Kasetsart University, Sriracha Campus

03603111: Programming Fundamentals I

Array

Lab 8

Objective:

- Understand 1-dimentional array in declaration, indexing, and initialization
- Create functions working with array

Exercise 1. Write the program that creates, initializes, and displays the elements of an integer array of size 10. The elements in the array are initialized so that the value of each element in the array is equal to its index + 1.

Note: NO need to get input from keyboard

```
Initializing the array...

Print out index 0 = 1

Print out index 1 = 2

Print out index 2 = 3

Print out index 3 = 4

Print out index 4 = 5

Print out index 5 = 6

Print out index 6 = 7

Print out index 7 = 8

Print out index 8 = 9

Print out index 9 = 10


Printing out the array...

[1, 2, 3, 4, 5, 6, 7, 8, 9, 10]
```

Pseudocode

1. Create an integer array of size 10.
2. Print the message that the array is being initialized.
3. Set the index to zero.
4. While the index is less than 10,
   4.1. Set the array element [index] to the value of the index plus one.
   4.2. Print the array element.
   4.3. Add one to the index.
5. Print the initialized array.

Exercise 2. Write a program to get numbers from user (repeat until user input -1) and display the number of inputs and print the numbers in reverse order.

```
Enter a number (-1 to exit): 1
Enter a number (-1 to exit): 2
Enter a number (-1 to exit): 6
Enter a number (-1 to exit): 7
Enter a number (-1 to exit): 9
Enter a number (-1 to exit):
2
Enter a number (-1 to exit): -1

The number of inputs is 6.
The numbers in reverse order are 2 9 7 6 2 1
```

Pseudocode

1. Create an integer array of moderate size.
2. Set the counter to zero.
3. Print the message asking for an integer number.
4. Read in the input number.
5. If the number is not equal to -1,

5.1. Set the array element [counter] to the input number.
5.2. Add one to the counter.

6. While the number is not equal to -1,

6.1. Repeat the steps 3-6.

7. Print the number of input data.
8. Print “The numbers in reverse order are”.
9. Set the index to the counter minus one.
10. While the index is greater than or equal to zero,

10.1. Print the array element [index]. 10.2. Subtract one from the index.

Exercise 3. Write a program to get 5 numbers from user and write a function to find the maximum number and its position.

Note: You need to keep the numbers using array, and pass the array to the function.

```
Enter number#1: 1
Enter number#2: 7
Enter number#3: -1
Enter number#4: 4
Enter number#5: 5

The maximum value is 7 at index 1.
```

Exercise 4. Write a program to get numbers from user (repeat until user input -1) and a function to find the summation of the numbers.

Note: You need to keep the numbers using array, and pass the array to the function.

```
Enter a number (-1 to exit): 1.50
Enter a number (-1 to exit): 9.50
Enter a number (-1 to exit): 11.00
Enter a number (-1 to exit): 4.50
Enter a number (-1 to exit): -1

The summation of [1.50, 9.50, 11.00, 4.50] is 26.50.
```

Exercise 5. Write a program to get 2 inputs from user, the first input is the list of numbers (repeat until user input -1) and the second is an integer number. Then write a function for checking if the second is in the first input.

Note: You need to keep the numbers using array, and pass the array to the function.

```
Enter an integer (-1 to exit): 1
Enter an integer (-1 to exit): 2
Enter an integer (-1 to exit): 3
Enter an integer (-1 to exit): 4
Enter an integer (-1 to exit): 5
Enter an integer (-1 to exit): -1

Enter the number to search: 4

4 is found in [1,2,3,4,5] at index 3.
```

```
Enter an integer (-1 to exit): 1
Enter an integer (-1 to exit): 2
Enter an integer (-1 to exit): 3
Enter an integer (-1 to exit): 4
Enter an integer (-1 to exit): 5
Enter an integer (-1 to exit): -1

Enter the number to search: 8

Sorry, 8 is not in [1,2,3,4,5].
```