Dokumentasi Praktikum PBO 5

Mata Kuliah : PBO - TI - S1

Pertemuan : 5

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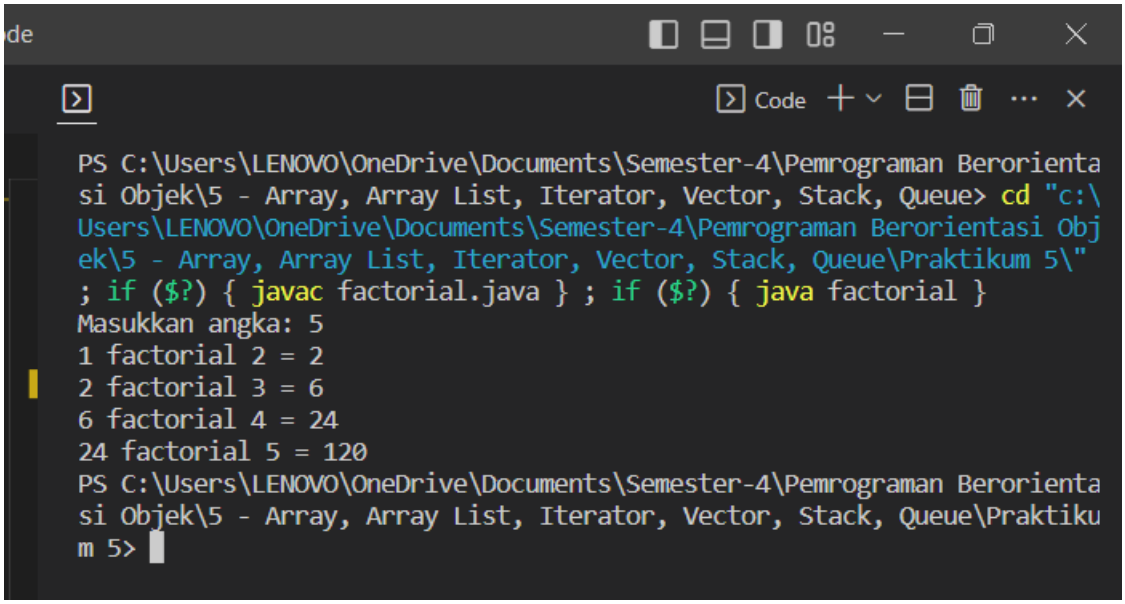
Nama : Yohanes Dimas Pratama

Loop - Latihan 1

Hasil Program:



Code Program:

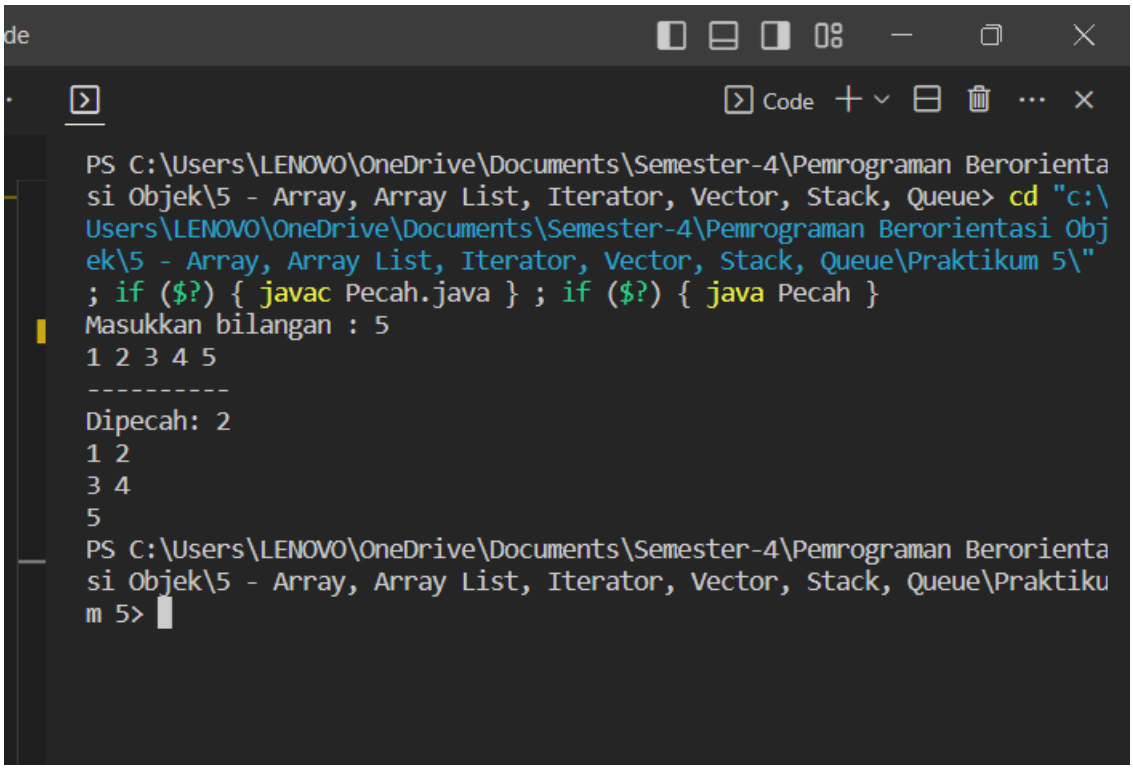
*Factorial.java

```java
import java.util.Scanner;

public class factorial {
    public static void main(String[] args) {
        long Fac = 1;
        int bilangan;
        Scanner input = new Scanner(System.in);
        System.out.print("Masukkan angka: ");
        bilangan = input.nextInt();
        for (int i = 2; i <= bilangan; i++) {
            System.out.print(Fac + " factorial " + i + " = ");
            Fac = Fac * i;
            System.out.println(Fac);
```

```
        }
    }
}
```

Loop - Latihan 2

Hasil Program:



Code Program:

