Programming – TU857/1

Lab 14 – Thursday, February 22nd, 2024

Note: You are expected to finish all programs in your own time if you do not get these done during the lab session. This is your own responsibility.

Strings (part 1)

Remember: Use Symbolic names in your programs. Do not hard-code.

Write separate programs to:

1. Q1, Q2, Q3, Q5 (see below). Write very small programs for each of these questions. Compile (if possible, correct them if not) and run them. See the output of the program.

Mandatory Exercise Question – You must complete and Demo to your Lab TA

2. Q6 (see below). Hint: Try to use *fgets()* and *puts()* to read/write strings.

3. Write a program to display how a character array (e.g., *char my_word[]*) can be initialised with a string. Try both ways, i.e. (i) initialising each element of the array with a specific character, (ii) initialise the array automatically with a string in double-quotes. What happens if you initialise each element of the array and do not include the null character? Print the string and see.

   Print out the contents of the array. Does the null character get printed? Try printing the null character after the last letter in the string - what is displayed?

   Change your code and test it to see the different ways you can output the contents of the character array as a string.

1. What do the following `printf()` statements display?

```
(a)  printf( "%5s", "abcd" ) ;
(b)  printf( "%5s", "abcdef" ) ;
(c)  printf( "%-5s", "abc" ) ;
(d)  printf( "%5.2s", "abcde" ) ;
(e)  printf( "%-5.2s", "abcde" ) ;
```

2. Given the following array definition,

```
char name[] = { 'R','o','b','e','r','t' } ;
```

what is wrong with the following statements?

```
(a)  puts( name ) ;
(b)  scanf( "%s", &name ) ;
(c)  strcpy( name, "Philip" ) ;
(d)  *( name + 5 ) = "a" ;
(e)  name = "Philip" ;
```

3. Given the following definition,

```
char *text = "some text" ;
```

what is the output from each of the following?

```
(a)  printf( "%s\n", text ) ;
(b)  printf( "%c\n", *text ) ;
(c)  printf( "%c\n", *"more text" ) ;
(d)  printf( "%c\n", *(text+1) ) ;
(e)  printf( "%s", text+1 ) ;
(f)  printf( text ) ;
(g)  *( text + 4 ) = '\0' ; printf("\n%s\n", text) ;
(h)  printf ( "%c", "text"[2] ) ;
(i)  printf ( "%s", "text" + 2 ) ;
```

5. What is the output from the following two program segments?

(a)
```
char *p = "abcd" ;
while ( *p )
  putchar( *p++ ) ;
```

(b)
```
char *text  = "abcd" ;
char *p = text ;
p += strlen( p ) - 1 ;
while ( text <= p )
  puts( p-- ) ;
```

6. Write a program to read in your name and display it with a space between each letter. For example, John gets displayed as J o h n.