CPT111 – Principles of Programming
Week 12 Tutorial
Arrays (Part II)

Learning Outcomes:

- Processing array contents using range-based for loop and normal for loop.
- Arrays as function arguments

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1. The following C++ program skeleton, when completed, will ask the user to enter 10 integers, which are stored in an array. The function `avgArray`, which you must write, is to calculate and return the average of the numbers entered. **Please process the array content using both normal for loop and range-based for loop.**

```
#include <iostream>
using namespace std;

// Write your function prototype here

int main()
{
   const int SIZE = 10;
   int userNums[SIZE];
   cout << "Enter 10 numbers: ";
   for (int count = 0; count < SIZE; count++)
   {
      cout << "#" << (count + 1) << " ";
      cin >> userNums[count];
   }
   cout << "The average of those numbers is ";
   cout << avgArray(userNums, SIZE) << endl; //function call
   return 0;
}

// Write the function avgArray here.
```

2. Develop a C++ program that lets the user enter 10 values into an array. The program should then display the largest and smallest values stored in the array. **Please process the array content using both normal for loop and range-based for loop.**

3. Develop a C++ program to find Largest and Second Largest Even Numbers in an array and display them (**Only use range-based for loop**).

4. Develop a C++ program that lets the user enter the total rainfall for each of 12 months into an array of `doubles`. The program should calculate and display the total rainfall for the year (1st function), the average monthly rainfall (2nd function), and the months with the highest (3rd function) and lowest

amounts (4th function). The program must have input validation and does not let the user enter negative numbers.

5. Develop a C++ program that lets a maker of chips and salsa keep track of sales for five different types of salsa: mild, medium, sweet, hot, and zesty. The program should use two **parallel 5-element arrays**: an array of strings that holds the five salsa names and an array of integers that holds the number of jars sold during the past month for each salsa type. The salsa names should be stored using an initialization list at the time the name array is created. The program should prompt the user to enter the number of jars sold for each type. Once this sales data has been entered, the program should produce a report that displays sales for each salsa type, total sales, and the names of the highest selling and lowest selling product.

6. Define a function definition that accepts three arguments: an array, the size of the array, and a number n. Assume that the array contains integers. The function should display all of the numbers in the array that are greater than the number n. Test your function in a program.

7. In a C++ program, given an array `arr` of integers of size N, the task is to find the count of positive numbers and negative numbers in the array. Define two function definitions `countPositiveNum` and `countNegativeNumb`, each accept two arguments: an array and the size of the array and each return the number of positive and negative values respectively. You need to define another function that prints the content of the array too. Test all your function in a driver function.