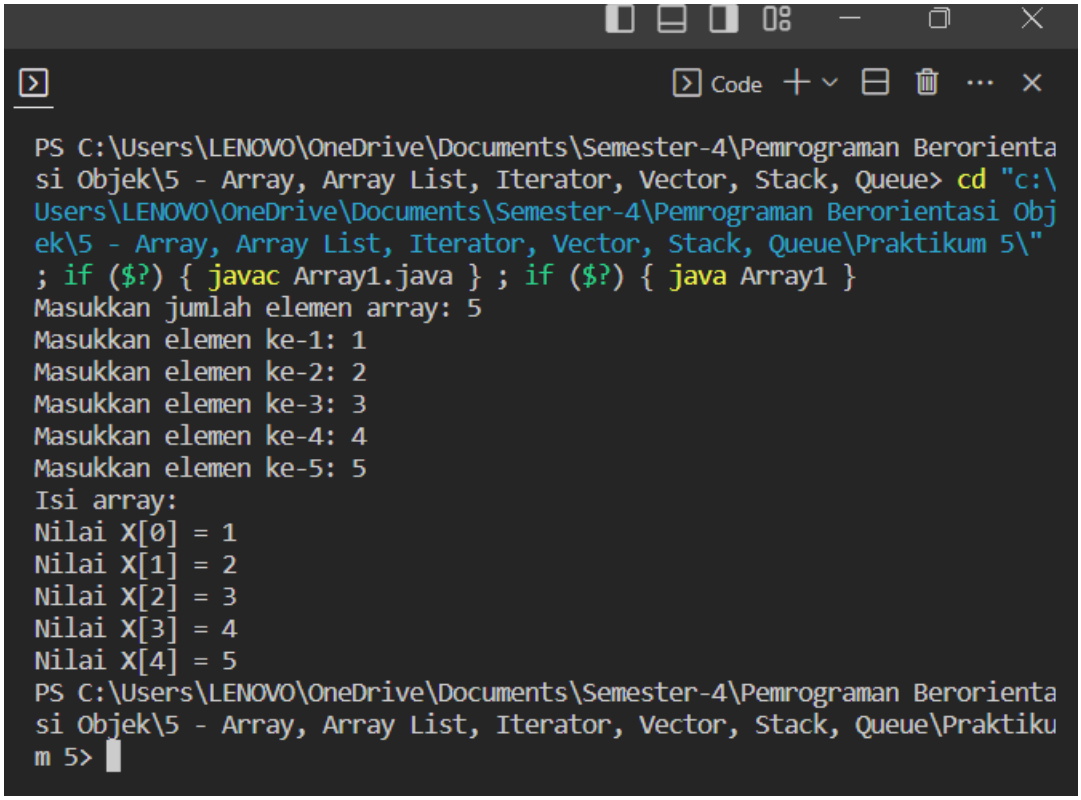
*Pecah.java

```java
import java.util.Scanner;

public class Pecah {
    public static void main(String[] args) {
        int bilangan, p;
        Scanner input = new Scanner(System.in);
        System.out.print("Masukkan bilangan : ");
        bilangan = input.nextInt();
        for (int i = 1; i <= bilangan; i++) {
            System.out.print(i + " ");
            if (i % 5 == 0) {
                System.out.println();
            }
        }
        System.out.println("----------");
        System.out.print("Dipecah: ");
```

```
        p = input.nextInt();
        for (int i = 1; i <= bilangan; i++) {
            System.out.print(i + " ");
            if (i % p == 0) {
                System.out.println();
            }
        }
    }
}
```

Array - Latihan 1

Hasil Program:



Code Program:

*Array1.java

```
import java.util.Scanner;

public class Array1 {
    public static void main(String[] args) {
        int [] x;
        int size;
        Scanner input = new Scanner(System.in);
        System.out.print("Masukkan jumlah elemen array: ");
        size = input.nextInt();
        x = new int[size];
```

```
        for (int i = 0; i < size; i++) {
            System.out.print("Masukkan elemen ke-" + (i + 1) + ": ");
            x[i] = input.nextInt();
        }
        System.out.println("Isi array: ");
        for (int i = 0; i < size; i++) {
            System.out.println("Nilai X["+ i + "] = " + x[i]);
        }
    }
}
```

Array - Latihan 2

Hasil Program:

```
java - 5 - Array, Array List, Iterator, Vector, Stack, Queue - Visual Studio Code

PS C:\Users\LENOVO\OneDrive\Documents\Semester-4\Pemrograman Berorientasi Objek\5 - Array, Array List, Iterator, Vector, Stack,
 Queue> cd "c:\Users\LENOVO\OneDrive\Documents\Semester-4\Pemrograman Berorientasi Objek\5 - Array, Array List, Iterator, Vecto
r, Stack, Queue\Praktikum 5\" ; if ($?) { javac NilaiDemo.java } ; if ($?) { java NilaiDemo }
Jumlah Mahasiswa : 3
Mahasiswa ke - 1
Masukkan NIM : A11
Masukkan Nama : Dimas
Masukkan Nilai Tugas : 90
Masukkan Nilai UTS : 80
Masukkan Nilai UAS : 70

Mahasiswa ke - 2
Masukkan NIM : A12
Masukkan Nama : Joseph
Masukkan Nilai Tugas : 80
Masukkan Nilai UTS : 70
Masukkan Nilai UAS : 90

Mahasiswa ke - 3
Masukkan NIM : A13
Masukkan Nama : Sony
Masukkan Nilai Tugas : 70
Masukkan Nilai UTS : 80
Masukkan Nilai UAS : 90

NIM     Namat   NIlai Tugas     NIlai UTS       NIlai UAS       Nilai Akhir     Index   Predikat
A11     Dimas   90.0            80.0            70.0            79.0            B       Baik
A12     Joseph  80.0            70.0            90.0            81.0            A       Sangat Baik
A13     Sony    70.0            80.0            90.0            81.0            A       Sangat Baik
Apakah anda ingin mengulang? (y/n):
PS C:\Users\LENOVO\OneDrive\Documents\Semester-4\Pemrograman Berorientasi Objek\5 - Array, Array List, Iterator, Vector, Stack,
 Queue\Praktikum 5>
```

Code Program:

*Nilai.java

```
import java.util.Scanner;

public class Nilai {
    String nim, nama;
    float nilaiTugas, nilaiUTS, nilaiUAS, nilaiAkhir;
    float pnilaiTugas, pnilaiUTS, pnilaiUAS;
    char indexNilai;
    String predikat;

    Scanner input = new Scanner(System.in);
```

```
    public Nilai(String nim, String nama, float nilaiTugas, float nilaiUTS,
float nilaiUAS) {
        this.nim = nim;
        this.nama = nama;
        this.nilaiTugas = nilaiTugas;
        this.nilaiUTS = nilaiUTS;
        this.nilaiUAS = nilaiUAS;
    }

    public Nilai(){
    }

    void isiData(){
        System.out.print("Masukkan NIM : ");
        nim = input.nextLine();
        System.out.print("Masukkan Nama : ");
        nama = input.nextLine();
        System.out.print("Masukkan Nilai Tugas : ");
        nilaiTugas = input.nextFloat();
        System.out.print("Masukkan Nilai UTS : ");
        nilaiUTS = input.nextFloat();
        System.out.print("Masukkan Nilai UAS : ");
        nilaiUAS = input.nextFloat();
        System.out.println("");
    }

    void hitungNilai(){
        pnilaiTugas = (float) (nilaiTugas * 0.3);
        pnilaiUTS = (float) (nilaiUTS * 0.3);
        pnilaiUAS = (float) (nilaiUAS * 0.4);
        nilaiAkhir = pnilaiTugas + pnilaiUTS + pnilaiUAS;
    }

    void hitungIndex(){
        if (nilaiAkhir >= 80 && nilaiAkhir <= 100){
            indexNilai = 'A';
            predikat = "Sangat Baik";
        } else if (nilaiAkhir >= 68 && nilaiAkhir < 80){
            indexNilai = 'B';
            predikat = "Baik";
        } else if (nilaiAkhir >= 56 && nilaiAkhir < 68){
            indexNilai = 'C';
            predikat = "Cukup";
        } else if (nilaiAkhir >= 45 && nilaiAkhir < 56){
            indexNilai = 'D';
            predikat = "Kurang";
        } else {
```

```
            indexNilai = 'E';
            predikat = "Sangat Kurang";
        }
    }

    void tampilData(){
        System.out.println("NIM : " + nim);
        System.out.println("Nama : " + nama);
        System.out.println("Nilai Tugas : " + nilaiTugas);
        System.out.println("Nilai UTS : " + nilaiUTS);
        System.out.println("Nilai UAS : " + nilaiUAS);
        System.out.println("Nilai Akhir : " + nilaiAkhir);
        System.out.println("Index : " + indexNilai);
        System.out.println("Predikat : " + predikat);
        System.out.println("");
    }

    void setNim(String nim){
        this.nim = nim;
    }

    String getNim(){
        return nim;
    }

    void judul(){
        System.out.println("NIM\tNamat\tNIlai Tugas\tNIlai UTS\tNIlai
UAS\tNilai Akhir\tIndex\tPredikat");
    }
    void daftarNilai(){
        System.out.println(nim + "\t" + nama + "\t" + nilaiTugas + "\t\t" +
nilaiUTS + "\t\t" + nilaiUAS + "\t\t" + nilaiAkhir + "\t\t" + indexNilai +
"\t" + predikat);
    }
}
```

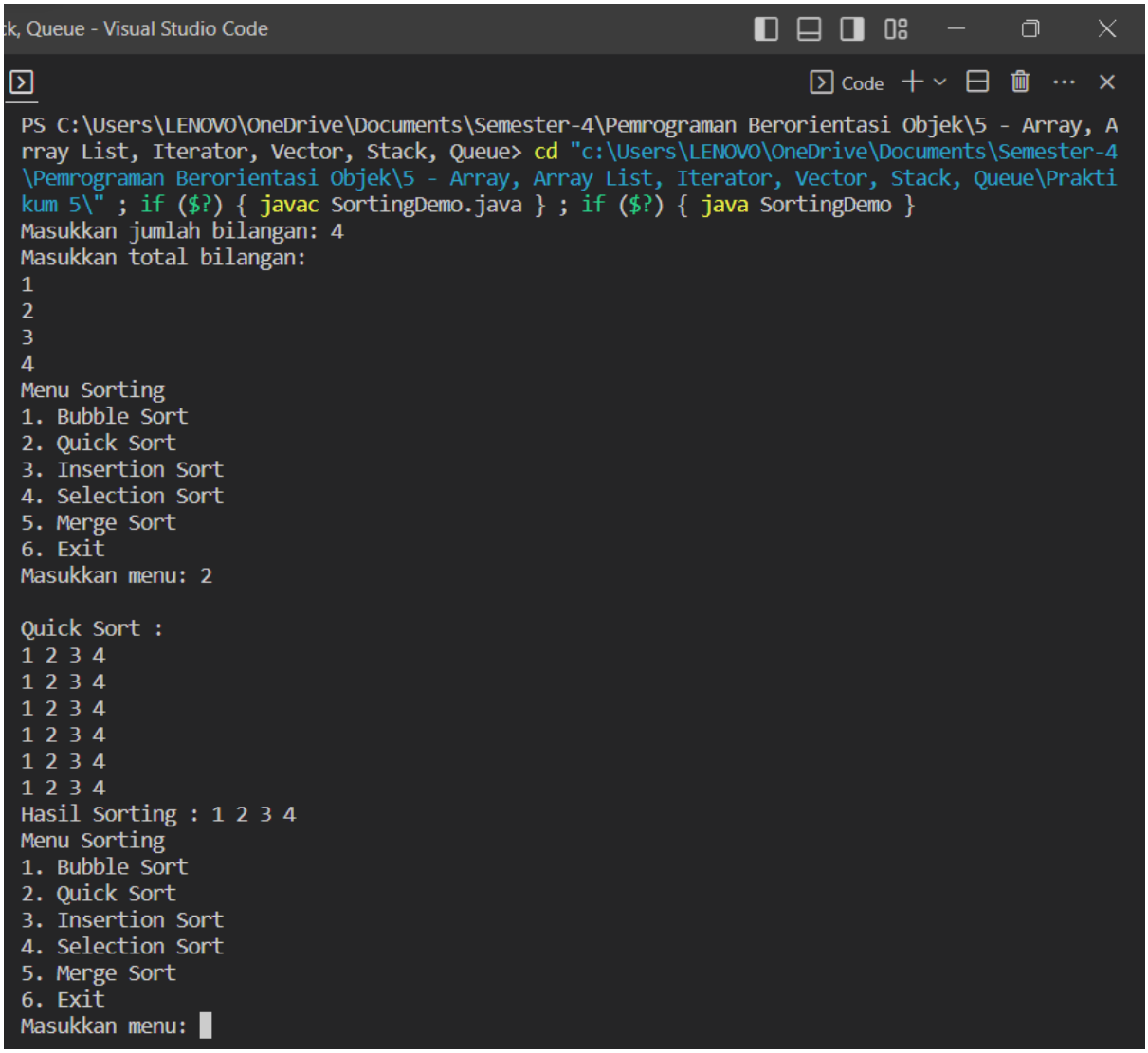
*NilaiDemo.java

```
import java.util.Scanner;

public class NilaiDemo {
    public static void main(String[] args) {
        Scanner input = new Scanner(System.in);
        do{
            Nilai nilai = new Nilai();

            System.out.print("Jumlah Mahasiswa : ");
```

```
            int n = input.nextInt();
            Nilai[] nilaiMahasiswa = new Nilai[n];
            for (int i = 0; i < n; i++) {
                System.out.println("Mahasiswa ke - "+(i+1));
                nilaiMahasiswa[i] = new Nilai();
                nilaiMahasiswa[i].isiData();
                nilaiMahasiswa[i].hitungNilai();
                nilaiMahasiswa[i].hitungIndex();
            }
            nilaiMahasiswa[0].judul();
            for (int i = 0; i < n; i++) {
                nilaiMahasiswa[i].daftarNilai();
            }

            System.out.print("Apakah anda ingin mengulang? (y/n): ");
        } while (input.nextLine().equalsIgnoreCase("y"));
    }
}
```

