CS302:

Assignment10 Report

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1 Answer of Question 1

READ/WRITE data time = (1)seek time + (2)rotational latency + (3)transfer time

2 Answer of Question 2

Request queue is 70, 30, 90, 120, 60, 20. Head: 100.

Rotational latency: $12000\text{r/min} = 0.2\text{r/ms} = 5\text{ms/r}$, $\frac{5\text{ms/r}}{2} = 2.5\text{ms/r}$

6 requests reading randomly distributed sector each time: $2.5 \times 6 = 15\text{ms}$

Seek time = Distance $\times$ 1ms

2.1. FIFO

(a) **Access Sequence:** 70, 30, 90, 120, 60, 20

(b) **Required Time:** $(30 + 40 + 60 + 30 + 60 + 40) \times 1 + 15 = 275\text{ms}$

2.2. SSTF

(a) **Access Sequence:** 90, 70, 60, 30, 20, 120

(b) **Required Time:** $(10 + 20 + 10 + 30 + 10 + 100) \times 1 + 15 = 195\text{ms}$

2.3. SCAN

(a) **Access Sequence:** 120, 90, 70, 60, 30, 20

(b) **Required Time:** $((20 + 80) + 110 + 20 + 10 + 30 + 10) \times 1 + 15 = 295\text{ms}$

2.4. C-SCAN

(a) **Access Sequence:** 120, 20, 30, 60, 70, 90

(b) **Required Time Serving Requests:** $(20 + 100 + 10 + 30 + 10 + 20) \times 1 + 15 = 205\text{ms}$
Required Time with All Movements: $((20 + 80) + (200 + 20) + 10 + 30 + 10 + 20) \times 1 + 15 = 405\text{ms}$