1. Hello World

```
public class HelloWorld {
    public static void main(String[] args) {
        System.out.println("Hello World");
    }
}
```

2. Largest of Three Numbers (if-else)

```
import java.util.Scanner;

public class LargestOfThree {
    public static void main(String[] args) {
        Scanner sc = new Scanner(System.in);
        System.out.print("Enter first number: ");
        int a = sc.nextInt();
        System.out.print("Enter second number: ");
        int b = sc.nextInt();
        System.out.print("Enter third number: ");
        int c = sc.nextInt();

        int largest;
        if (a >= b && a >= c) {
            largest = a;
        } else if (b >= a && b >= c) {
            largest = b;
        } else {
            largest = c;
        }

        System.out.println("Largest: " + largest);
        sc.close();
    }
}
```

3. Multiplication Table (for loop)

```
import java.util.Scanner;

public class MultiplicationTable {
    public static void main(String[] args) {
        Scanner sc = new Scanner(System.in);
        System.out.print("Enter a number: ");
        int n = sc.nextInt();
        for (int i = 1; i <= 10; i++) {
            System.out.println(n + " x " + i + " = " + (n * i));
        }
        sc.close();
    }
}
```

4. Reverse a Number (while loop)

```
import java.util.Scanner;

public class ReverseNumber {
    public static void main(String[] args) {
        Scanner sc = new Scanner(System.in);
        System.out.print("Enter a number: ");
        int num = sc.nextInt();
        int rev = 0;
        int original = num;
        while (num != 0) {
            int d = num % 10;
```

```
            rev = rev * 10 + d;
            num /= 10;
        }
        System.out.println("Reverse of " + original + " is " + rev);
        sc.close();
    }
}
```

5. Max, Min and Sum of an Array of 10 numbers

```
import java.util.Scanner;

public class ArrayStats {
    public static void main(String[] args) {
        Scanner sc = new Scanner(System.in);
        int[] arr = new int[10];
        System.out.println("Enter 10 integers:");
        for (int i = 0; i < 10; i++) {
            arr[i] = sc.nextInt();
        }
        int max = arr[0];
        int min = arr[0];
        int sum = 0;
        for (int v : arr) {
            if (v > max) max = v;
            if (v < min) min = v;
            sum += v;
        }
        System.out.println("Maximum: " + max);
        System.out.println("Minimum: " + min);
        System.out.println("Sum: " + sum);
        sc.close();
    }
}
```

6. Add Two Matrices

```
import java.util.Scanner;

public class MatrixAddition {
    public static void main(String[] args) {
        Scanner sc = new Scanner(System.in);
        System.out.print("Enter number of rows: ");
        int r = sc.nextInt();
        System.out.print("Enter number of columns: ");
        int c = sc.nextInt();
        int[][] a = new int[r][c];
        int[][] b = new int[r][c];
        int[][] sum = new int[r][c];

        System.out.println("Enter elements of first matrix:");
        for (int i = 0; i < r; i++)
            for (int j = 0; j < c; j++)
                a[i][j] = sc.nextInt();

        System.out.println("Enter elements of second matrix:");
        for (int i = 0; i < r; i++)
            for (int j = 0; j < c; j++)
                b[i][j] = sc.nextInt();

        for (int i = 0; i < r; i++) {
            for (int j = 0; j < c; j++) {
                sum[i][j] = a[i][j] + b[i][j];
            }
```

```
        }

        System.out.println("Sum matrix:");
        for (int i = 0; i < r; i++) {
            for (int j = 0; j < c; j++) {
                System.out.print(sum[i][j] + " ");
            }
            System.out.println();
        }
        sc.close();
    }
}
```

7. Person class (name and age) - two instances

```
public class Person {
    String name;
    int age;

    Person(String name, int age) {
        this.name = name;
        this.age = age;
    }

    void print() {
        System.out.println("Name: " + name + ", Age: " + age);
    }

    public static void main(String[] args) {
        Person p1 = new Person("Alice", 25);
        Person p2 = new Person("Bob", 30);
        p1.print();
        p2.print();
    }
}
```

