COMP 30400 – Programming I & II
Lab 4 – 2 hours

Practical Overview

This practical is for Lecture 4. All portfolio programs from now on (including this practical) require a header at the start of every source file. Refer to lecture notes on how to format it. Comments are expected throughout the code, where relevant. They should be used to discuss motivations for your approach and alternative ways of implementing the solution where appropriate.

1) Portfolio Program 14
Write a program which creates an unsigned integer.
Initalise the variable to have a value of '1'
Use printf() to display it's value.
Subtract 2 from the variable.
Use printf() to display it's value (should not be -1!).
What value is displayed? Why?

2) Portfolio Program 15
Create a program with a char variable.
In this program we are going to treat the char variable as a byte.
Initialise the variable to have a value of 0 (not the '0' character).

Create a while loop, which loops 10000 times.
In the loop body, add 1 to the char variable, and then printf the new value in the variable.

When you run this program, look at the output, does the final printf output 10000, or 9999 (or something else)? Why?

3) Portfolio Program 16
Write a program that asks the user to enter a word.
Use a while loop to count how many characters the user input.
Display the number to the user.

Hints:
At the end of the character array, there will be a null character, '\0'.

4) Portfolio Program 17
Based on program 16, do the same task, using a for loop instead of a while loop.

5) Portfolio Program 18
Guess the word
Your program knows a secret word. This word should be defined as a constant variable.
Loop asking the user to guess a word until they get it right.

Hints:
const char SECRET[] = "pink";

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        if ( strcmp( SECRET, guess) == 0 )
                printf("Correct guess – well done\n");
        else
                printf("Sorry %s is not the secret word\n");
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6) Portfolio Program 19
Based on program 18, modify it so the user gets only 3 guesses at the word.
This should use a for loop.

7) Portfolio Program 20
Copy the fgets example into a .c file, compile and run it.
Add comments into the file to explain what is happening.

Write a similar program, where you expect the user to enter a single word which you input using scanf().

Run each program, and enter the same word into each. Can you spot any difference in the 2 programs? Document this in your comments.

8) Portfolio Program 21
Write a program that asks the user to input any number of words. Reverse the order of the letters in each word, and print them back out to the user.

Example input: this question sometimes appears in interviews
Correct output: siht noitseuq semitemos sraeppa ni sweivretni

Hints: You'll need 2 loops to do this.
        Try to divide this program into separate steps and plan how it should work before attempting to program it.

9) Portfolio Program 22
Write a program that asks the user to input any number of words. Replace all the vowels with the '$' symbol. Display the result back to the user.

Example input: here are some words.
Correct output: hr r sm w$rds.

10) Remember to backup your portfolio.