Array - Latihan 3

Hasil Program:



Code Program:

*Sorting.java

```
public class Sorting {
    void printData(int data[]) {
        int n = data.length;
        for (int i = 0; i < n; ++i)
            System.out.print(data[i] + " ");
        System.out.println();
    }

    static void swap(int[] data, int i, int j) {
        int temp = data[i];
        data[i] = data[j];
        data[j] = temp;
    }

    void bubbleSort(int data[]) {
        int n = data.length;
```

```
        for (int i = 0; i < n - 1; i++) {
            for (int j = 0; j < n - i - 1; j++) {
                if (data[j] > data[j + 1]) {
                    int temp = data[j];
                    data[j] = data[j + 1];
                    data[j + 1] = temp;
                    printData(data);
                }
            }
        }
    }

    int partition(int[] data, int low, int high) {
        int pivot = data[high];
        int i = (low - 1);
        for (int j = low; j <= high - 1; j++) {
            if (data[j] < pivot) {
                i++;
                swap(data, i, j);
                printData(data);
            }
        }
        swap(data, i + 1, high);
        return (i + 1);
    }

    void quickSort(int[] data, int low, int high) {
        if (low < high) {
            int pi = partition(data, low, high);
            quickSort(data, low, pi - 1);
            quickSort(data, pi + 1, high);
        }
    }

    void insertionSort(int data[]) {
        int n = data.length;
        for (int i = 1; i < n; ++i) {
            int key = data[i];
            int j = i - 1;
            while (j >= 0 && data[j] > key) {
                data[j + 1] = data[j];
                j = j - 1;
                printData(data);
            }
            data[j + 1] = key;
        }
    }
```

```
    void selectionSort(int data[]) {
        int n = data.length;
        for (int i = 0; i < n - 1; i++) {
            int min_idx = i;
            for (int j = i + 1; j < n; j++) {
                if (data[j] < data[min_idx]) {
                    min_idx = j;
                }
            }
            swap(data, min_idx, i);
            printData(data);
        }
    }

    void merge(int a[], int beg, int mid, int end) {
        int i, j, k;
        int n1 = mid - beg + 1;
        int n2 = end - mid;
        int Leftdata[] = new int[n1];
        int Rightdata[] = new int[n2];
        for (i = 0; i < n1; i++)
            Leftdata[i] = a[beg + i];
        for (j = 0; j < n2; j++)
            Rightdata[j] = a[mid + 1 + j];
        i = 0;
        j = 0;
        k = beg;
        while (i < n1 && j < n2) {
            if (Leftdata[i] <= Rightdata[j]) {
                a[k] = Leftdata[i];
                i++;
            } else {
                a[k] = Rightdata[j];
                j++;
            }
            k++;
        }
        while (i < n1) {
            a[k] = Leftdata[i];
            i++;
            k++;
        }
        while (j < n2) {
            a[k] = Rightdata[j];
            j++;
            k++;
        }
    }
```

```
    void mergeSort(int a[], int beg, int end) {
        if (beg < end) {
            int mid = (beg + end) / 2;
            mergeSort(a, beg, mid);
            mergeSort(a, mid + 1, end);
            merge(a, beg, mid, end);
            printData(a);
        }
    }
}
```

