SOUTH EASTERN UNIVERSITY OF SRI LANKA
FIRST EXAMINATION IN BACHELOR OF INFORMATION AND COMMUNICATION TECHNOLOGY - 2018/2019
SEMESTER – I, AUGUST 2021

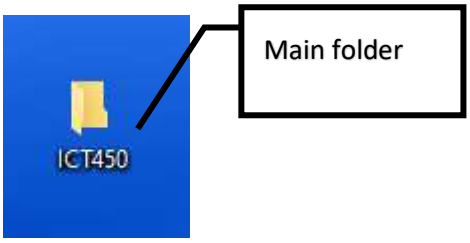
SWT11022 – Practical for Fundamentals of Programming

Answer all Questions. **Time Allowed: 03 hours.**

Instructions:

1. Strictly follow the rules and regulations given by the head of the department and follow the below steps by steps instruction.
2. Time allowed three hours.
3. Attempt all questions.
4. Before the exam time starts; check your computer for the availability of the C programming compiler and editor, also confirm that is working fine.
5. **Create a folder** (main folder) on your Desktop with **your index number** and within that folder create three (03) sub-folders with the name **Question 01**, **Question 02**, **Question 03**.

Example:



6. Save your all files into their **relevant folders**.
7. Files must be named as the instructions given on each question.

After the exam is over (One hour time will be given to you to do, all the below tasks)

8. **Immediately after finishing the exam time:** Save each answers file including C codes into the **pdf file**; with the same **filename**, within its relevant folder.
9. Combine all the pdf file into one file and save them on the main folder (index numbered folder) as a PDF file.
10. Zip the above main folder (Index numbered folder) on the desktop and UPLOAD immediately to the LMS within **20 Minutes time** from the end of the exam period (**no more extensions will be given**).
11. Prepare the video to explain as per the instruction given by the department and share the link on LMS
12. **There won't be any extra time**, therefore don't wait until the last minute.

Question 01:

A) Create a C program to count the number of occurrences of the word '**repetition**' in the file. Save your program as **Question_01_A.c**. Take a screenshot using Snipping Tool in Microsoft Windows and save that screenshot of the output window with the **Q01Out.jpg**

Inside your working folder (**Question 01**), create a **text file** named "**data.txt**" that contains the following lines.

repetition is the act of repeating or restating something more than once. In writing, repetition can occur at many levels: with individual letters and sounds, single words, phrases, or even ideas. repetition can be problematic in writing if it leads to dull work, but it can also be an effective poetic or rhetorical strategy to strengthen your message, as our examples of repetition in writing demonstrate.

Sample Output:

```
Enter file path: C:\Users\Haleem\Desktop\ICT450\Question 01\data.txt
Enter a word to search in the file: single
'single ' is found 1 time(s) in the file.
```

(15 Marks)

B) Compute the average weight for a population of elephant seals read into an array. Save your program as **Question_01_B.c**. The sample output is shown below.

```
Enter the numbers of weights you are going to enter (number is in between 0 and
1000): 5

Enter the weights into the array

Enter weight 1: 1
Enter weight 2: 2
Enter weight 3: 3
Enter weight 4: 45
Enter weight 5: 78

Average weight for the set of the elephant seals. = 25.8000 units
```

(10 marks)

[25 Marks]

Question 02:

By following the instructions below, create a C program to convert a binary number to a decimal number and a decimal number to a binary number using a function.

Save your program as **Question_02.c.** Take a screenshot using Snipping Tool in Microsoft Windows and save that screenshot of the output window with the **Q02Out.jpg**

i. Make a function called **'int dec_to_bin(int n)'** that contains the logic for converting a decimal number to a binary number.

ii. Make a function called '**int bin_to_dec(int n)'** that contains the logic for converting a binary number to a decimal number.

iii. To obtain an input number from the user and perform a number type conversion, use a switch case statement or if-else logic.

