UECS2103/2403/2423 Operating Systems
Tutorial 8

1. The sequence of disk track requests is given as follow:

   155, 21, 58, 109, 123, 309, 397, 270, 97, 153

   Determine the total number of head movements and the average of movements for each FIFO, SSTF, SCAN and C-SCAN disk scheduling algorithms. Assume that:

   a) the disk head is initially positioned over track 115 and is moving in the direction of increasing track number.

   b) The disk head is initially positioned over track 115 and is moving in the direction of decreasing track number.

2. What are the components in disk access time?

3. Discuss the effect of principle of locality to the latency occurs in SSTF and C-SCAN disk scheduling algorithms.

4. Compare the contiguous and chained file allocation methods.

5. A personal storage is used to backup large video files. There are 2 main approaches used in block allocation to files: individual block basis and contiguous set of blocks basis.

   a) Discuss the performance of the two approaches from the perspectives of block allocation and disk I/O.

   b) Assume that contiguous block allocation is applied in the personal storage, compare the performance in retrieving a video file between the SCAN and Shortest Service Time First (SSTF) disk scheduling policies in terms of access time latency. Assume that the disk is currently reading a location near to the video file to be read.