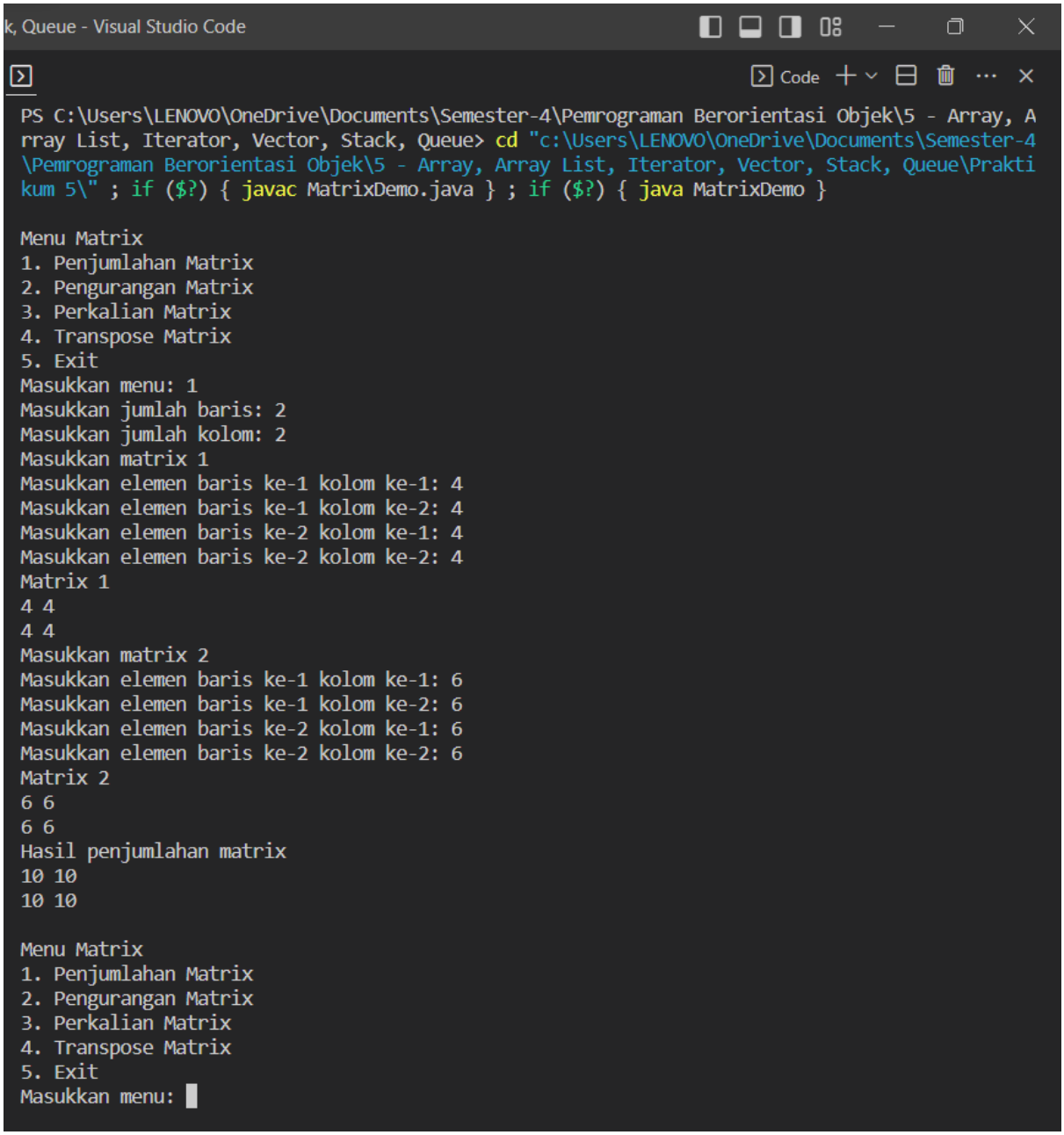
*SortingDemo.java

```
import java.util.Scanner;

public class SortingDemo {
    public static void main(String[] args) {
        Sorting bs = new Sorting();
        Scanner scanner = new Scanner(System.in);
        System.out.print("Masukkan jumlah bilangan: ");
        int n = scanner.nextInt();
        int data[] = new int[n];
        int temp[] = new int[n];
        System.out.println("Masukkan total bilangan: ");
        for (int i = 0; i < n; i++) {
            data[i] = scanner.nextInt();
            temp[i] = data[i];
        }
        while (true) {
            System.out.println("Menu Sorting");
            System.out.println("1. Bubble Sort");
            System.out.println("2. Quick Sort");
            System.out.println("3. Insertion Sort");
            System.out.println("4. Selection Sort");
            System.out.println("5. Merge Sort");
            System.out.println("6. Exit");
            System.out.print("Masukkan menu: ");
            int x = scanner.nextInt();
            System.out.println();
            if (x == 1) {
                System.out.println("Bubble Sort :");
                bs.bubbleSort(data);
                System.out.print("Hasil Sorting : ");
                bs.printData(data);
                for (int i = 0; i < n; i++) {
                    data[i] = temp[i];
                }
```

```
            }
            else if (x == 2) {
                System.out.println("Quick Sort :");
                bs.quickSort(data, 0, n - 1);
                System.out.print("Hasil Sorting : ");
                bs.printData(data);
                for (int i = 0; i < n; i++) {
                    data[i] = temp[i];
                }
            }
            else if (x == 3) {
                System.out.println("Insertion Sort :");
                bs.insertionSort(data);
                System.out.print("Hasil Sorting : ");
                bs.printData(data);
                for (int i = 0; i < n; i++) {
                    data[i] = temp[i];
                }
            }
            else if (x == 4) {
                System.out.println("Selection Sort :");
                bs.selectionSort(data);
                System.out.print("Hasil Sorting : ");
                bs.printData(data);
                for (int i = 0; i < n; i++) {
                    data[i] = temp[i];
                }
            }
            else if (x == 5) {
                System.out.println("Merge Sort :");
                bs.mergeSort(data, 0, n - 1);
                System.out.print("Hasil Sorting : ");
                bs.printData(data);
                for (int i = 0; i < n; i++) {
                    data[i] = temp[i];
                }
            }
            else if (x == 6 || x != 6) {
                break;
            }
        }
        scanner.close();
    }
}
```

Array - Latihan 4

Hasil Program:



Code Program:

*Matrix.java

```
import java.util.Scanner;
public class Matrix {

    int baris, kolom;

    void penjumlahanMatrix(){

        // penjumlahan matrix

        Scanner input = new Scanner(System.in);
        System.out.print("Masukkan jumlah baris: ");
```

```
        baris = input.nextInt();
        System.out.print("Masukkan jumlah kolom: ");
        kolom = input.nextInt();
        int[][] matrix1 = new int[baris][kolom];
        int[][] matrix2 = new int[baris][kolom];
        int[][] hasil = new int[baris][kolom];
        System.out.println("Masukkan matrix 1");
        for (int i = 0; i < baris; i++) {
            for (int j = 0; j < kolom; j++) {
                System.out.print("Masukkan elemen baris ke-" + (i+1) + " kolom
ke-" + (j+1) + ": ");
                matrix1[i][j] = input.nextInt();
            }
        }
        System.out.println("Matrix 1");
        for (int i = 0; i < baris; i++) {
            for (int j = 0; j < kolom; j++) {
                System.out.print(matrix1[i][j] + " ");
            }
            System.out.println();
        }

        System.out.println("Masukkan matrix 2");
        for (int i = 0; i < baris; i++) {
            for (int j = 0; j < kolom; j++) {
                System.out.print("Masukkan elemen baris ke-" + (i+1) + " kolom
ke-" + (j+1) + ": ");
                matrix2[i][j] = input.nextInt();
            }
        }

        System.out.println("Matrix 2");
        for (int i = 0; i < baris; i++) {
            for (int j = 0; j < kolom; j++) {
                System.out.print(matrix2[i][j] + " ");
            }
            System.out.println();
        }

        System.out.println("Hasil penjumlahan matrix");
        for (int i = 0; i < baris; i++) {
            for (int j = 0; j < kolom; j++) {
                hasil[i][j] = matrix1[i][j] + matrix2[i][j];
                System.out.print(hasil[i][j] + " ");
            }
            System.out.println();
        }
    }
```

```
    void penguranganMatrix(){

        Scanner input = new Scanner(System.in);
        System.out.print("Masukkan jumlah baris: ");
        baris = input.nextInt();
        System.out.print("Masukkan jumlah kolom: ");
        kolom = input.nextInt();
        int[][] matrix1 = new int[baris][kolom];
        int[][] matrix2 = new int[baris][kolom];
        int[][] hasil = new int[baris][kolom];
        System.out.println("Masukkan matrix 1");
        for (int i = 0; i < baris; i++) {
            for (int j = 0; j < kolom; j++) {
                System.out.print("Masukkan elemen baris ke-" + (i+1) + " kolom
ke-" + (j+1) + ": ");
                matrix1[i][j] = input.nextInt();
            }
        }
        System.out.println("Matrix 1");
        for (int i = 0; i < baris; i++) {
            for (int j = 0; j < kolom; j++) {
                System.out.print(matrix1[i][j] + " ");
            }
            System.out.println();
        }

        System.out.println("Masukkan matrix 2");
        for (int i = 0; i < baris; i++) {
            for (int j = 0; j < kolom; j++) {
                System.out.print("Masukkan elemen baris ke-" + (i+1) + " kolom
ke-" + (j+1) + ": ");
                matrix2[i][j] = input.nextInt();
            }
        }

        System.out.println("Matrix 2");
        for (int i = 0; i < baris; i++) {
            for (int j = 0; j < kolom; j++) {
                System.out.print(matrix2[i][j] + " ");
            }
            System.out.println();
        }

        System.out.println("Hasil pengurangan matrix");
        for (int i = 0; i < baris; i++) {
            for (int j = 0; j < kolom; j++) {
                hasil[i][j] = matrix1[i][j] - matrix2[i][j];
```

```
                System.out.print(hasil[i][j] + " ");
            }
            System.out.println();
        }
    }

    void perkalianMatrix() {
        Scanner input = new Scanner(System.in);
        System.out.print("Masukkan jumlah baris: ");
        baris = input.nextInt();
        System.out.print("Masukkan jumlah kolom: ");
        kolom = input.nextInt();

        int[][] matrix1 = new int[baris][kolom];
        int[][] matrix2 = new int[baris][kolom];
        int[][] hasil = new int[baris][kolom];

        System.out.println("Masukkan matrix 1");
        for (int i = 0; i < baris; i++) {
            for (int j = 0; j < kolom; j++) {
                System.out.print("Masukkan elemen baris ke-" + (i+1) + " kolom
ke-" + (j+1) + ": ");
                matrix1[i][j] = input.nextInt();
            }
        }
        System.out.println("Matrix 1");
        for (int i = 0; i < baris; i++) {
            for (int j = 0; j < kolom; j++) {
                System.out.print(matrix1[i][j] + " ");
            }
            System.out.println();
        }

        System.out.println("Masukkan matrix 2");
        for (int i = 0; i < baris; i++) {
            for (int j = 0; j < kolom; j++) {
                System.out.print("Masukkan elemen baris ke-" + (i+1) + " kolom
ke-" + (j+1) + ": ");
                matrix2[i][j] = input.nextInt();
            }
        }

        System.out.println("Matrix 2");
        for (int i = 0; i < baris; i++) {
            for (int j = 0; j < kolom; j++) {
                System.out.print(matrix2[i][j] + " ");
            }
            System.out.println();
```

```
        }

        System.out.println("Hasil perkalian matrix");
        for (int i = 0; i < baris; i++) {
            for (int j = 0; j < kolom; j++) {
                for (int k = 0; k < baris; k++) {
                    hasil[i][j] += matrix1[i][k] * matrix2[k][j];
                }
                System.out.print(hasil[i][j] + " ");
            }
            System.out.println();
        }
    }

    void transposeMatrix(){
        Scanner input = new Scanner(System.in);
        System.out.print("Masukkan jumlah baris: ");
        baris = input.nextInt();
        System.out.print("Masukkan jumlah kolom: ");
        kolom = input.nextInt();
        int[][] matrix = new int[baris][kolom];
        int[][] hasil = new int[kolom][baris];

        System.out.println("Masukkan matrix");
        for (int i = 0; i < baris; i++) {
            for (int j = 0; j < kolom; j++) {
                System.out.print("Masukkan elemen baris ke-" + (i+1) + " kolom
ke-" + (j+1) + ": ");
                matrix[i][j] = input.nextInt();
            }
        }
        System.out.println("Matrix");
        for (int i = 0; i < baris; i++) {
            for (int j = 0; j < kolom; j++) {
                System.out.print(matrix[i][j] + " ");
            }
            System.out.println();
        }

        System.out.println("Hasil transpose matrix");
        for (int i = 0; i < baris; i++) {
            for (int j = 0; j < kolom; j++) {
                hasil[j][i] = matrix[i][j];
                System.out.print(hasil[j][i] + " ");
            }
            System.out.println();
        }
    }
```