Ex:

If the user entered 'b' or 'B' - convert decimal to binary

If the user entered 'd' or 'D' - convert binary to decimal

Sample output:

```
Instructions:
1. Enter alphabet 'd' to convert binary to decimal.
2. Enter alphabet 'b' to convert decimal to binary.

Enter your choice: d

Enter a binary number: 1011

1011 in binary = 11 in decimal
```

```
Instructions:
1. Enter alphabet 'd' to convert binary to decimal.
2. Enter alphabet 'b' to convert decimal to binary.

Enter your choice: B

Enter a decimal number: 12

12 in decimal = 1100 in binary
```

[25 Marks]

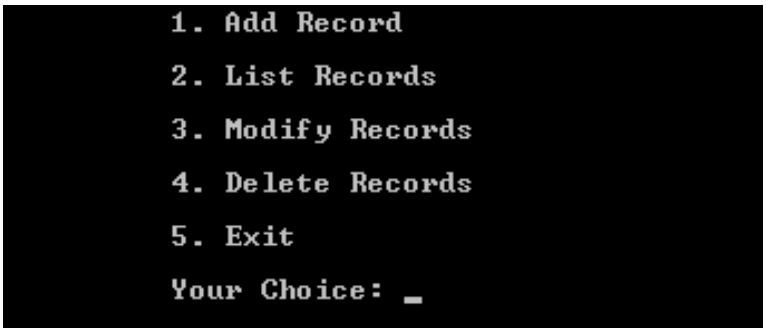
Question 03:

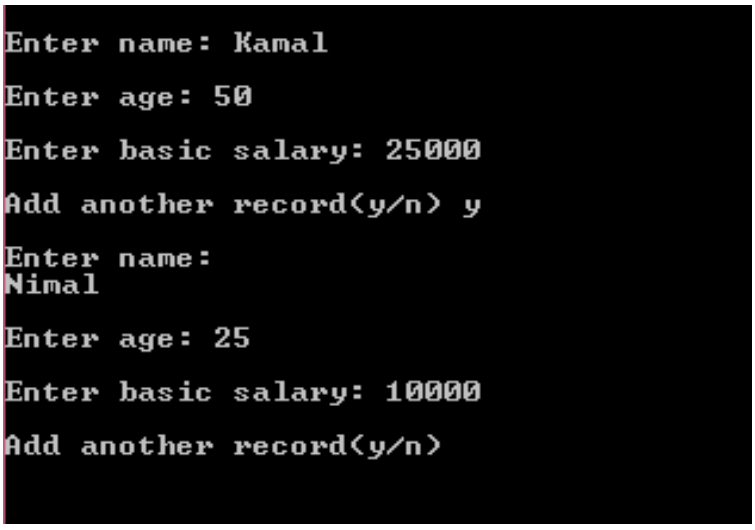
A) You are requested to implement an Employee Management System for ABC Shipping (Pvt) Ltd organization. Write a program for the part of the following requirement in your system.

Save your program as **Question_03.c**

- Define a structured **Employee** with the following attributes. Name, age, and Basic salary.
- Implement separate functions to perform the following operations.
    i. Create an option called **Add Record** to input details about each employee.

Main window/ Main Options





When the user enters **'y'** when the system asks '**Add another record?**' you must enter another record; otherwise, if the user enters **'n'**, the system return to the main window / main option list. Records can be saved in either a .txt or an array format.

(10 marks)

ii. Create an option called List Records, to display current records.

Return to the main window / main option list.

```
Kamal  50  25000.00
Nimal   25 10000.00
```

(10 marks)

iii. Create a **Modify Records** option that allows users to change employee information.

```
Enter the employee name to modify: Kamal

Enter new name,age and bs: Sunil, 65, 30000
Modify another record(y/n)
```

(10 marks)

iv. Create an option called **Delete Records** to delete a record.

```
Enter name of employee to delete: Sunil
Delete another record(y/n)
```

(10 marks)

v. Create an **Exit** option to terminate the system.

```
                        1. Add Record
                        2. List Records
                        3. Modify Records
                        4. Delete Records
                        5. Exit
                        Your Choice: 5
Process returned 0 (0x0)   execution time : 2.325 s
Press any key to continue.
```

(10 marks)

[50 Marks]
[Total 100 Marks]

**** END ****