

COS10008 – Foundations of Technical Programming

Foundations of Technical Programming

Week 6

You may be asked to demonstrate/explain your work to the tutor, if you are absent/unavailable or fail to demonstrate properly, zero marks will be awarded.

Task 6.1

The following sample program finds the average of 10 integers

```
#include <stdio.h>
int main( )
{
    int sample[10], i, total;
    for(i = 0; i < 10; i++) {
        printf("Enter a number \n");
        scanf("%d",&sample[i]);
    }
    total = 0;
    /* add up the numbers*/
    for (i = 0; i < 10; i++)
        total = total + sample[i];

    printf ("The average is %d\n",total/10);
    return 0;
}
```

Extend the program to calculates the followings:

- Maximum value and
- Minimum value

Task 6.2

The following program reads a string and prints its back.

```
#include <stdio.h>
int main()
{
    char str[80];
    printf("Please enter a string:\n");
    gets(str); /* read a string from keyboard*/
    printf("%s", str);
    return 0;
}
```

Your task is to extend this code to

- Count and print the number of characters in the String (including spaces and other characters)
- Read a character from the user and search how many times that character appeared in the string

Sample:

Input a String: Welcome to Swinburne

<output> **The string contains 15 characters**

Input the search letter: s

<Output>: **The letter s appeared 1 time/s**

Sample:

Input a String: Turn it on

<output> **The string contains 10 characters**

Input the search letter: a

<Output> **The letter a appeared 0 time/s**

Task 6.3

Write a C program that reads marks of 10 students in COS10008 unit. Your program to sort the marks in the descending order.

Note: Your program should accept only valid marks (0-100).

Sample:

Enter 10 marks

25
87
95
14
36
85
94
59
56
57

Outout: Marks in Descending order

95
94
87
85
59
57
56
36
25
14