Homework 4

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Problem 4.1

1. double getSum(double[] array)

Method

```
    public static double getSum(double[] array){
        double sum = 0;
        for(int i = 0; i < array.length; i++){
            sum = sum + array[i];
        }
        return sum;
    }
```

Main

```
    public static void main(String[] args) {
        double[] arr1 = {1.2749, 93.479, 1.3840, 5.38292, 3.54839,
0.43092};
        double[] arr2 = {0.37468, 0.42379, 0.382340, 0.29232,
0.5483139, 0.492};
        double[] arr3 = {-0.37468, 0.42379, -0.382340, 0.29232,
-0.5483139, 0.492};
        double[] arr4 = {1, 9, 2, 5, 3, 4};
        double[] arr5 = {};

        System.out.println(getSum(arr1));
        System.out.println(getSum(arr2));
        System.out.println(getSum(arr3));
        System.out.println(getSum(arr4));
        System.out.println(getSum(arr5));
    }
```

Output

```
105.50013
2.5134439000000004
-0.09722390000000003
24.0
0.0
```

```
'-cp' 'C:\Users\themi\Downloads\java-prak-asd\fourth-meet\activity\bin' 'homework_41.TestHomework'
105.50013
2.5134439000000004
-0.09722390000000003
24.0
0.0
```

2. double getAverage(double[] array)

Method

```
    public static double getAverage(double[] array){
        double sum = 0;
        for(int i = 0; i < array.length; i++){
            sum = sum + array[i];
        }
        return sum / array.length;
    }
```

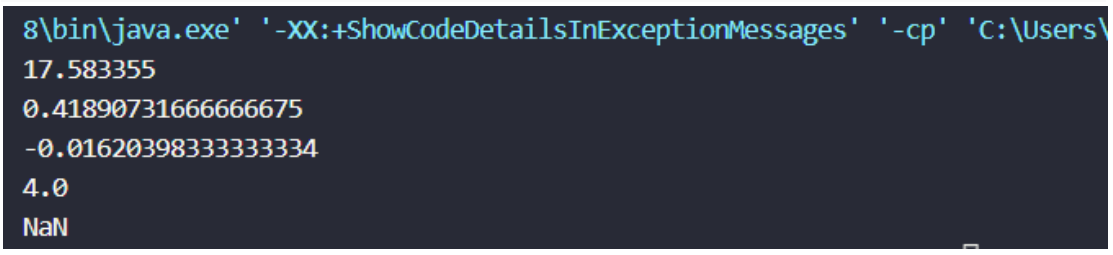
Main

```
    public static void main(String[] args) {
        double[] arr1 = {1.2749, 93.479, 1.3840, 5.38292, 3.54839,
0.43092};
        double[] arr2 = {0.37468, 0.42379, 0.382340, 0.29232,
0.5483139, 0.492};
        double[] arr3 = {-0.37468, 0.42379, -0.382340, 0.29232,
-0.5483139, 0.492};
        double[] arr4 = {1, 9, 2, 5, 3, 4};
        double[] arr5 = {};

        System.out.println(getAverage(arr1));
        System.out.println(getAverage(arr2));
        System.out.println(getAverage(arr3));
        System.out.println(getAverage(arr4));
        System.out.println(getAverage(arr5));
    }
```

Output

```
17.583355
0.41890731666666675
-0.01620398333333334
4.0
NaN //division by 0 on double datatype
```



3. int getValueOfLastElement(int[] array)

Method

```
public static int getValueOfLastElement(int[] array){
    return array[(array.length) - 1];
}
```

Main

```
int[] arr1 = {1, 9, 3, 5, 6, 0};
int[] arr2 = {37468, 42379, 382340, 29232, 5483139, 492};
int[] arr3 = {-37468, 42379, -382340, 29232, -5483139, 492};
int[] arr4 = {1, 9, 2, 5, 3, 4};


System.out.println(getValueOfLastElement(arr1));
System.out.println(getValueOfLastElement(arr2));
System.out.println(getValueOfLastElement(arr3));
System.out.println(getValueOfLastElement(arr4));
```

Output

```
0
492
492
4
```

```
8\bin\java.exe' '-XX:+ShowCodeDetailsInExceptionMessages' '-cp' 'C:\User
0
492
492
4
```

4. int getMinValue(int[] array)

Method

```
public static int getMinValue(int[] array){
    int min = array[0];
    for(int i = 0; i < array.length; i++){
        if (array[i] < min) min = array[i];
    }
    return min;
}
```

