**Task 1: Find maximum and minimum**

import java.util.Scanner;

public class MinMaxFinder {

    public static void main(String[] args) {

        Scanner scanner = new Scanner(System.in);

        int[] numbers = new int[10];

        // Accept input from the user

        System.out.print("Enter 10 integers: ");

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

            numbers[i] = scanner.nextInt();

        }

        // Initialize min and max values

        int min = numbers[0];

        int max = numbers[0];

        // Find minimum and maximum values

        for (int number : numbers) {

            if (number < min) {

                min = number;

            }

            if (number > max) {

                max = number;

            }

        }

        scanner.close();

        // Display the results

        System.out.println("Minimum value: " + min);

        System.out.println("Maximum value: " + max);

    }

}

* The program starts by creating a Scanner object to read input from the user.
* It declares an integer array `numbers` with a size of 10 to store the user's input.
* The program prompts the user to enter 10 integers and stores each number in the `numbers` array.
* It initializes two variables `min` and `max` to the first element of the array.
* A for-each loop iterates over the array `numbers`.
* - If the current number is smaller than `min`, it updates `min`.
* - If the current number is larger than `max`, it updates `max`.
* The program closes the Scanner object to prevent resource leaks.
* Finally, it displays the minimum and maximum values found in the array.

**Task 2: Palindrome**

import java.util.Scanner;

public class Palindrome {

    public static void main(String[] args) {

        Scanner scanner = new Scanner(System.in);

        boolean isPalindrome = true;

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

        String userInput = scanner.nextLine().replaceAll("[^a-zA-Z0-9]", "").toLowerCase();

        System.out.println(userInput);

        String reveString = new StringBuilder(userInput).reverse().toString();

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

            if (userInput.charAt(i) != reveString.charAt(i) ){

                isPalindrome = false;

            }

        }

        System.out.println(isPalindrome);

        scanner.close();

    }

}

* The program starts by creating a Scanner object to read input from the user.
* It declares a boolean variable `isPalindrome` and initializes it to `true` to assume the input is a palindrome initially.
* The user is prompted to enter a string, and the input is processed by:
  + Removing any special characters and spaces using `replaceAll("[^a-zA-Z0-9]", "")`.
  + Converting the string to lowercase using `toLowerCase()`.
* The cleaned input is then stored in the variable `userInput`.
* The program reverses `userInput` by creating a `StringBuilder`, reversing it, and converting it back to a string.
* A `for` loop iterates through each character of `userInput` and compares it with the corresponding character in the reversed string.
  + If any characters don't match, `isPalindrome` is set to `false`.
* The program prints `true` if the input string is a palindrome, or `false` if it isn't.
* Finally, the Scanner object is closed to prevent resource leaks.

**Task 3: Create Student Class**

import java.util.Scanner;

public class Student {

    // Instance variables

    private String name;

    private int age;

    private double[] testScores = new double[3];

    // Constructor

    public Student(String name, int age, double score1, double score2, double score3) {

        this.name = name;

        this.age = age;

        this.testScores[0] = score1;

        this.testScores[1] = score2;

        this.testScores[2] = score3;

    }

    // Method to calculate the average score

    public double calculateAverage() {

        double total = 0;

        for (double score : testScores) {  // Using instance variable testScores

            total += score;

        }

        return total / testScores.length;

    }

 // Method to determine the grade based on the average

    public char determineGrade(double average) {  // Pass the average as a double

        if (average >= 90) { return 'A'; }   
 else if (average >= 80) { return 'B'; }   
 else if (average >= 70) { return 'C'; }   
 else if (average >= 60) { return 'D'; }   
 else { return 'F'; }

    }

    // Method to display student details

    public void displayInfo() {

        double studentAve = calculateAverage();

        char studentGrade = determineGrade(studentAve);  // Determine grade based on average

        System.out.println("Student Name: " + name);

        System.out.println("Age: " + age);

        System.out.println("Average Score: " + studentAve);

        System.out.println("Grade: " + studentGrade);

    }

    // Main method to test the Student class

    public static void main(String[] args) {

        // Creating a Student object

        Scanner scanner = new Scanner(System.in);

        System.out.print("Enter the student name: ");

        String studentName = scanner.nextLine();

        System.out.print("Enter the student aga: ");

        int studentAge = scanner.nextInt();

