Operating Systems
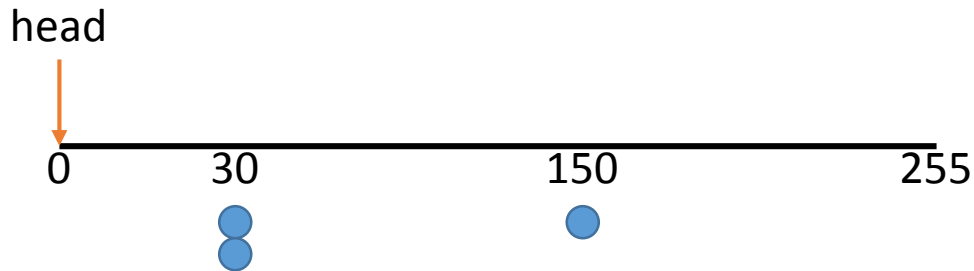# Programming Assignment #7 #8
Scheduler Simulation
FIFO and SCAN
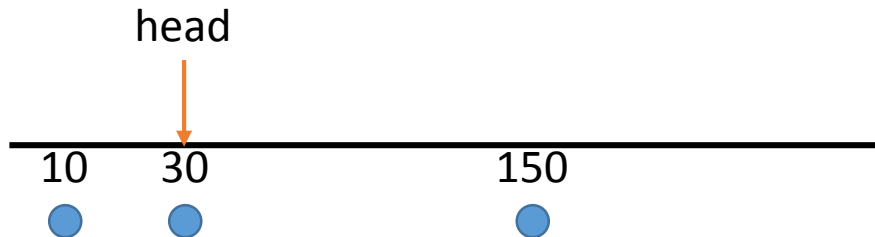
FIFO

Total number of cylinders = 256
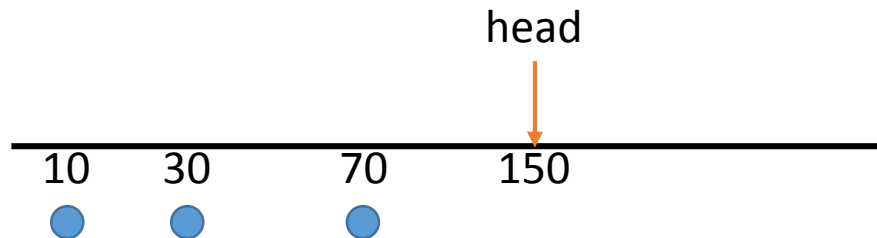
head

0   30   150   255

- Queue size: 3
- Request: 30, 150, 30, 10, 70

- Distance = 0

FIFO

head

10   30   150

- Queue size: 3
- Request: 30, 150, 30, 10, 70

- Distance = 0+30 = 30

FIFO

head

10   30   70   150

- Queue size: 3
- Request: 30, 150, 30, 10, 70

- Distance = 30 + 120 = 150

FIFO

head

10   30   70

- Queue size: 3
- Request: 30, 150, 30, 10, 70

- Distance = 150+120 = 270

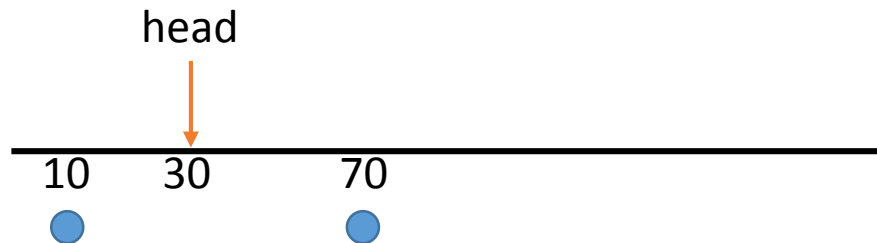# FIFO
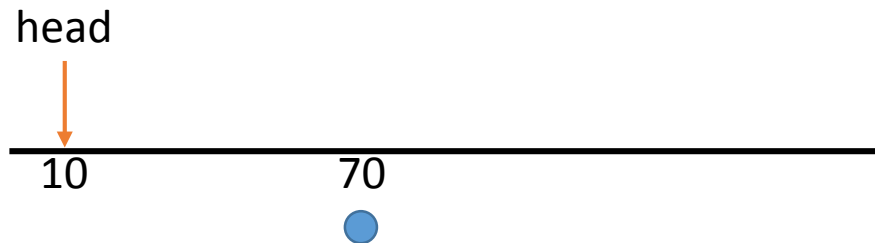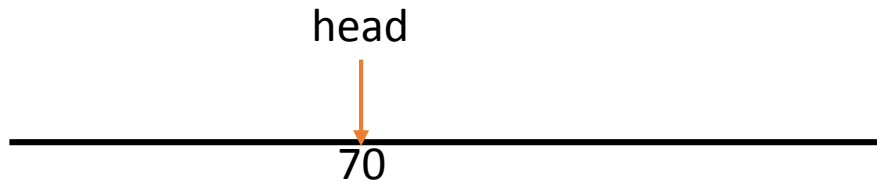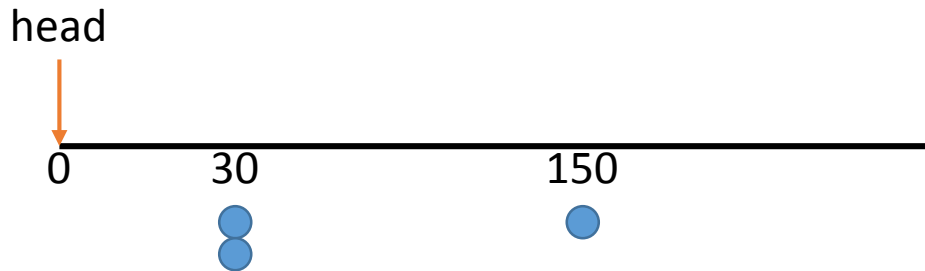
head

