ANALYSING AND COMPERSION OF DISK SHEDULING

PROJECT-I REPORT

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INTERNAL EXAMINER **EXTERNAL EXAMINER**

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ABSTRACT

The file system can be viewed logically in three different divisions i.e. user, programmer interface to the file system and secondary storage structure. The lowest level of the file system is secondary storage structure and disk is the main secondary storage device that is generally divided into tracks, cylinders and sectors and stores the data permanently. The I/O operation depends on the computer system, the operating system, and the nature of the I/O channel and disk controller hardware . The user programs make use of the data on the disk by means of I/O requests. Data is stored on both surfaces of a series of magnetic disks called platters that are connected by a single spindle. The surface of a platter is logically divided into tracks that are further subdivided into sectors and the set of tracks that are at one arm position form a cylinder. One read-write head per disk surface is used to access the data and all read-write heads are attached to a single moving arm. The segment of the disk surface where the data is read or written must revolve under the read-write head for accessing the data.

The key responsibility of the operating system is to efficiently use the hardware of the computer system. For the efficiency of the disk drives, the terms access time and disk bandwidth are associated. The access time is the total time elapsed between the access command and the read/write head positioned to the particular sector or in other words it is the combination of seek time, latency time and transfer time. Seek time is the time to move the head to the right data track. Latency time is the time taken for desired sector to rotate under head for access. Transfer time is the actual time required to transfer data between disk and main memory. Disk bandwidth is the total number of bytes transferred, divided by the total time between the first request of the service and the finishing point of the last transfer . For most disks, the seek time leads the latency time and transfer time, so reducing the mean seek time can improve system performance to a large extent .

In multiprogramming systems, processes running concurrently may generate requests for reading and writing disk records. The operating system handles these I/O requests from the queue and processes them one by one. The algorithm used to choose which I/O request is going to be fulfilled earliest is called disk scheduling algorithm. The different disk scheduling algorithms are First Come First Serve, Shortest Seek Time First, Scan, Look, Circular Scan and Circular Look. The main objectives for any disk scheduling algorithm are minimizing the response time and maximizing the throughput. In this research paper, an experiment has been carried out by considering the same request queue for implementing the different disk scheduling algorithms.

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