PROCEDURAL PROGRAMMING

PROJECT – SURVEY

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GMIT

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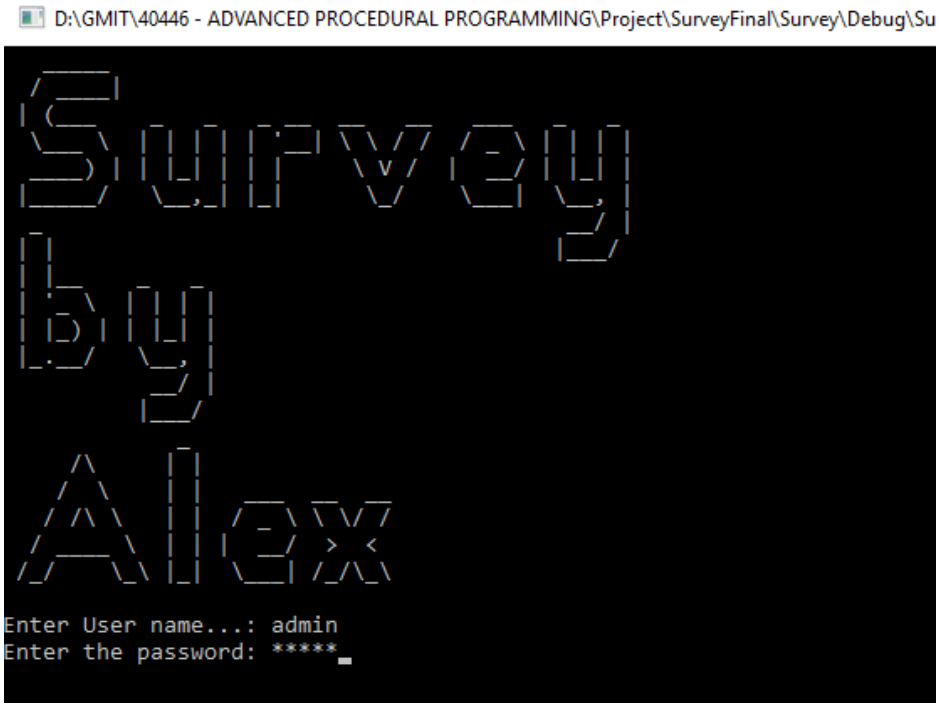
INTRODUCTION

Custom-surveys Ltd. currently performs surveys in Ireland and has requested you to develop a new survey program for them.

This program will create a database which will store the details of all the surveys. In addition to storing all the survey data the application should allow survey statistics to be generated.

Your program should create the database (which for your purpose will be implemented as a linked list) and be able to save, restore, retrieve, add, delete and update survey details.

PASSWORD CHECK



Username.: admin

Password.: 123456

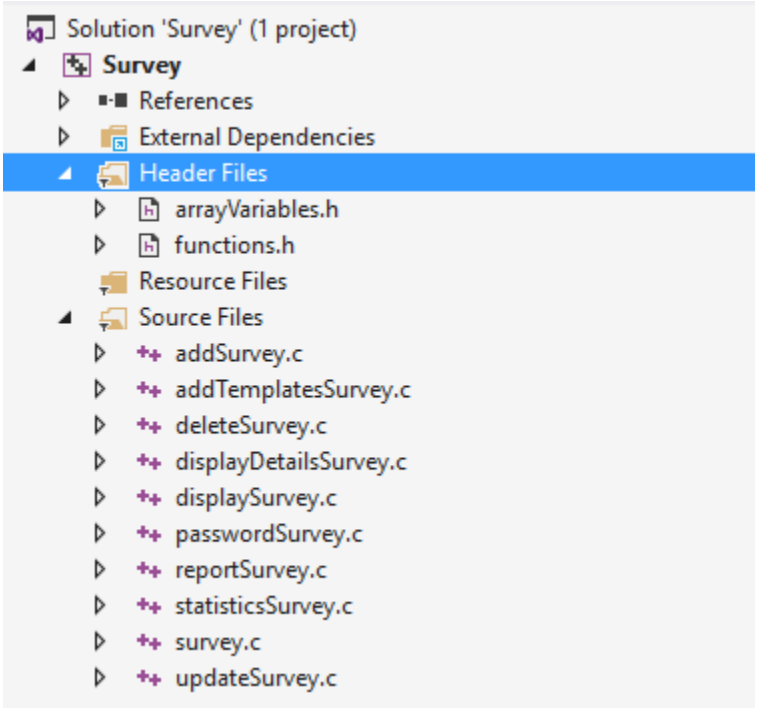
Each password character and read after pressing each key, and then replaced by the character represented by "*".

The entire process is done inside a loop controlled by a count three times.

```
// Loop 6 times represents 1 loop for each char password
for (i = 0; i < 6; i++)
{
    ch = getch();
    password[i] = ch;
    ch = '*';
    printf("%c", ch);
}

password[i] = '\0';

/* while not end of file */
while (!feof(myFile))
{
    // scan into the file each line for user name and pawssword
    fscanf(myFile, "%s%s%", chechUser, checkPassword);

    // compare username and password
    if (strcmp(chechUser, usrname) == 0 && strcmp(checkPassword, password) == 0) {
        pass = 3;
        sentinel = 1;
    }

} /* end while */


if (sentinel == 0) // condition for wrong password
{
    printf("\n\nWrong username or password, try again...\n\n");
    fclose(myFile);
}
```

HEADER FILES AND SOURCE FILES

To provide all the code reading and also a better organization, I also divide the code am different file.



