SMARTPHONE ADVISORY

Mini Project Report

Submitted in partial fulfillment of the requirements of the Degree of Bachelor of Engineering in Computer Engineering

By

Nayan Bhatia
Ajith Devadiga
Chintan Diwakar

Jignasha Dalal

Department of Computer Engineering

K.J. Somaiya Institute of Engineering and Information Technology
Ayurvihar, Sion, Mumbai-400022

2018

Mini Project Approval

This project report entitled by

Nayan Bhatia
Ajith Devadiga
Chintan Diwakar

is approved for the mini project in the subject of Data Structures Lab in Computer Engineering.

Supervisors 1._____

Date:

Place:

DECLARATION

We declare that this written submission represents our ideas in our own words and where others' ideas or words have been included, we have adequately cited and referenced the original sources. We also declare that we have adhered to all principles of academic honesty and integrity and have not misrepresented or fabricated or falsified any idea/data/fact/source in our submission. We understand that any violation of the above will be cause for disciplinary action by the Institute and can also evoke penal action from the sources which have thus not been properly cited or from whom proper permission has not been taken when needed.

Nayan Bhatia _____

Ajith Devadiga _____

Chintan Diwakar _____

DATE:

ACKNOWLEDGEMENT

In preparation of our assignment, we had to take the help and guidance of some respected people, who deserve my deepest gratitude. As the completion of this assignment gave us much pleasure, we would like to show our gratitude to Ms. Jignasha Dalal for giving us good guidelines for assignment throughout numerous consultations. We would also like to expand our gratitude to all those who have directly and indirectly guided us in writing this assignment.

Nayan Bhatia

Ajith Devadiga

Chintan Diwakar

ABSTRACT

In this project, we are attempting to make an application to make, store, erase, modify, search, and filter mobiles in Smartphone Advisory with the help of Structures, Functions and Binary Files, using the C language. We shall be using Structure as a buffer to store data from the user and/or stored data, in order to make access faster than a file would.

We use structures to store data of mobile, containing their Model Name, Price, Ram, Rom, Display Size, Camera and Battery in the Advisory. This structure is dubbed ‘mobile’, and is used as the data part to store in the Binary File.

Various functions are used for numerous tasks such as Filtering, Modifying, Searching the Smartphone Advisory so that there is simplification in the source code and the Operation to be Executed is easier to understand. Switch Cases are used to provide various option to the user so that they can select between them and initiate the task they want to perform.

This Mobile Details are then saved to a Binary File, by storing the name of the mobile model, followed by other specification on the binary file. Similarly, when loading data, the data of each player is read from the file and inserted to the Structure Variable which in turn is displayed on Terminal after Execution.

We have also used “windows.h” (GUI) to enhance our output (i.e. Background, Styling, etc.) and used a particular format of appearance so that it looks modulated and user friendly.

So basically this project will help the user to find the best smartphone of his type.

CONTENTS

Problem Definition

Create a program to accept, store, erase, search, modify, filter and display Mobiles in a Structured Array, storing data about the mobiles such as their Model Name, Price, Ram, Rom, Display Size, Camera and Battery. Store generated Structure data onto a file, so that it can be accessed again when necessary.

Theory

Files:

The data created during the execution of the program gets lost after the execution is completed. To store the data for future references, we use files.Different operations that can be performed on a file are:

1. Creation of a new file (fopen with attributes as “a” or “a+” or “w” or “w++”)
2. Opening an existing file (fopen)
3. Reading from file (fscanf or fgetc)
4. Writing to a file (fprintf or fputs)
5. Moving to a specific location in a file (fseek, rewind)
6. Closing a file (fclose)

- **Files in C**

Files can be accessed in C with the use of FILE pointers. To open a file, use this syntax:

FILE *fp = fopen(char filename[], char mode[]);

Where, ‘filename’ is the name of the file and ‘mode’ is the way to open the file, e.g. for reading, writing, appending etc.

Examples of modes are “r” for reading, “w” for writing a fresh file, “a” for appending to an old file.

- **Binary Files**

Normally, a file contains text data, like this very document. However, loading and saving data to a text file is not simple when multiple types of data are to be stored. Hence, the data is instead stored as it is represented in binary, byte wise into a file. This can be loaded as it is back into the structure used to store the data, be it a ‘struct’ or an array.

Modes for Binary Files are “rb” for reading, “wb” for writing a fresh file, “ab” for appending to an old file.

Structures in C

A structure is a user defined data type in C/C++. A structure creates a data type that can be used to group items of possibly different types into a single type.

Functions

WRITE - The write functions allows the admin to enter a new smartphone specification to the existing database.

READ - The read function allows the user to see all the specifications of smartphones according to various brands or simply a read_all function is available for the user to read all the existing database of the smartphones.

ERASE - The erase function allow the admin to delete database of an existing smartphone brand also the admin has the feature to delete the entire database .

SEARCH - The search function allows the user to search for a specific smartphone model name , and if the smartphone brand exists in that database then it will show its specifications .

MODIFY - The modify functions allows the admin to modify the details/specifications of a particular smartphone device. The new details are overwritten on the existing one

FILTER - The filter functions allows the user to Compare various smartphone devices on the basis of various parameters such as

1) SORT BY PRICE
2) SORT BY BATTERY (MAh)
3) SORT BY DISPLAY SIZE
4) SORT BY RAM
5) SORT BY ROM

This parameters will help the use to buy the best smartphone device which fits according to his needs.

Conclusion

The attempt at managing Mobiles was successful, allowing Storage of the details and specification of the mobile data. Using a Structured Array as a buffer sped up file I/O considerably, while allowing the data to be saved safely. Using binary files allowed for much simpler file operations such as reading and writing due to its “one line to read/write” methods, compared to text files where one has to store each part of the structure separately and separate them by special characters.

While this project has successfully solved the task it has, it can be improved upon in various ways such as:

- Implementing a GUI instead of the current command line interface.
- Implementing Specific Bulleted Format and appearance to display various mobile products such as Samsung, Vivo, Oppo and Nokia.
- Adding more fields to the Mobile such as Model Name, Ram, Rom, Display Size, Camera and Battery.
- Displaying specific Company Mobiles when searched and Filtering them according to your need .
- Implementing Write, Read, Search, Erase, Modify, Filter functions on the Smartphones in the Advisory.

This project can serve as a base for Product management in fields other than Smartphone, for example Medicine, Grocery, etc. where a Bulleted format of Specification of Products is utilized to describe the Product.

This project helped us understand the process of Project Development and the issues faced while working on a team project such as code synchronization, task assignment and inter-member conflicts on the project.

References

1) “Programming in C” by Reema Thareja.
2) Geeks For Geeks : Linked List Introduction
    - https://www.geeksforgeeks.org/linked-list-set-1-introduction/
3) Geeks For Geeks : Basic File Handling in C
    - https://www.geeksforgeeks.org/basics-file-handling-c/
4) Tutorial to us: Binary files
    - http://tutorialtous.com/c/binaryfiles.php
5) Stack Overflow
    - https://stackoverflow.com/

`