Staffordshire University  
Faculty of Computing, Engineering & Science  
School of Computing

CESCOM10075-4  
Hardware & Computer Systems

Semester 1 Week 12

Tutorial Sessions Exercises & Portfolio Assignments

The following exercises have been marked as “Formative” or “Summative”.

**Formative**: As practice exercises only and will not count towards your module grade.   
You may, of course, ask for feedback on each.

**Summative**: These will be marked by the tutors during the HCS practical sessions that you are registered to attend in K025.  
In each case, a deadline for marking has been set.

1. **Formative**Starting with Wk11L2Ex5.c  
   Modify the code to include a function that will carry out the search when passed the array and an employee number and output a suitable message to the screen – bearing in mind that an invalid employee number may be entered.  
   Save this as Wk12Task1.c
2. **Formative**Starting with Wk12Task1.c  
   Modify the array such the values are as follows  
     
    21 10000  
    22 15600  
    23 10000  
    24 56000  
    25 13250  
    26 24750  
    27 18750  
    28 56250  
    29 22450  
    30 27500  
     
   Where the first column is the employee number and the second their salary.  
   Save as Wk12Task2.c
3. **Summative**Starting with Wk12Task2.c  
   Modify the search function such that it will allow the user to enter a salary and return the matching employee number. Again a suitable message should be output to the screen.  
   Save as Wk12Task3.c
4. **Summative**Starting with Wk12Task3.c  
   Modify the search function such that it will allow the user to enter a salary and return all of the employee numbers that match. Again a suitable message should be output to the screen.  
   Save as Wk12Task4.c
5. **Summative**Starting with Wk12Task4.c  
   Modify the search function such that it will allow the user to enter two salary values to indicate upper and lower values and then output all employee numbers who’s salary falls within the given range. Again a suitable message should be output to the screen.  
   Save as Wk12Task5.c

The next tasks will be utilising some of the material covered during the Week 12 Lectures

1. **Formative.**Enter the following code using your chosen development environment and make sure that you fully understand it.  
     
   /\* Week 12 Lecture 2

Example - Menu Template

Outline template for menu driven system

\*/

#include <stdio.h>

/\* Function prototypes \*/

void fnOption1(void);

void fnOption2(void);

void fnOption3(void);

int main(void)

{

int nChoice = 1; /\* Need an initial value \*/

while(nChoice != 4)

{

printf("\nMain Menu ...\n");

printf("1 Option 1\n");

printf("2 Option 2\n");

printf("3 Option 3\n");

printf("4 Exit\n\n");

printf("Please enter your choice : ");

scanf("%d", &nChoice);

printf("\n");

switch(nChoice)

{

case 1: fnOption1();

break;

case 2: fnOption2();

break;

case 3: fnOption3();

break;

case 4: break;

default: printf("Invalid input, please try again\n\n");

}

}

return 0;

}

void fnOption1(void)

{

printf("\nYou selected Option1\n");

}

void fnOption2(void)

{

printf("\nYou selected Option2\n");

}

void fnOption3(void)

{

printf("\nYou selected Option3\n");

}  
  
Save as Wk12Task6.c

1. Summative  
   Start by combining the code from Wk12Task5.c with that from Wk12Task6.c and create a program that will allow the user decide whether to search using the employee number or the salary.  
   For employee number, the user should be asked to input a single value (as above in Wk12Task1 .c)  
   For salary, the user should be able to enter a single value or a range of values (as in Wk12Task4.c and Wk12Task5.c).  
   In all cases, the program should output suitable messages.

The deadline for the above tasks is as detailed within the outline document that is available on Blackboard.

**Please note:**  
At the time of demonstrating your code, during the practical sessions in K025, any code that will not compile will be awarded 0 (zero) marks.

Please make sure that you save all of your work to a suitable location (e.g. the ‘H’ drive or a USB drive) so that you can upload the summative exercises to Blackboard.

Instructions of how this is to be done will be issued in due course.