Week 4 Practice Questions

Arrays in Java

1.A teacher has a class of 30 students. She wants to store the grades of all students in an array. She needs to calculate the average grade of the class and find the highest and lowest grades.

Tasks:

1. Create an integer array to store the grades of 30 students.
2. Populate the array with random grades between 0 and 100.
3. Calculate and print the average grade of the class.
4. Find and print the highest and lowest grades.
5. Sort the grades in descending order and print the top 5 scores.

2. An online shopping cart stores product prices in an array. The user can add products to the cart, remove products, and calculate the total price.

Tasks:

1. Create a double array to store product prices.
2. Simulate adding products to the cart by populating the array with random prices.
3. Simulate removing products by setting the price to 0.
4. Calculate and print the total price of items in the cart.

Additional Task:Implement a method to find the most expensive and least expensive item in the cart.

Passing arrays in methods

1.Create a Java program that calculates the average of an array of numbers. The program should have two methods:

1. getInputArray(): This method should prompt the user to enter the number of elements in the array and then populate the array with user-entered values.
2. calculateAverage(int[] numbers): This method should take an integer array as input, calculate the average of the numbers, and return the average.

2. Create a Java program to find the largest number in an array. The program should have two methods:

1. fillArray(): This method should fill an array with random numbers within a specified range.
2. findLargest(int[] numbers): This method should take an integer array as input and return the largest number in the array.