**Experiment No 12**

#### Title:

Company maintains employee information as employee ID, name, designation and salary. Allow user to add, delete information of employee. Display information of particular employee. If employee does not exist an appropriate message is displayed. If it is, then the system displays the employee details. Use index sequential file to maintain

the data.

#### Objectives:

1. To understand concept of file organization in data structure.
2. To understand concept & features of Indexed sequential file organization.

#### Learning Objectives:

* + To understand concept of file organization in data structure.
  + To understand concept & features of Indexed sequential file organization.

#### Learning Outcome:

* Define class for Indexed sequential file using Object Oriented features.
* Analyze working of various operations on Indexed sequential file.

#### Theory:

File organization refers to the relationship of the key of the record to the physical location of that record in the computer file. File organization may be either physical file or a logical file. A physical file is a physical unit, such as magnetic tape or a disk. A logical file on the other hand is a complete set of records for a specific application or purpose. A logical file may occupy a part of physical file or may extend over more than one physical file.

There are various methods of file organizations. These methods may be efficient for certain types of access/selection meanwhile it will turn inefficient for other selections. Hence it is up to the programmer to decide the best suited file organization method depending on his requirement.

Some of the file organizations are

1. Sequential File Organization
2. Heap File Organization
3. Hash/Direct File Organization
4. Indexed Sequential Access Method
5. B+ Tree File Organization
6. Cluster File Organization

**Index Sequential File:**

* Indexed sequential access file combines both sequential file and direct access file organization.
* In indexed sequential access file, records are stored randomly on a direct access device such as magnetic disk by a primary key.
* This file have multiple keys. These keys can be alphanumeric in which the records are ordered is called primary key.
* The data can be access either sequentially or randomly using the index. The index is stored in a file and read into memory when the file is opened.

**Advantages:**

* Simple to understand.
* Easy to maintain and organize
* Loading a record requires only the record key.
* Relatively inexpensive I/O media and devices can be used.
* Easy to reconstruct the files.
* The proportion of file records to be processed is high.

##### **Disadvantages:**

* Entire file must be processed, to get specific information.
* Very low activity rate stored.
* Transactions must be stored and placed in sequence prior to processing.
* Data redundancy is high, as same data can be stored at different places with different keys.
* Impossible to handle random enquiries.

**Software Required:** g++ / gcc compiler- / 64 bit Fedora, eclipse IDE

**Input: Details of** student like roll no, name, address division etc.

**Output:** If record of student does not exist an appropriate message is displayed otherwise the employee details are displayed.

**Conclusion:** This program gives us the knowledge index sequential file organization..

**OUTCOME**

**Upon completion Students will be able to:**

**ELO1:** Learn File organization in data structure.



**ELO2:** Understand & implement index sequential file and operation on it.

Question:

1. Explain various file handling methods?
2. Differentiate the Sequential and index file