:

10

5

a = 10

b = 5

Sum = 15

Difference = 5

Is 'a' even? true

Using non-parameterized constructor:

a = 0

b = 0

Sum = 0

Difference = 0

Is 'a' even? true

Enter three numbers to find the maximum:

12

25

7

Maximum of the three numbers = 25

### **11. Employee**

import java.util.Scanner;

class Employee {

int eid;

String name;

double salary;

Employee() {

eid = 101;

name = "Sam";

salary = 9876.90;

}

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 Emp\_Demo {

public static void main(String[] args) {

int eid, i;

String name;

double salary;

Employee e = new Employee();

e.display();

Scanner sc = new Scanner(System.in);

System.out.println("Enter no of records");

int n = sc.nextInt();

Employee e1[] = new Employee[n];

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

System.out.println("Enter id, name & salary");

eid = sc.nextInt();

name = sc.next();

salary = sc.nextDouble();

e1[i] = new Employee(eid, name, salary);

}

System.out.println("Eid\tEname\tSalary");

System.out.println("\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\n");

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

e1[i].display();

}

}

}

**Output:**

101 Sam 9876.9

Enter no of records

2

Enter id, name & salary

201

Raj

50000

Enter id, name & salary

202

Amit

60000

Eid Ename Salary

\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

201 Raj 50000.0

202 Amit 60000.0

### **12. Book**

import java.util.Scanner;

class Book {

int bid;

String bname;

String author;

double price;

Book() {

bid = 0;

bname = "Unknown";

author = "Unknown";

price = 0.0;

}

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 Book\_Demo {

public static void main(String[] args) {

int bid, i;

String bname, author;

double price;

Scanner sc = new Scanner(System.in);

System.out.println("Enter no of books");

int n = sc.nextInt();

Book b1[] = new Book[n];

for (i = 0; i < n; 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("Bid\tBname\t\tAuthor\tPrice");

System.out.println("\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\n");

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

b1[i].display();

}

}

}

**Output:**

Enter no of books

2

Enter book ID, name, author & price

101

Programming

James

500.75

Enter book ID, name, author & price

102

DataStructures

Sara

300.50

Bid Bname Author Price

\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

101 Programming James 500.75

102 DataStructures Sara 300.50

### **13. Vehicle**

import java.util.Scanner;

class Vehicle {

int vid;

String vaname;

String color;

double price;

Vehicle() {

vid = 0;

vaname = "Unknown";

color = "Unknown";

price = 0.0;

}

Vehicle(int vid, String vaname, String color, double price) {

this.vid = vid;

this.vaname = vaname;

this.color = color;

this.price = price;

}

void display() {

System.out.println(vid + "\t" + vaname + "\t" + color + "\t" + price);

}

}

public class Vehicle\_Demo {

public static void main(String[] args) {

int vid, i;

String vaname, color;

double price;

Scanner sc = new Scanner(System.in);

System.out.println("Enter no of vehicles");

int n = sc.nextInt();

Vehicle v1[] = new Vehicle[n];

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

System.out.println("Enter vehicle ID, name, color & price");

vid = sc.nextInt();

vaname = sc.next();

color = sc.next();

price = sc.nextDouble();

v1[i] = new Vehicle(vid, vaname, color, price);

}

System.out.println("Vid\tVaname\tColor\tPrice");

System.out.println("\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\n");

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

v1[i].display();

}

}

}

**Output:**

Enter no of vehicles

2

Enter vehicle ID, name, color & price

1

ToyotaCorolla

Red

15000.00

Enter vehicle ID, name, color & price

2

HondaCivic

Blue

18000.00

Vid Vaname Color Price

\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

1 ToyotaCorolla Red 15000.0

2 HondaCivic Blue 18000.0

### **14. Student**

import java.util.Scanner;

class Student {

int id;

String name;

String address;

double per;

Student() {

id = 0;

name = "Unknown";

address = "Unknown";

per = 0.0;