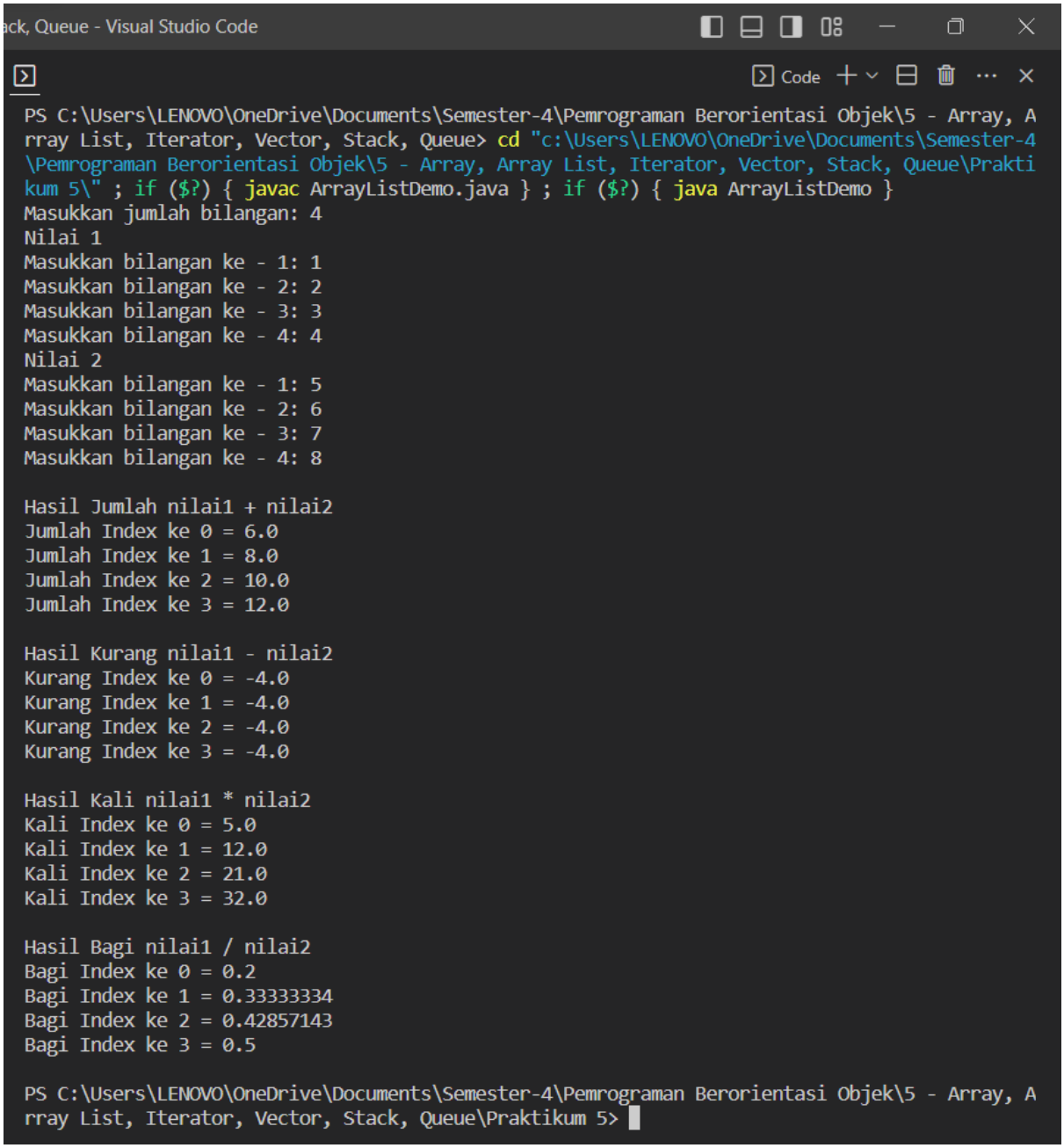
```
}
```

*MatrixDemo.java

```
import java.util.Scanner;
public class MatrixDemo {
    public static void main(String[] args) {
        Matrix mx = new Matrix();
        do{
            System.out.println("");
            System.out.println("Menu Matrix");
            System.out.println("1. Penjumlahan Matrix");
            System.out.println("2. Pengurangan Matrix");
            System.out.println("3. Perkalian Matrix");
            System.out.println("4. Transpose Matrix");
            System.out.println("5. Exit");
            System.out.print("Masukkan menu: ");
            Scanner input = new Scanner(System.in);
            int menu = input.nextInt();
            switch(menu){
                case 1:
                    mx.penjumlahanMatrix();
                    break;
                case 2:
                    mx.penguranganMatrix();
                    break;
                case 3:
                    mx.perkalianMatrix();
                    break;
                case 4:
                    mx.transposeMatrix();
                    break;
                case 5:
                    System.exit(0);
                    break;
                default:
                    System.out.println("menu tidak ada");
            }
        }while(true);
    }
}
```

Array - Latihan 5

Hasil Program:



Code Program:

