

Advanced Procedural Programming Assignment

Project Value: 40%

Due Date: Monday 11th April 2016

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.

For each survey, you will store the following details for each person that undertakes the survey:

- PPS Number (Assume an integer – must be unique)
- First Name
- Second Name
- Address
- Email Address (must contain an @, a full stop and a .com)
- Age Bracket
 - 18-20 yrs
 - 20-30 yrs
 - 30-50 yrs
 - 50-65 yrs
 - 65+ yrs
- Income Bracket
 - No Income
 - Less than €20,000

- Less than €40,000
- Less than €60,000
- Less than €80,000
- Less than €100,000
- Greater than €100,000
- How often do you exercise?
 - Never
 - Less than three times per week
 - Less than five times per week
 - More than five times per week
- How much alcohol do you consume per week:
 - None
 - Less than 2 units
 - Less than 4 units
 - More than 4 units
- How many cigarettes do you smoke per week:
 - None
 - Less than 20 cigarettes
 - Less than 40 cigarettes
 - More than 40 cigarettes

The system is password protected and only the correct username and password details will allow the user to gain access to the system.

The username and password (6 characters in length) will be stored in a login structure which is read in from a login file which holds three login records. Ensure that when the user enters in the password that it cannot be seen on the screen. (It only shows an * for each character. E.g. *****)

Your program should initialise the linked list based on the surveys stored in the Surveys.txt file. This file should be updated when the user terminates the program.

Your program should provide a menu as follows:

- 1) Add survey
- 2) Display all surveys to screen
- 3) Display Survey Details
- 4) Update survey
- 5) Delete survey
- 6) Generate statistics (a – l) based on the criteria listed in I - III
 - 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
 - I. Age Bracket
 - II. Income Bracket
 - III. Gender
- 7) Print all surveys into a report file.

Add survey: This will add a new survey at the correct position in your sorted linked list based on their PPS Number. The PPS number must be unique.

Display all Survey to screen: Display all surveys details to screen

Display Survey Details: Allow the admin to input either a Survey ID or a name and display the details for that survey.

Update Survey: Allows the admin to update survey details based on either a name or PPS number being entered.

Delete Survey: Allows the user to delete a survey from the list by PPS number.

Print all surveys into a report file: Display a survey report which outputs the following information of the survey to file:

- All Survey Details
 - Survey Statistics (based upon item 6 of the menu)

Validation:

Your program should perform validation on all menu inputs.

Project Submission

Each student must submit the code developed to support the application. In addition to the code each student must submit a document explaining the various design decisions that were made during the project and how their code works.

Submission Deadline

Project Submissions to be submitted to martin.hynes@gmit.ie by 5pm on the 11th April 2016.

NOTES:

- You must implement the survey database as a linked list.
- Comments expected.
- The reuse of code through functions is expected. Each section of the assignment should be structured within its own function, passing parameters as necessary.
- You should create and populate a login file with sample data to allow successful validation of user credentials which you will then read in to your login linked list.
- Ensure that any files that are needed to run the program are included in your submission.

- Use of onscreen messages to inform the user is expected.
- Your code has to run. Serious deduction of marks will occur for code that is not running correctly.
- Plagiarism is not acceptable. You will be asked to explain your code.