}

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 Student\_Demo {

public static void main(String[] args) {

int id, i;

String name, address;

double per;

Scanner sc = new Scanner(System.in);

System.out.println("Enter no of students");

int n = sc.nextInt();

Student s1[] = new Student[n];

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

System.out.println("Enter student ID, name, address & percentage");

id = sc.nextInt();

name = sc.next();

address = sc.next();

per = sc.nextDouble();

s1[i] = new Student(id, name, address, per);

}

System.out.println("ID\tName\tAddress\tPercentage");

System.out.println("\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\n");

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

s1[i].display();

}

}

}

**Output:**

Enter no of students

2

Enter student ID, name, address & percentage

1

John

Delhi

85.5

Enter student ID, name, address & percentage

2

Mia

Mumbai

90.0

ID Name Address Percentage

\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

1 John Delhi 85.5

2 Mia Mumbai 90.0

### **15. Area of Circle**

import java.util.Scanner;

public 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 static void main(String[] args) {

double r1, A;

int n;

Scanner sc = new Scanner(System.in);

System.out.println("Enter no of records");

n = sc.nextInt();

Area\_Demo a1[] = new Area\_Demo[n];

for (int 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);

}

}

}

**Output:**

Enter no of records

2

Enter value of r

5

Area = 78.5

Enter value of r

7

Area = 153.86

### **16. Max from 2 Numbers**

import java.util.Scanner;

public class Max\_Demo {

int a, b;

Max\_Demo(int a, int b) {

this.a = a;

this.b = b;

}

int max() {

return (a > b) ? a : b;

}

public static void main(String[] args) {

int a, b;

Scanner sc = new Scanner(System.in);

System.out.println("Enter no of records");

int n = sc.nextInt();

Max\_Demo maxArray[] = new Max\_Demo[n];

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

System.out.println("Enter two numbers");

a = sc.nextInt();

b = sc.nextInt();

maxArray[i] = new Max\_Demo(a, b);

System.out.println("Max = " + maxArray[i].max());

}

}

}

**Output:**

Enter no of records

2

Enter two numbers

5

10

Max = 10

Enter two numbers

20

15

Max = 20

### **17. Factorial**

import java.util.Scanner;

public class Factorial\_Demo {

int n;

Factorial\_Demo(int n) {

this.n = n;

}

int factorial() {

int fact = 1;

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

fact \*= i;

}

return fact;

}

public static void main(String[] args) {

int n;

Scanner sc = new Scanner(System.in);

System.out.println("Enter no of records");

int records = sc.nextInt();

Factorial\_Demo factArray[] = new Factorial\_Demo[records];

for (int i = 0; i < records; i++) {

System.out.println("Enter a number");

n = sc.nextInt();

factArray[i] = new Factorial\_Demo(n);

System.out.println("Factorial = " + factArray[i].factorial());

}

}

}

**Output:**

Enter no of records

2

Enter a number

5

Factorial = 120

Enter a number

4

Factorial = 24

### **18. Palindrome**

import java.util.Scanner;

public class Palindrome\_Demo {

int n;

Palindrome\_Demo(int n) {

this.n = n;

}

String palindrome() {

int original = n;

int reversed = 0;

while (n != 0) {

int digit = n % 10;

reversed = reversed \* 10 + digit;

n /= 10;

}

return (original == reversed) ? "Palindrome" : "Not Palindrome";

}

public static void main(String[] args) {

int n;

Scanner sc = new Scanner(System.in);

System.out.println("Enter no of records");

int records = sc.nextInt();

Palindrome\_Demo palArray[] = new Palindrome\_Demo[records];

for (int i = 0; i < records; i++) {

System.out.println("Enter a number");

n = sc.nextInt();

palArray[i] = new Palindrome\_Demo(n);

System.out.println(palArray[i].palindrome());

}

}

}

**Output:**

Enter no of records

2

Enter a number

121

Palindrome

Enter a number

123

Not Palindrome