CS334 Assignment 5

Disk Scheduling

(1) READ/WRITE data time = (1) ***Seek Time*** + (2) ***Rotational Latency*** + (3) ***Transfer Time***. [10 pts]

(2) Use FIFO\SSTF\SCAN\CSCAN algorithm to read the six sectors, [40pts]

a) write the track access sequence

FIFO

70, 30, 90, 120, 60, 20

SSTF

90，70，60，30，20，120

SCAN

120,90, 70, 60, 30, 20

CSCAN

120, 20, 30, 60, 70, 90

b) how much time is required in total? The calculation process is required.

FIFO

Seeking Time: $30 + 40 + 60 + 30 + 60 + 40 = 260ms$

Rotation Time: $6 * ((60 * 1000)/12000 * (1/2) = 15ms$

Total Time: $260 + 15 = 275ms$

SSTF

Seeking Time: $10 + 20 + 10 + 30 + 10 + 100 = 180ms$

Rotation Time: $6 * ((60 * 1000)/12000 * (1/2) = 15ms$

Total Time: $180 + 15 = 195ms$

SCAN

Seeking Time: $20 + 79 + 109 + 20 + 10 + 30 + 10 = 278$

Rotation Time: $6 * ((60 * 1000)/12000 * (1/2) = 15ms$

Total Time: $278 + 15 = 293ms$

CSCAN

Seeking Time: $20 + 79 + 199 + 20 + 10 + 30 + 10 + 20 = 388$

Rotation Time: $6 * ((60 * 1000)/12000 * (1/2) = 15ms$

Total Time: $388 + 15 = 403ms$

Simple File System

The architecture diagram of the sfs.img is as follows.