

CPE 150 Laboratory 13: Pointers and Strings II

Department of Computer Engineering
Yarmouk University

Summer 2017

1 Objectives

- To declare arrays, initialize arrays and refer to individual array elements.
- To be able to pass arrays to functions.
- To understand basic sorting techniques.
- To understand basic searching techniques.
- To be able to declare, initialize and manipulate multiple-subscript arrays.

2 Lab Exercise 1 - Shell Program

Write a program to prompt the user to enter a string then prompt the user to perform one the following operations on that string:

Enter the operation you wish to perform on the string:

1. String Length, 2. String Concatination, 3. String Copy, 4. String Upper Case
5. String Lower Case, 6. String Comparison, 7. String Tokenization

Below is a sample output:

```
Enter a string: I love makmoora
```

```
Enter the operation you wish to perform on the string:
```

1. String Length, 2. String Concatination, 3. String Copy, 4. String Upper Case
5. String Lower Case, 6. String Comparison, 7. String Tokenization

```
Your choice (-1 to quit)> 1
```

```
String Length: 15
```

```
Enter a string: I love makmoora!
```

```
Enter the operation you wish to perform on the string:
```

1. String Length, 2. String Concatination, 3. String Copy, 4. String Upper Case
5. String Lower Case, 6. String Comparison, 7. String Tokenization

```
Your choice (-1 to quit)> 2
```

```
Enter the target string: and mansaf!
```

```
Result: Ilove makmoora and mansaf!
```

```
Enter a string: I love makmoora!
```

```
Enter the operation you wish to perform on the string:
```

1. String Length, 2. String Concatination, 3. String Copy, 4. String Upper Case
5. String Lower Case, 6. String Comparison, 7. String Tokenization

Your choice (-1 to quit)> 3

Copied String: I love makmoora!

Enter a string: I love makmoora

Enter the operation you wish to perform on the string:

1. String Length, 2. String Concatination, 3. String Copy, 4. String Upper Case
5. String Lower Case, 6. String Comparison, 7. String Tokenization

Your choice (-1 to quit)> 4

The Upper Case of String is: I LOVE MAKMOORA

Enter a string: I love makmoora!

Enter the operation you wish to perform on the string:

1. String Length, 2. String Concatination, 3. String Copy, 4. String Upper Case
5. String Lower Case, 6. String Comparison, 7. String Tokenization

Your choice (-1 to quit)> 5

The Lower Case of String is: i love makmoora

Enter a string: I love makmoora!

Enter the operation you wish to perform on the string:

1. String Length, 2. String Concatination, 3. String Copy, 4. String Upper Case
5. String Lower Case, 6. String Comparison, 7. String Tokenization

Your choice (-1 to quit)> 6

Enter the string you wish to compare with the previous string: I love mansaf!

String Comparison Result: -1

Enter a string: I love makmoora!

Enter the operation you wish to perform on the string:

1. String Length, 2. String Concatination, 3. String Copy, 4. String Upper Case
5. String Lower Case, 6. String Comparison, 7. String Tokenization

Your choice (-1 to quit)> 7

I

love

makmoora!

3 Lab Exercise 2 - Morse Code Converter

Morse code is a code where each letter of the English alphabet, each digit, and various punctuation characters are represented by a series of dots and dashes. The following table shows part of the code. Write a program that asks the user to enter a string, and then converts that string to Morse code.

| Character | Code | Character | Code | Character | Code | Character | Code |
|---------------|--------------|-----------|---------|-----------|-------|-----------|-------|
| space | <i>space</i> | 6 | -.... | G | ---. | Q | ---.- |
| comma | --..--- | 7 | --... | H | ... | R | .-. |
| period | .-.-.- | 8 | -----.. | I | .. | S | ... |
| question mark | ..---.. | 9 | -----. | J | .---- | T | - |
| 0 | ----- | A | .- | K | -.- | U | ..- |
| 1 | .------ | B | -... | L | .-.. | V | ...- |
| 2 | ..----- | C | -.-. | M | -- | W | .--- |
| 3 | ...--- | D | -.. | N | -. | X | -..- |
| 4 |- | E | . | O | ---- | Y | -.-- |
| 5 | | F | ..-. | P | .-.-. | Z | --.. |

4 Postlab Exercise

Implement the `strncpy` function of the standard library.