Assignment 2

1)
```java
import java.util.Scanner;


public class Main {
    public static void main(String[] args) {
        int[] scores = new int[9];
        Scanner scanner = new Scanner(System.in);

        System.out.println("Enter 9 integer scores:");

        for (int i = 0; i < 9; i++) {
            scores[i] = scanner.nextInt();
        }

        System.out.println("Scores entered:");
        for (int score : scores) {
            System.out.print(score + " ");
        }
    }
}
```

Output:

```
Enter 9 integer scores:
1 2 3 4 5 6 7 8 9
Scores entered:
1 2 3 4 5 6 7 8 9
```

2)
```java
import java.util.Scanner;


public class Main {
    public static void main(String[] args) {
        float[][] price = new float[10][3];
        Scanner scanner = new Scanner(System.in);

        for (int i = 0; i < 10; i++) {
            System.out.println("Enter prices for product " + (i + 1) + ":");
            for (int j = 0; j < 3; j++) {
                price[i][j] = scanner.nextFloat();
            }
        }

        System.out.println("Prices entered:");
```

```
        for (int i = 0; i < 10; i++) {
            System.out.print("Product " + (i + 1) + ": ");
            for (int j = 0; j < 3; j++) {
                System.out.print(price[i][j] + " ");
            }
            System.out.println();
        }

        scanner.close();
    }
}
```

OUTPUT:

```
Prices entered:
Product 1: 1.0 2.0 3.0
Product 2: 2.0 3.0 4.0
Product 3: 5.0 6.0 7.0
Product 4: 8.0 9.0 10.0
Product 5: 11.0 12.0 10.0
Product 6: 10.0 10.0 10.0
Product 7: 12.0 10.0 40.0
Product 8: 15.0 12.0 3.0
Product 9: 15.0 15.0 15.0
Product 10: 10.0 10.0 10.0
```

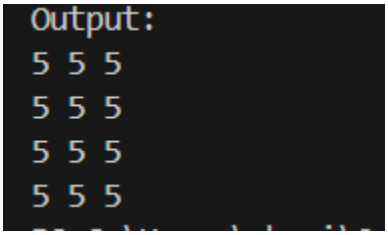
3)

```
import java.util.Scanner;


public class Main {
    public static void main(String[] args) {
        int[][] matrix = new int[][]{{5, 5, 5}, {5, 5, 5}, {5, 5, 5}, {5, 5, 5}};

        System.out.println("Output:");
        for (int i = 0; i < matrix.length; i++) {
            for (int j = 0; j < matrix[i].length; j++) {
                System.out.print(matrix[i][j] + " ");
            }
            System.out.println(); // Move to the next line after each row
        }
    }
}
```

OUTPUT:



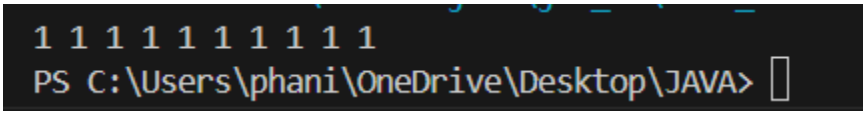

```
4) public class Main {

    public static void main(String[] args) {
        byte[] values = new byte[10];

        for (int i = 0; i < values.length; i++) {
            values[i] = 1;
        }

        for (byte value : values) {
            System.out.print(value + " ");
        }
    }
}
```

OUTPUT:




```
5) import java.util.Scanner;


public class Main {
    public static void main(String[] args) {
        Scanner scanner = new Scanner(System.in);
        int numberOfTests = 5;
        int[] scores = new int[numberOfTests];

        // Input test scores
        for (int i = 0; i < numberOfTests; i++) {
            System.out.print("Enter score for test " + (i + 1) + ": ");
            scores[i] = scanner.nextInt();
        }

        // Calculate average
        int total = 0;
        for (int score : scores) {
            total += score;
```

```
        }
        double average = (double) total / numberOfTests;

        // Output the average
        System.out.printf("The average score is: %.2f%n", average);
    }
}
```