functions.h

In this file I declared all the variables that make up the Struct to all our declarations of functions.

```c
#include <stdlib.h>
#include <stdio.h>
#include <conio.h>
#include <string.h>
#include "arrayVariables.h"

//Struct
typedef struct {
    int age;
}age_t;

typedef struct {
    int income;
}income_t;
```

```c
//Struct book take struct date
struct listElement {
    int pps;
    char firstName[40];
    char secondName[40];
    char address[40];
    char email[40];
    int Gender;
    age_t age;
    income_t income;
    exercise_t exercise;
    alcohol_t alcohol;
    cigarettes_t cigarettes;

    struct listElement *next;
};

// Declare functions
void openSurvey(struct listElement** head);
void saveSurvey(struct listElement* head);
void passwordSurvey();
void reportSurvey(struct listElement* head);
void addElement(struct listElement** head);
void addElement_AtStart(struct listElement** head, int pps);
void fillData(struct listElement* head, int PPS);
int verifyId(struct listElement* head, int PPSVerify);
int verifyPosition(struct listElement* head, int pps);
void displayElements(struct listElement* head);
```

arrayVariables.h

For this file I declare static variables related values of some fields of the survey that will be represented in text format.

```
/**
@desc Array with all descriptions
@param
@return
*/

 static char genderArray[2][40] = { "Male",  "Female" };
 static char ageArray[5][40] = { "18-20 yrs", "20-30 yrs", "30-50 yrs", "50-65 yrs", "65 +  yrs" };
 static char incomeArray[7][40] = { "No Income", "Less than €20,000", "Less than €40,000", "Less than €6
 static char exerciseArray[4][40] = { "Never", "Less than three times per week", "Less than five times p
 static char alcoholArray[4][40] = { "None", "Less than 2 units", "Less than 4 units", "More than 4 unit
 static char cigarettesArray[4][40] = { "None", "Less than 20 cigarettes", "Less than 40 cigarettes", "M

static char *descStatistics[12] = { "people who smoke", "people who smoke less than 20 cigarettes per w
 "people who never exercise", "people who exercise less than three times per week", "people who exercise
 "people who do not consume alcohol", "people who consume less than 2 units of alcohol per week","people

```

Generate statistics – statisticsSurvey.c

Print all surveys into a report file - reportSurvey.c

```
------------- Menu ---------------------------------------------
   a. % of people who smoke
   b. % of people who smoke less than 20 cigarettes per week
   c. % of people who smoke less than 40 cigarettes per week
   d. % of people who smoke greater than 40 cigarettes per week
----------------------------------------------------------------
   e. % of people who never exercise
   f. % of people who exercise less than three times per week
   g. % of people who exercise less than five times per week
   h. % of people who exercise more than five times per week
----------------------------------------------------------------
   i. % of people who do not consume alcohol
   j. % of people who consume less than 2 units of alcohol per week
   k. % of people who consume less than 4 units of alcohol per week
   l. % of people who consume more than 4 units of alcohol per week
----------------------------------------------------------------
   x. Exit
==> _
```

```
----------------------------------------------------------------
 Total 242 people who smoke
----------------------------------------------------------------
 Total  24 % -  59 people - 18-20 yrs
 Total  15 % -  38 people - 20-30 yrs
 Total  18 % -  44 people - 30-50 yrs
 Total  24 % -  59 people - 50-65 yrs
 Total  17 % -  42 people - 65 +  yrs
------------------------------------------------
 Total  14 % -  34 income - No Income
 Total  11 % -  29 income - Less than Ç20,000
 Total  12 % -  31 income - Less than Ç40,000
 Total  14 % -  34 income - Less than Ç60,000
 Total  11 % -  27 income - Less than Ç80,000
 Total  10 % -  26 income - Less than Ç100,000
 Total  25 % -  61 income - Greater than Ç100,000
------------------------------------------------
 Total  45 % - 110 gender - Male
 Total  54 % - 132 gender - Female
```

In statistics in order to optimizer the code, I created an additional function called displayStatistics, passing the memory values and also a number that represent chosen option.

This number will make part of the condition that determine which will be the statistic to be displayed.

```
// for each option the program will pass to function displayStatistics(head, op)
// op = number will be pass to function, this value represents type menu select
if (strcmp(choice, "a") == 0) {
    op = 1;
    displayStatistics(head, op);
}
```

```
141     // loop all records into the memory temp
142     while (temp != NULL)
143     {
144         // this state condition will takes diferents criterias, kind of people smoke and value takes from option
145         // each line represents one condition
146
147         if ((op == 1 && (temp->cigarettes.cigarettes >= 2 && temp->cigarettes.cigarettes <= 4)) ||
148             (op == 2 && (temp->cigarettes.cigarettes == 2)) ||
149             (op == 3 && (temp->cigarettes.cigarettes == 3)) ||
150             (op == 4 && (temp->cigarettes.cigarettes == 4)) ||
151             (op == 5 && (temp->exercise.exercise == 1)) ||
152             (op == 6 && (temp->exercise.exercise == 2)) ||
153             (op == 7 && (temp->exercise.exercise == 3)) ||
154             (op == 8 && (temp->exercise.exercise == 4)) ||
155             (op == 9 && (temp->alcohol.alcohol == 1)) ||
156             (op == 10 && (temp->alcohol.alcohol == 2)) ||
157             (op == 11 && (temp->alcohol.alcohol == 3)) ||
158             (op == 12 && (temp->alcohol.alcohol == 4))) { // finsh if statemnt
159
```