CSE102 – Computer Programming (Spring 2021)
Homework # 9

Handed out: 11.55pm May 4, 2021.

Due: 11.55pm May 19, 2021.

Hand-in Policy: Via Moodle. No late submissions will be accepted.
Collaboration Policy: No collaboration is permitted.
Grading: This homework will be graded on the scale of 100.

Description: In this homework, you will implement a sequence model for banking system. This homework will be implemented by using **Structs** in **C**.

The bank has five type of customer, which are labelled as 0, 1, 2, 3, 4. These labels showed us customer's job. 0 is employee, 1 is retired, 2 is student, 3 is unemployed and 4 is other.

Each customer's construct must include **Name**, **Age** and **Label**. These are will be get from user input with using command line. Name, age and label must be keep in struct.

Banking system keeps maximum 50 customer in same time.

Label 0 has the highest priority, then 1, 2, 3, 4 have the lower priorities respectively.

Example : sequence contains 0-0-0-1-2-2-3-4-4-5 and new customer want to join with label 1. Sequence will be updated like this : 0-0-0-1-**1**-2-2-3-4-4-5

To prevent starvation when occur 0 labelled customers comes continuously, each type of customer has limitations like this: **0 label** customer can join **5 times** in a row, **1 label** customer can join **3 times** in row, **2 label** customer can join **3 times** in a row, **3 label** customer can join **2 times** in a row, **4 label** customer can join **2 times** in a row.

Example : sequence contains 0-0-0-0-1-1-2-3-3-4 , if two customers want to join sequence label 1, the new sequence will be like this: 0-0-0-0-1-1-**1**-2-3-3-4-**1,**

sequence contains 0-0-0-0-1-1-2-3-3-4 , if one customers want to join sequence label 0, the new sequence will be like this: 0-0-0-0-**0**-1-1-2-3-3-4**,**

sequence contains 0-0-0-0-1-1-2-3-3-4 , if one customers want to join sequence label 3, the new sequence will be like this: 0-0-0-0-1-1-2-3-3-4-**3**

Program should appear as follows:

***********Banking System***********

Current Sequence:

1-Add customer

2-Process customer

2

There is not any customer in bank system sequence.

Current Sequence:

1-Add customer

2-Process customer

1

Please enter the name of the customer : Jack

Please enter the age of the customer : 26

Please enter the label of the customer : 2

Current Sequence: 2

1-Add customer

2-Process customer

1

Please enter the name of the customer : Henry

Please enter the age of the customer : 38

Please enter the label of the customer : 3

Current Sequence: 2 - 3

1-Add customer

2-Process customer

// After some additions

Current Sequence: 2-3-4-4

1-Add customer

2-Process customer

2

Proceed customer is Jack

Current Sequence: 3-4-4

1-Add customer

2-Process customer

2

Proceed customer is Henry

Current Sequence: 4-4

1-Add customer

2-Process customer

// Continue like these

What to hand in: You are expected to hand in c code file. Your implementations should be completed in "hw9_io.c" and "hw9_lib.c".

- **HW9_lastname_firstname_studentno.c / HW9_lastname_firstname_studentno.c**