        System.out.print("1st grade: ");

        int grade1 = scanner.nextInt();

        System.out.print("2nd grade: ");

        int grade2 = scanner.nextInt();

        System.out.print("1rd grade: ");

        int grade3 = scanner.nextInt();

        Student student = new Student(studentName, studentAge, grade1, grade2, grade3);

        scanner.close();

        student.displayInfo();  }

}

* The program defines a `Student` class with instance variables for the student's name, age, and an array to hold three test scores.
* The constructor takes the student's name, age, and three test scores as parameters and assigns them to the instance variables.
* The `calculateAverage()` method computes the average of the three test scores by iterating through the `testScores` array and dividing the total by the length of the array.
* The `determineGrade()` method takes the calculated average as a parameter and returns a grade ('A', 'B', 'C', etc.) based on predefined thresholds.
* The `displayInfo()` method outputs the student's name, age, average test score, and the corresponding grade.
* In the `main` method, a `Scanner` object is created to accept input from the user for the student's name, age, and three test scores.
* After gathering the input, the `Student` object is created with the provided values.
* The `displayInfo()` method is called to display the student's information, including the calculated average and grade.
* The `Scanner` object is closed to avoid memory leaks.

**Task 4: 3x3 Matrices**

import java.util.Scanner;

public class MatrixAddition {

    public static void main(String[] args) {

        Scanner scanner = new Scanner(System.in);

        // Declare two 3x3 matrices

        int[][] matrix1 = new int[3][3];

        int[][] matrix2 = new int[3][3];

        int[][] sumMatrix = new int[3][3];

        // Input for the first matrix

        System.out.println("Enter elements of the first 3x3 matrix:");

        for (int i = 0; i < 3; i++) {

            for (int j = 0; j < 3; j++) {

                System.out.print("Element [" + i + "][" + j + "]: ");

                matrix1[i][j] = scanner.nextInt();

            }

        }

// Input for the second matrix

        System.out.println("Enter elements of the second 3x3 matrix:");

        for (int i = 0; i < 3; i++) {

            for (int j = 0; j < 3; j++) {

                System.out.print("Element [" + i + "][" + j + "]: ");

                matrix2[i][j] = scanner.nextInt();

            }

        }

        // Perform matrix addition

        for (int i = 0; i < 3; i++) {

            for (int j = 0; j < 3; j++) {

                sumMatrix[i][j] = matrix1[i][j] + matrix2[i][j];

            }

        }

        // Display the result

        System.out.println("Sum of the two matrices:");

        for (int i = 0; i < 3; i++) {

            for (int j = 0; j < 3; j++) {

                System.out.print(sumMatrix[i][j] + "\t"); // Tab space for better formatting

            }

            System.out.println(); // New line after each row

        }

        scanner.close(); // Close the scanner

    }

}

**Task 5: Bubble Sort**

import java.util.Scanner;

public class BubbleSort {

    public static void main(String[] args) {

        Scanner user\_input = new Scanner(System.in);

        int[] arrayOfNums = new int[5];

        System.out.println("Enter 5 numbers: ");

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

            arrayOfNums[i] = user\_input.nextInt();

        }

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

            for (int j = 0 ; j < arrayOfNums.length - 1 ; j++ ){

                if (arrayOfNums[i] < arrayOfNums[j]) {

                    int temp = arrayOfNums[i];

                    arrayOfNums[i] = arrayOfNums[j];

                    arrayOfNums[j] = temp;

                }

            }

        }

        System.out.println("Sorted Array: ");

        for (int x : arrayOfNums) {

            System.out.print(x + " ");

        }

        user\_input.close();

    }

}

* The program starts by creating a Scanner object to read input from the user.
* It declares an array named `arrayOfNums` to hold 5 integers.
* The user is prompted to enter 5 numbers, which are stored in the `arrayOfNums` array.
* A nested for loop is used to perform the bubble sort algorithm.
  + The outer loop iterates through each element of the array.
  + The inner loop compares adjacent elements in the array and swaps them if they are in the wrong order.
* Inside the inner loop, if the current element is smaller than the next element, they are swapped using a temporary variable `temp`.
* Once the sorting is complete, the program prints the sorted array in ascending order.
* Finally, the program closes the Scanner object to prevent resource leaks.