OUTPUT:

```
Enter score for test 1: 50
Enter score for test 2: 47
Enter score for test 3: 51
Enter score for test 4: 25
Enter score for test 5: 50
The average score is: 44.60
PS C:\Users\phani\OneDrive\Desktop\JAVA>
```

6)

```
import java.util.Scanner;


public class MatrixOperations {

    public static void main(String[] args) {
        Scanner scanner = new Scanner(System.in);
        int[][] matrixA = new int[2][2];
        int[][] matrixB = new int[2][2];

        boolean running = true;

        while (running) {
            System.out.println("Menu:");
            System.out.println("a. Enter Matrix A");
            System.out.println("b. Enter Matrix B");
            System.out.println("c. Display A + B");
            System.out.println("d. Display A - B");
            System.out.println("e. Display A * B");
            System.out.println("f. Exit");
            System.out.print("Choose an option: ");
            String choice = scanner.nextLine().toLowerCase();

            switch (choice) {
                case "a":
                    matrixA = enterMatrix(scanner, "A");
                    break;
```

```
                case "b":
                    matrixB = enterMatrix(scanner, "B");
                    break;
                case "c":
                    displayMatrix(addMatrices(matrixA, matrixB), "A + B");
                    break;
                case "d":
                    displayMatrix(subtractMatrices(matrixA, matrixB), "A - B");
                    break;
                case "e":
                    displayMatrix(multiplyMatrices(matrixA, matrixB), "A * B");
                    break;
                case "f":
                    running = false;
                    break;
                default:
                    System.out.println("Invalid option, please try again.");
            }
        }

        System.out.println("Exiting program.");
        scanner.close();
    }

    // Method to enter a 2x2 matrix
    public static int[][] enterMatrix(Scanner scanner, String matrixName) {
        int[][] matrix = new int[2][2];
        System.out.println("Enter values for Matrix " + matrixName + ":");
        for (int i = 0; i < 2; i++) {
            for (int j = 0; j < 2; j++) {
                System.out.print("Element [" + (i + 1) + "][" + (j + 1) + "]: ");
                matrix[i][j] = scanner.nextInt();
            }
        }
        scanner.nextLine(); // Clear the buffer
        return matrix;
    }

    // Method to add two matrices
    public static int[][] addMatrices(int[][] a, int[][] b) {
        int[][] result = new int[2][2];
        for (int i = 0; i < 2; i++) {
            for (int j = 0; j < 2; j++) {
                result[i][j] = a[i][j] + b[i][j];
            }
```

```
        }
        return result;
    }

    // Method to subtract two matrices
    public static int[][] subtractMatrices(int[][] a, int[][] b) {
        int[][] result = new int[2][2];
        for (int i = 0; i < 2; i++) {
            for (int j = 0; j < 2; j++) {
                result[i][j] = a[i][j] - b[i][j];
            }
        }
        return result;
    }

    // Method to multiply two matrices
    public static int[][] multiplyMatrices(int[][] a, int[][] b) {
        int[][] result = new int[2][2];
        for (int i = 0; i < 2; i++) {
            for (int j = 0; j < 2; j++) {
                result[i][j] = a[i][0] * b[0][j] + a[i][1] * b[1][j];
            }
        }
        return result;
    }

    // Method to display a matrix
    public static void displayMatrix(int[][] matrix, String operation) {
        System.out.println("Result of " + operation + ":");
        for (int[] row : matrix) {
            for (int element : row) {
                System.out.print(element + " ");
            }
            System.out.println();
        }
    }
}
```

OUTPUT:

```
Element [1][2]: Element [2][1]: 12
Element [2][2]: 21
Menu:
a. Enter Matrix A
b. Enter Matrix B
c. Display A + B
d. Display A - B
e. Display A * B
f. Exit
Choose an option: b
Enter values for Matrix B:
Element [1][1]: 12
Element [1][2]: 12
Element [2][1]: 12
Element [2][2]: 12
Menu:
a. Enter Matrix A
b. Enter Matrix B
c. Display A + B
d. Display A - B
e. Display A * B
f. Exit
Choose an option: c
Result of A + B:
13 13
24 33
Menu:
a. Enter Matrix A
b. Enter Matrix B
c. Display A + B
d. Display A - B
e. Display A * B
f. Exit
Choose an option:
```