Main

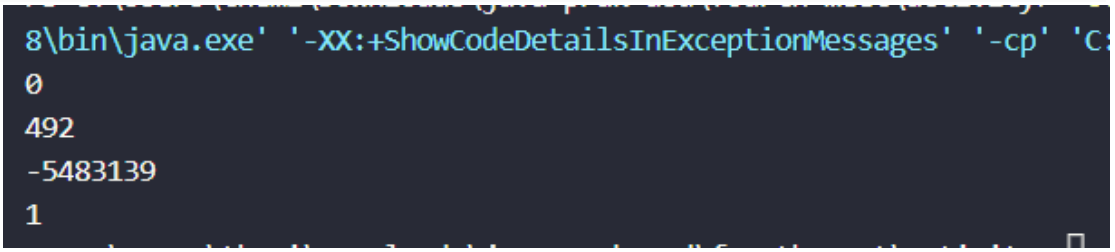
```
    public static void main(String[] args) {

        int[] arr1 = {1, 9, 3, 5, 6, 0};
        int[] arr2 = {37468, 42379, 382340, 29232, 5483139, 492};
        int[] arr3 = {-37468, 42379, -382340, 29232, -5483139, 492};
        int[] arr4 = {1, 9, 2, 5, 3, 4};


        System.out.println(getMinValue(arr1));
        System.out.println(getMinValue(arr2));
        System.out.println(getMinValue(arr3));
        System.out.println(getMinValue(arr4));
    }
```

Output

```
0
492
-5483139
1
```



5. int getMaxValue(int[] array)

Method

```
    public static int getMaxValue(int[] array){
        int max = array[0];
        for(int i = 0; i < array.length; i++){
            if (array[i] > max) max = array[i];
        }
        return max;
    }
```

Main

```
    public static void main(String[] args) {

        int[] arr1 = {1, 9, 3, 5, 6, 0};
        int[] arr2 = {37468, 42379, 382340, 29232, 5483139, 492};
        int[] arr3 = {-37468, 42379, -382340, 29232, -5483139, 492};
        int[] arr4 = {1, 9, 2, 5, 3, 4};


        System.out.println(getMaxValue(arr1));
```

```
        System.out.println(getMaxValue(arr2));
        System.out.println(getMaxValue(arr3));
        System.out.println(getMaxValue(arr4));
    }
```

Output

```
9
5483139
42379
9
```

```
8\bin\java.exe' '-XX:+ShowCodeDetailsInExceptionMessages' '-cp'
9
5483139
42379
9
```

6. int[] getMinMaxValue(int[] array)

Method

```
    public static int[] getMinMaxValue(int[] array){
        int[] arr = new int[2];
        arr[0] = getMinValue(array);
        arr[1] = getMaxValue(array);

        return arr;
    }
```

Main

```
    public static void main(String[] args) {

        int[] arr1 = {1, 9, 3, 5, 6, 0};
        int[] arr2 = {37468, 42379, 382340, 29232, 5483139, 492};
        int[] arr3 = {-37468, 42379, -382340, 29232, -5483139, 492};
        int[] arr4 = {1, 9, 2, 5, 3, 4};

        //method only return array datatype, we specify the index on
main to obtain the value contained in the array
        //assume that : array[0] = min, array[1] = max
        System.out.println("Arr1 Min: " + getMinMaxValue(arr1)[0]);
        System.out.println("Arr1 Max: " + getMinMaxValue(arr1)[1] +
"\n");
        System.out.println("Arr2 Min: " + getMinMaxValue(arr2)[0]);
        System.out.println("Arr2 Max: " + getMinMaxValue(arr2)[1] +
"\n");
        System.out.println("Arr3 Min: " + getMinMaxValue(arr3)[0]);
        System.out.println("Arr3 Max: " + getMinMaxValue(arr3)[1] +
"\n");
```

```
        System.out.println("Arr4 Min: " + getMinMaxValue(arr4)[0]);
        System.out.println("Arr4 Max: " + getMinMaxValue(arr4)[1]);
    }
}
```

