

Labsheet 4: Arrays

Arrays

1. Declare an array of type `int`, with 5 elements. *Without* initialising the array, write a program, including a `for` loop, that displays the contents of the array. What do you get as answer?
2. Modify the program you wrote for Question 1 so that the array is initialised with the first five odd numbers using a `for` loop.
3. Modify the program you wrote for Question 1 so that the array is initialized *at declaration* with the first five odd numbers.
4. Declare an array of type `float`, with 12 elements, to hold monthly sales income in thousands of pounds. Write a program that allows a user to input values for the array, compute average sales for the year and then displays the average sales.
5. Write a program that allows a user to input a line of text and displays the number of words in the text and the number of vowels in the text.
6. Write a program that allows a user to input a number of integers in an array and then displays the smallest as well as the largest in the list.
7. Write and test a program that maintains a set of student id numbers (integer in the range 701-799) and average course mark for each student (floating-point number in the range 0.0 to 100.0). The program will allow the user to input the student id number and the coursework mark for each student. After all the input has been entered, the program will display the ids of the students with the highest and the lowest marks. [**Hint:** Use two one-dimensional arrays].

Arrays and functions

8. Write a program with a `main()` that allows the entry of an integer value `n`, followed by two sets of `n` integer values into arrays `A` and `B`. The program should display the sum of corresponding values of `A` and `B` using a function `sumXY()`. Function `sumXY()` takes as input two arrays `X` and `Y` of the same size and displays the sum of corresponding values of `X` and `Y`.
9. Write a program with a `main()` that allows the entry of an integer value `n`, followed by two sets of `n` integer values into arrays `A` and `B`. It should use a function `sumSquareXY()` to calculate the sum of the square of corresponding values of two arrays `X` and `Y`. These values should then be displayed.
10. Write a program with a function `getLargest()` that takes in as parameters an array `x` of integer and an integer value `n` and returns the largest among the first `n` elements of array `x`. Write a `main()` function where you initialize the array with some random values and use the function `getLargest()` to get the max value among the first `n` elements.

11. Write a program with a main() that reads in a sequence of characters until the symbol * is encountered. Use a function displayReverse() that will display the sequence in reverse order. (Make use of arrays).