*ArrayListDemo.java

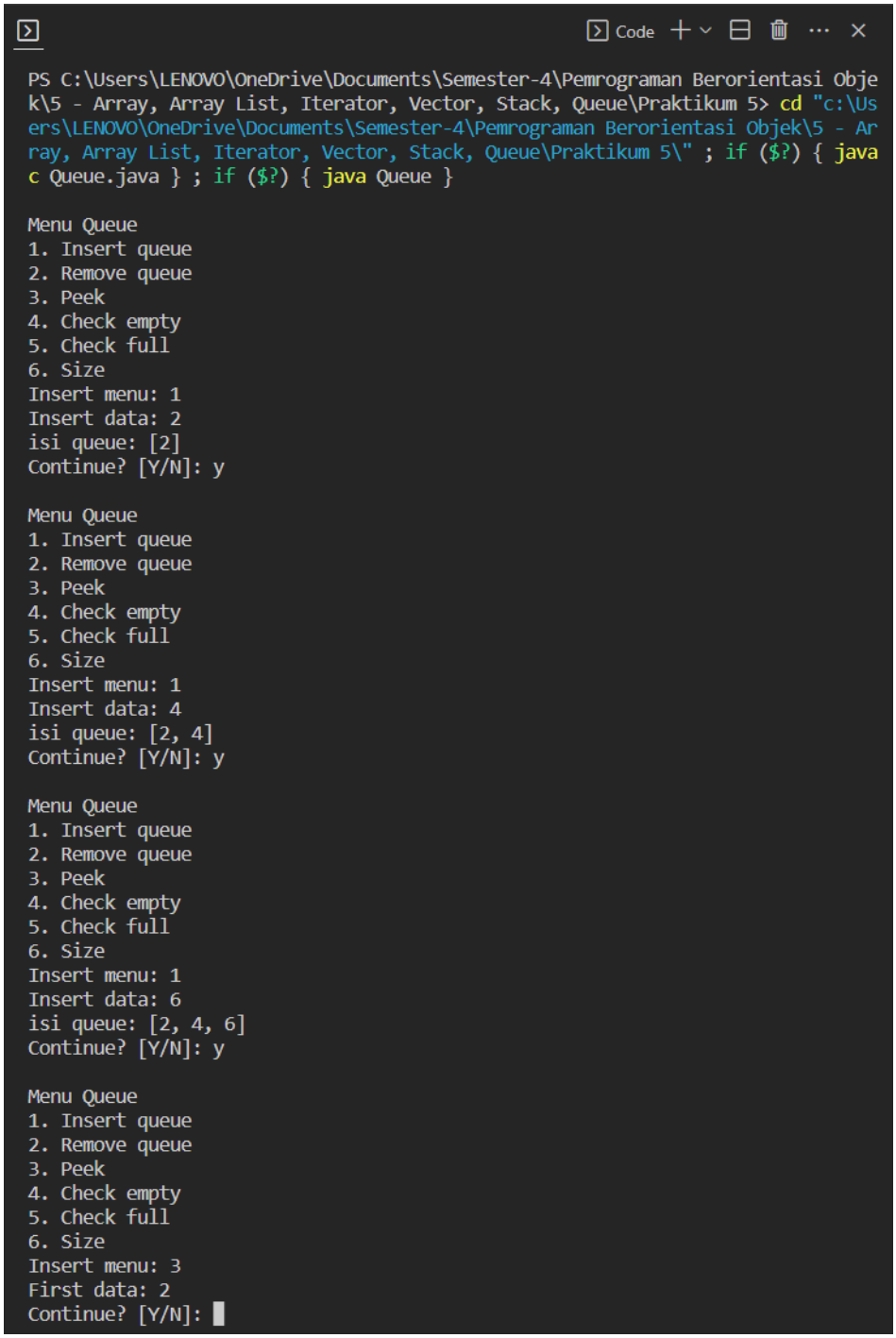
```
import java.util.ArrayList;
import java.util.Scanner;

public class ArrayListDemo {
    public static void main(String args[]) {
        ArrayList<Float> nilai1 = new ArrayList<Float>();
        ArrayList<Float> nilai2 = new ArrayList<Float>();
        ArrayList<Float> jumlah = new ArrayList<Float>();
        ArrayList<Float> kurang = new ArrayList<Float>();
        ArrayList<Float> kali = new ArrayList<Float>();
```

```
        ArrayList<Float> bagi = new ArrayList<Float>();

        Scanner input = new Scanner(System.in);
        System.out.print("Masukkan jumlah bilangan: ");

        int n = input.nextInt();
        System.out.println("Nilai 1");

        for (int i = 0; i < n; i++) {
            System.out.print("Masukkan bilangan ke - " + (i + 1) + ": ");
            nilai1.add(input.nextFloat());
        }
        System.out.println("Nilai 2");

        for (int i = 0; i < n; i++) {
            System.out.print("Masukkan bilangan ke - " + (i + 1) + ": ");
            nilai2.add(input.nextFloat());
        }
        System.out.println();

        for (int i = 0; i < n; i++) {
            jumlah.add(nilai1.get(i) + nilai2.get(i));
            kurang.add(nilai1.get(i) - nilai2.get(i));
            kali.add(nilai1.get(i) * nilai2.get(i));
            bagi.add(nilai1.get(i) / nilai2.get(i));
        }
        System.out.println("Hasil Jumlah nilai1 + nilai2");

        for (int i = 0; i < n; i++) {
            System.out.println("Jumlah Index ke " + i + " = " +
                    jumlah.get(i));
        }
        System.out.println();
        System.out.println("Hasil Kurang nilai1 - nilai2");

        for (int i = 0; i < n; i++) {
            System.out.println("Kurang Index ke " + i + " = " +
                    kurang.get(i));
        }
        System.out.println();
        System.out.println("Hasil Kali nilai1 * nilai2");

        for (int i = 0; i < n; i++) {
            System.out.println("Kali Index ke " + i + " = " + kali.get(i));
        }
        System.out.println();
        System.out.println("Hasil Bagi nilai1 / nilai2");
```

```
        for (int i = 0; i < n; i++) {
            System.out.println("Bagi Index ke " + i + " = " + bagi.get(i));
        }
        System.out.println();
    }
}
```

Queue - Latihan 6

Hasil Program:



Code Program:

*Queue.java

```
import java.util.Scanner;
import java.util.ArrayList;

public class Queue {
    public static void main(String[] args) {
        Scanner input = new Scanner(System.in);
        ArrayList<String> queue = new ArrayList<String>();
        int pilih;
        do {
            System.out.println();
            System.out.println("Menu Queue");
            System.out.println("1. Insert queue");
            System.out.println("2. Remove queue");
            System.out.println("3. Peek");
            System.out.println("4. Check empty");
            System.out.println("5. Check full");
            System.out.println("6. Size");
            System.out.print("Insert menu: ");
            pilih = input.nextInt();
            switch (pilih) {
                case 1:
                    System.out.print("Insert data: ");
                    String data = input.next();
                    queue.add(data);
                    System.out.println("isi queue: " + queue);
                    break;
                case 2:
                    queue.remove(0);
                    System.out.println("Insert queue: " + queue);
                    break;
                case 3:
                    System.out.println("First data: " + queue.get(0));
                    break;
                case 4:
                    if (queue.size() == 5) {
                        System.out.println("Queue full");
                    } else {
                        System.out.println("Queue empty");
                    }
                    break;
                case 5:
                    if (queue.size() == 10) {
                        System.out.println("Queue full");
                    } else {
                        System.out.println("Queue empty");
```

```
                    }
                    break;
                case 6:
                    System.out.println("size" + queue.size());
                    break;
            }
            System.out.print("Continue? [Y/N]: ");
            String ask = input.next();
            if (ask.equalsIgnoreCase("n")) {
                break;
            }
        } while (pilih != 0);
    }
}
```