**Operating System**

**Lab Report 11**

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**Section-6A2**

File Allocation Strategies

**INTRODUCTION:**

A file is a collection of data, usually stored on disk. As a logical entity, a file enables to divide data into meaningful groups. As a physical entity, a file should be considered in terms of its organization. The term “file organization” refers to the way in which data is stored in a file and, consequently, the method(s) by which it can be accessed. Sequential File Allocation: In this file organization, the records of the file are stored one after another both physically and logically. That is, record with sequence number 16 is located just after 15th record. A record of a sequential file can only be accessed by reading all previous records. Linked File Allocation: With linked allocation, each file is a linked list of disk blocks; the disk blocks may be scattered anywhere on the disk. The directory contains a pointer to the first and the last blocks of the file. Each block contains a pointer to the next block. Indexed File Allocation: Indexed file allocation strategy brings all the pointers together into one location: an index block. Each file has its own index block, which is an array of disk-block addresses. The ith entry in the index block points to the i th block of the file. The directory contains the address of the index block. To find and read the i th block, the pointer in the i th index-block entry is used.

**OBJECTIVES:**

• Learn to simulate the following file allocation strategies

a) Sequential

b) Linked

c) Indexed

**Application:**

This is the scheme used in UNIX inodes, in which the first 12 or so data block pointers are stored directly in the inode, and then singly, doubly, and triply indirect pointers provide access to more data blocks as needed. The **indexed allocation method** is the best file allocation method because it removes the problem of contiguous and linked allocation. A **partition allocation method** is considered better if it avoids internal fragmentation. When it is time to load a process into the main memory and if there is more than one free block of memory of sufficient size then the OS decides which free block to allocate.

**Issues:**

No issue found regarding this lab.

**Conclusion:**

In this lab we learn that how to simulate the following file allocation strategies Sequential ,Linked and Indexed file allocation.