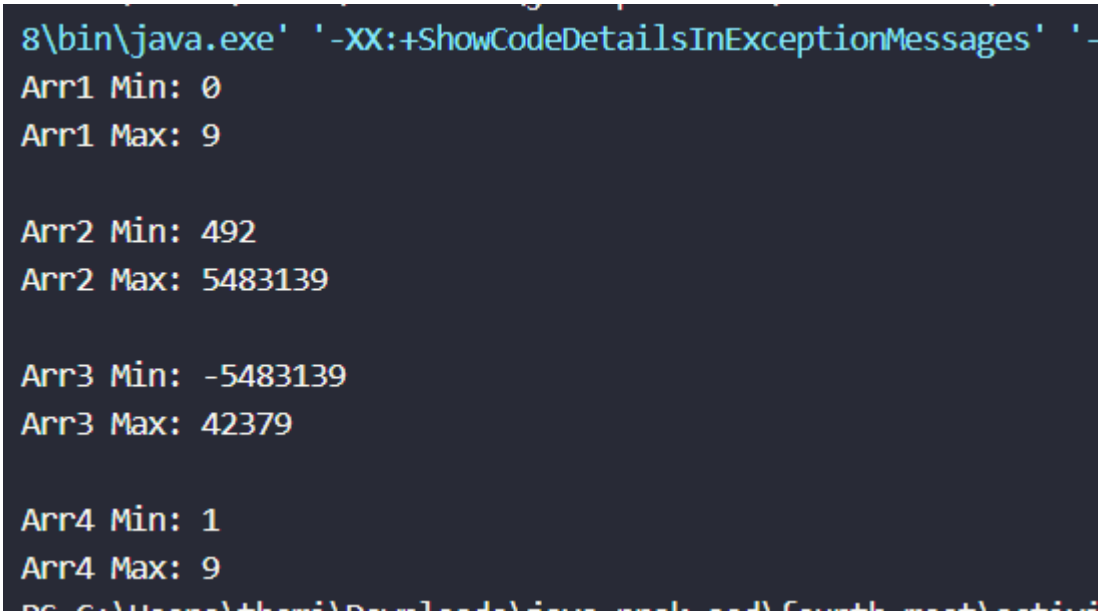
Output

```
Arr1 Min: 0
Arr1 Max: 9

Arr2 Min: 492
Arr2 Max: 5483139

Arr3 Min: -5483139
Arr3 Max: 42379

Arr4 Min: 1
Arr4 Max: 9
```



7. String getLongestString(String[] array)

Method

```
    public static String getLongsestString(String[] array){
        int longest = array[0].length();
        int index = 0;
        for(int i = 0; i < array.length; i++){
            if(array[i].length() >= longest){
                longest = array[i].length();
                index = i;
            }
        }
        return array[index];
    }
```

Main

```
    public static void main(String[] args) {
        String[] str1 = {"Ramzy", "Izza", "Wardhana"};
        String[] str2 = {"Java", "Python", "C++", "Ruby",
"Javascript", "PHP"};
        String[] str3 = {"Honda", "Toyota", "Volvo", "Audi", "BMW"};
        String[] str4 = {"a", "b", "c", "d"};
        String[] str5 = {"Macbook", "Zenbook", "Thinkpad", "Yoga",
"Expertbook", "XPS"};

        System.out.println(getLongsestString(str1));
        System.out.println(getLongsestString(str2));
        System.out.println(getLongsestString(str3));
        System.out.println(getLongsestString(str4));
        System.out.println(getLongsestString(str5));
    }
```

Output

```
Wardhana
Javascript
Toyota
d
Expertbook
```

```
8\bin\java.exe' '-XX:+ShowCodeDetailsInExceptionMessages' '-
Wardhana
Javascript
Toyota
d
Expertbook
```

8. int[] getInversedArray(int[] array)

Method

```
    public static int[] getInversedArray(int[] array){
        int[] newArr = new int[array.length];

        for(int i = 0, j = array.length-1; i < array.length; i++,
j--){
            newArr[j] = array[i];
        }

        return newArr;
    }
```

Main

```
    public static void main(String[] args) {

        int[] arr1 = {1, 9, 3, 5, 6, 0};
        int[] arr2 = {37468, 42379, 382340, 29232, 5483139, 492};
        int[] arr3 = {-37468, 42379, -382340, 29232, -5483139, 492};
        int[] arr4 = {1, 9, 2, 5, 3, 4};

        System.out.println("Reversed element of arr1: ");
        for(int i = 0; i < arr1.length; i++){
            System.out.print(getInversedArray(arr1)[i] + " ");
        }
        System.out.println("\nReversed element of arr2: ");
        for(int i = 0; i < arr2.length; i++){
            System.out.print(getInversedArray(arr2)[i] + " ");
        }
        System.out.println("\nReversed element of arr13: ");
        for(int i = 0; i < arr3.length; i++){
            System.out.print(getInversedArray(arr3)[i] + " ");
        }
        System.out.println("\nReversed element of arr4: ");
        for(int i = 0; i < arr4.length; i++){
            System.out.print(getInversedArray(arr4)[i] + " ");
        }
    }
```

