**PROJECT SYNOPSIS**

* **TITLE :-** Student Database Management System
* **SOFTWARE REQUIREMENT :-** The following are the software requirements :-

Front End : C Editor (any)

C Compiler (any)

Back End : ---

Platform : Windows 98/2000/XP/7/8/Vista

Linux

Mac

* **HARDWARE REQUIREMENT :-** The following are the hardware requirements :-

Processor : Intel Pentium 4 and above

RAM : 100 MB

Hard Disk : 10 MB

Monitor : 15” CRT or LCD

Keyboard : Normal or Multimedia

Mouse : Compatible Mouse

* **OVERVIEW: -** The Student Database System has been designed using the concept of file handling. All the work is done in primary memory and whenever the system is closed or on demand of the user, the changes are permanently stored in the disk. Similarly when existing database (file) is opened, the primary key of all records are automatically arranged in the form of tree.

Four files are being maintained

1. “student.dat” - It stores the actual data i.e student details.
2. “bintree.dat” - It is the index file with the roll number and location pairing.
3. “empty.dat” - It stores the location which is empty in the file “student.dat” so that the new record could to inserted there.
4. “security.dat” - It stores the user name and password for user authentication.

* **FEATURES :-**

1. The following concepts of C has been used

* **Basic loops and if-else statements**
* **File handling**
* **Pointers**
* **Structures**
* **Switch case statements**
* **Input – Output library functions**
* **Other library functions**

1. The basic format of coding is function oriented i.e **Modular Programming**.
2. The following operations are included in the student database system
3. **Insert Record** - To insert the record anywhere in between wherever there is a free space found. If not then it will work as append.
4. **Append Record** – To insert the record at the last.
5. **Display Record** – It will display the details of the student whose primary key is being specified by the user.
6. **Update record** – It is used to make changes in the existing record.
7. **Delete record** – It is used to delete an existing record .If the record already to be deleted is not available; an error message will be flashed.
8. **Refresh** – This option will clear the entire contents of the database.
9. **Exit** – It is used to delete or close the program.
10. The file indexing is done by implementing the **AVL search tree** and **linked list**. This is done to ensure efficient insertion, deletion, searching, etc in terms of time.
11. User Authentication is ensured maintaining **user name** and **password.**
12. **Data consistency** is ensured by introducing **Primary Key** which is unique for every record.
13. The possibility of invalid data entry is reduced to a large extend by adding some restrictions during the data entry.
14. Heavy uses of **comments** are made to make the source code programmer friendly.

Submitted By :-

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