8. Array of Employee objects (getEmpData & printEmpData)

```
import java.util.Scanner;

class Employee {
    int empID;
    String empName;
    double salary;

    void getEmpData(Scanner sc) {
        System.out.print("EmpID: ");
        empID = sc.nextInt();
        sc.nextLine();
        System.out.print("EmpName: ");
        empName = sc.nextLine();
        System.out.print("Salary: ");
        salary = sc.nextDouble();
    }

    void printEmpData() {
        System.out.println("ID: " + empID + ", Name: " + empName + ", Salary: " + salary);
    }
}

public class EmployeeArray {
    public static void main(String[] args) {
        Scanner sc = new Scanner(System.in);
        System.out.print("How many employees? ");
```

```
        int n = sc.nextInt();
        Employee[] emps = new Employee[n];
        for (int i = 0; i < n; i++) {
            emps[i] = new Employee();
            System.out.println("Enter details for employee " + (i+1));
            emps[i].getEmpData(sc);
        }
        System.out.println("Employee details:");
        for (Employee e : emps) e.printEmpData();
        sc.close();
    }
}
```

9. Student class with methods displayDetails(), acceptDetails(), checkPass()

```
import java.util.Scanner;

class Student {
    String name;
    int rollNo;
    double marks;

    void acceptDetails(Scanner sc) {
        System.out.print("Name: ");
        name = sc.nextLine();
        System.out.print("Roll No: ");
        rollNo = Integer.parseInt(sc.nextLine());
        System.out.print("Marks: ");
        marks = Double.parseDouble(sc.nextLine());
    }

    void displayDetails() {
        System.out.println("Name: " + name + ", Roll No: " + rollNo + ", Marks: " + marks);
    }

    boolean checkPass() {
        return marks > 40.0;
    }
}

public class StudentTest {
    public static void main(String[] args) {
        Scanner sc = new Scanner(System.in);
        Student[] s = new Student[3];
        for (int i = 0; i < 3; i++) {
            s[i] = new Student();
            System.out.println("Enter details for student " + (i+1) + ":");
            s[i].acceptDetails(sc);
        }
        for (Student st : s) {
            st.displayDetails();
            System.out.println("Pass: " + st.checkPass());
        }
        sc.close();
    }
}
```

10. Cat class with default constructor (name="Unknown", age=0)

```
public class Cat {
    String name;
    int age;

    Cat() {
```

```
        name = "Unknown";
        age = 0;
    }

    void print() {
        System.out.println("Name: " + name + ", Age: " + age);
    }

    public static void main(String[] args) {
        Cat c = new Cat();
        c.print();
    }
}
```

11. Book class with default and two parameterized constructors

```
import java.util.Scanner;

public class Book {
    String title;
    String author;
    double price;

    Book() {
        this.title = "Unknown";
        this.author = "Unknown";
        this.price = 0.0;
    }

    Book(String title, String author) {
        this.title = title;
        this.author = author;
        this.price = 0.0;
    }

    Book(String title, String author, double price) {
        this.title = title;
        this.author = author;
        this.price = price;
    }

    void print() {
        System.out.println("Title: " + title + ", Author: " + author + ", Price: " + price);
    }

    public static void main(String[] args) {
        Scanner sc = new Scanner(System.in);
        System.out.print("Enter title: ");
        String t = sc.nextLine();
        System.out.print("Enter author: ");
        String a = sc.nextLine();
        System.out.print("Enter price: ");
        double p = sc.nextDouble();
        Book b1 = new Book();
        Book b2 = new Book(t, a);
        Book b3 = new Book(t, a, p);
        System.out.println("Default book:"); b1.print();
        System.out.println("Title+Author book:"); b2.print();
        System.out.println("Full book:"); b3.print();
        sc.close();
    }
}
```