Output

```
Reversed element of arr1:
0 6 5 3 9 1
Reversed element of arr2:
492 5483139 29232 382340 42379 37468
Reversed element of arr13:
492 -5483139 29232 -382340 42379 -37468
Reversed element of arr4:
4 3 5 2 9 1
```

```
8\bin\java.exe' '-XX:+ShowCodeDetailsInExceptionMessages' '-cp'
Reversed element of arr1:
0 6 5 3 9 1
Reversed element of arr2:
492 5483139 29232 382340 42379 37468
Reversed element of arr13:
492 -5483139 29232 -382340 42379 -37468
Reversed element of arr4:
4 3 5 2 9 1
```

Problem 4.2

1. void printStudentInfo(Student s)

Method

```
    public static void printStudentInfo(Student s){
        System.out.println("Student's Name: " + s.name);
        System.out.println("Student's Age: " + s.age);
    }
```

Main

```
        Student s1 = new Student("Ramzy", 19);
        Student s2 = new Student("Wardhana", 20);

        printStudentInfo(s1);
        printStudentInfo(s2);
```

Output

```
Student's Name: Ramzy
Student's Age: 19
Student's Name: Wardhana
Student's Age: 20
```

```
bin' 'homework_42.TestHomework'
Student's Name: Ramzy
Student's Age: 19
Student's Name: Wardhana
Student's Age: 20
PS C:\Users\themi\Downloads\java-prak-asd\fourth-meet\a
```

2. boolean isSameAge(Student s0, Student s1)

Method

```
    public static boolean isSameAge(Student s0, Student s1){
        return s0.age == s1.age;
    }
```

Main

```
        Student s1 = new Student("Ramzy", 19);
        Student s2 = new Student("Wardhana", 20);
        System.out.println(isSameAge(s1, s2));
```

Output

```
false
```

```
false
PS C:\Users\themi\Downloads\java-prak-asd\fourth-meet\
vity>
```

3. Student getYoungestStudent (Student[] students)

Method

```
    public static Student getYoungestStudent(Student[] students){
        int youngest = students[0].age;
        int instance = 0;
        for(int i = 0; i < students.length; i++){
            if(students[i].age < youngest){
                youngest = students[i].age;
                instance = i;
            }
        }
        return students[instance];
    }
```

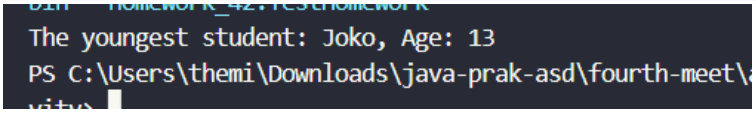
Main

```
Student[] arrStudent = new Student[5];
        arrStudent[0] = new Student("Ahmad", 19);
        arrStudent[1] = new Student("Ridwan", 18);
        arrStudent[2] = new Student("Renata", 17);
        arrStudent[3] = new Student("Joko", 13);
        arrStudent[4] = new Student("Rifki", 20);

        System.out.println("The youngest student: " +
getYoungestStudent(arrStudent).name + ", Age: " +
getYoungestStudent(arrStudent).age);
```

Output

```
The youngest student: Joko, Age: 13
```



4. double getRectangleArea(Rectangle r)

Method

```
    public static double getRectangleArea(Rectangle r){
        return r.width * r.height;
    }
```

Main

```
        Rectangle rect = new Rectangle();
        rect.height = 30;
        rect.width = 40;
        System.out.println(getRectangleArea(rect));
```

Output

```
1200.0
```

```
bin' 'homework_42.TestHomework'
1200.0
```

5. Rectangle getSquare(double d)

Method

```
    public static Rectangle getSquare(double d){
        Rectangle r = new Rectangle();
        r.height = d;
        r.width = r.height;
        return r;
    }
```

Main

```
        Rectangle rect = getSquare(5);
        System.out.println("Rectangle's width: " + rect.width + ",
Rectangle's height: " + rect.height);
        double area = getRectangleArea(rect);
        System.out.println("The area of the rectangle is: " + area);
```

Output

```
Rectangle's width: 5.0, Rectangle's height: 5.0
The area of the rectangle is: 25.0
```

```
bin' 'homework_42.TestHomework'
Rectangle's width: 5.0, Rectangle's height: 5.0
The area of the rectangle is: 25.0
```