Department of Software / Computer Engineering

SENG114 & CENG104 – Computer Programming II

Spring 2021 - 2022

Lab Guide #8 – Week 10

OBJECTIVE : Binary Files

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Q1. Write a C program that gets the information of several customers from a binary file named **customer_info.bin**. Binary file contains the **SSN**, **name**, **surname** and **account code** of several customers.

HINT: All fields should be strings with sizes maximum **10**, **20, 20, 20** characters long respectively!

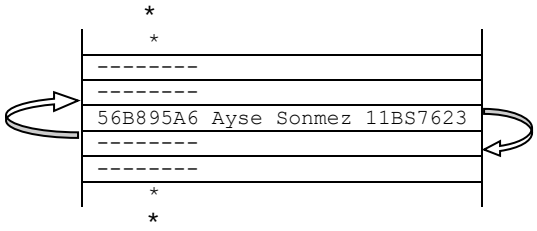
Your program will display the information of the;

a) 1st customer,
b) Last customer
c) customer whose order (e.g. 5; 5th customer) is inputted from the user,
d) customer whose SSN (e.g. 12A3456789) is inputted from the user,
e) customer before the customer inputted in part d (e.g. 12A3456789),
f) customer after the customer inputted in part d (e.g. 12A3456789).

To the screen in the specified order.

In order to reduce repetition and complexity, and increment modularity, write a function called **display** to show a customer's information on the console (see the below example runs).

NOTE: Do not forget to validate user inputs and give warning messages, when necessary, as in the example runs.



Example Run#1:

```
1st customer
SSN          : 20S603229
Name         : Emre
Surname      : Altay
Account Code: 245A24HD

Last customer
SSN          : 20G502670
Name         : Oguzhan
Surname      : Tumer
Account Code: 5423HW543

Customer order: 10

10. customer
SSN          : 2A0501007
Name         : Sarp
Surname      : Kuvac
Account Code: J45OI603

Search for: 20G502670

The customer before
20G502670
SSN          : 2050J0944
Name         : Tamer
Surname      : Sezgin
Account Code: 023JWQRT

20G502670 the last
customer
```

Example Run#2:

```
1st customer
SSN          : 20S603229
Name         : Emre
Surname      : Altay
Account Code: 245A24HD

Last customer
SSN          : 20G502670
Name         : Oguzhan
Surname      : Tumer
Account Code: 5423HW543

Customer order: 22

22. customer
SSN          : 206P01365
Name         : Alper
Surname      : Ozcetin
Account Code: WQR743NS5

Search for: 20S603229

20S603229 first customer

Customer after 20S603229
SSN          : 2C0503966
Name         : Gizem
Surname      : Altay
Account Code: SF73459
```

Example Run#3:

```
1st customer
SSN          : 20S603229
Name         : Emre
Surname      : Altay
Account Code: 245A24HD

Last customer
SSN          : 20G502670
Name         : Oguzhan
Surname      : Tumer
Account Code: 5423HW543

Customer order: 27

27. customer
SSN          : 20V700476
Name         : MertCan
Surname      : Yalhi
Account Code: 34FGSVBD5

Search for: 98JDEF758
98JDEF758 could not be found!

Search for: HD735G63
HD735G63 could not be found!

Search for: 207017M44

SSN          : 207017M44
Name         : Deniz
Surname      : Eroglu
Account Code: 454HSD7

Previous customer before
207017M44
SSN          : 20N602909
Name         : Beril
Surname      : Cetin
Account Code: 874SDF73

Next customer after 207017M44
SSN          : 2T0501457
Name         : Erkan
Surname      : Eroglu
Account Code: JH45M23DF
```

Project Name: LG8_1
File Name: Q1.cpp

Q2. Write a C program that gets several car information from a file named car_info_bin.bin which are stored with their **car_num** as an integer, **car_user** as a character array, **miles_driven** as an integer and **gallons_used** as an integer, please see the below demostration.

```
25 Jones   1450 62
36 Robbins 3240 136
44 Smith   1792 76
52 Swain   2360 105
68 Timmins 2114 67
```

Project Name: LG8_2
File Name: Q2.cpp

Program creates car_id for all cars in the file and displays on the screen, by using following method.

Get the first two characters of car_user, for example;**Jones**, get **"Jo".**

Get the car_num, and convert it to string, which is **25** for Jones.

Get the gallons usage for one mile and convert it to string, which is **1450/62 = 23** for the first car info.

Then concatenate all of them and create car_id; **Jo25-23**.

To concatenation operation, you need to convert integer numbers into strings. Therefore, you are supposed to define a function called **convertString** which takes an integer number and a character array.

Example Run:

```
CAR NUM CAR USER MILES DRIVEN GALLONS USED CAR ID
------- -------- ------------ ------------ ------
   25     Jones      1450          62      Jo25-23
   36     Robbins    3240         136      Ro36-23
   44     Smith      1792          76      Sm44-23
   52     Swain      2360         105      Sw52-22
   68     Timmins    2114          67      Ti68-31
```