10   70

- Queue size: 3
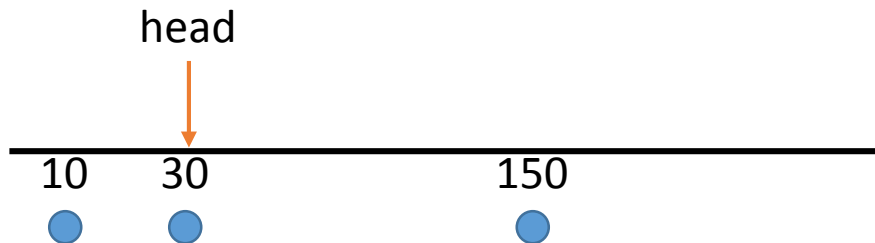- Request: 30, 150, 30, 10, <u>70</u>

- Distance = 270+20 = 290

FIFO

head

↓

70

- Queue size: 3

- Request: 30, 150, 30, 10, 70

- Distance = 290+60 = 350

SCAN

head

0   30   150

- Queue size: 3
- Request: 30, 150, 30, 10, 70

- Distance = 0

SCAN

head

10   30   150

- Queue size: 3
- Request: 30, 150, 30, 10, 70

- Distance = 30

SCAN

head

10   30   70   150

- Queue size: 3
- Request: 30, 150, 30, 10, 70

- Distance = 30

SCAN

head

10   70   150

- Queue size: 3
- Request: 30, 150, 30, 10, 70

- Distance = 70

SCAN

head

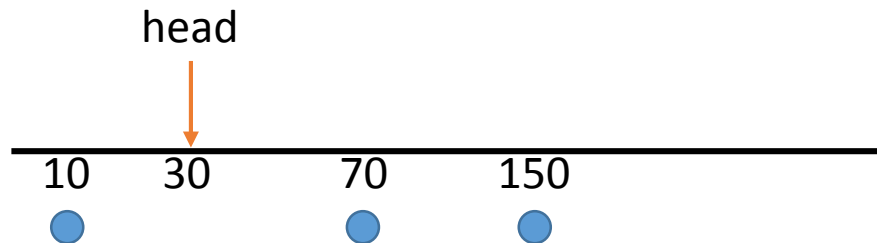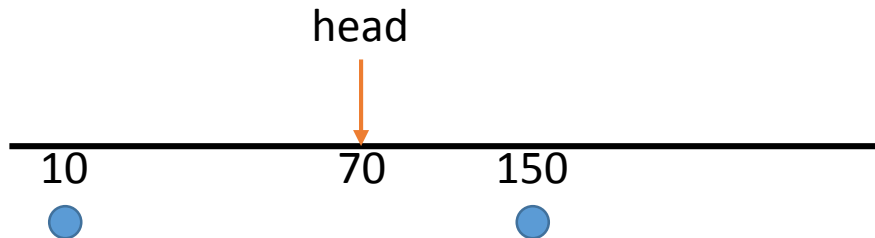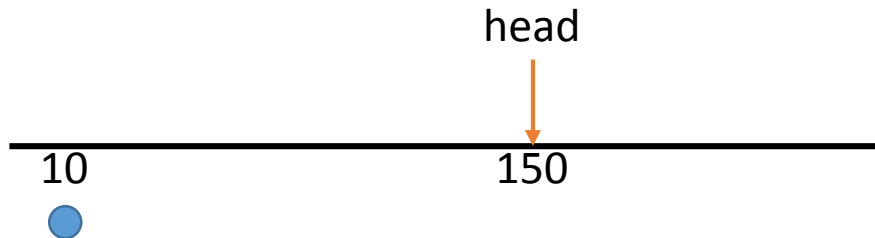10   150

- Queue size: 3
- Request: 30, 150, 30, 10, 70

- Distance = 150

SCAN

head

10   255

- Queue size: 3
- Request: 30, 150, 30, <u>10</u>, 70
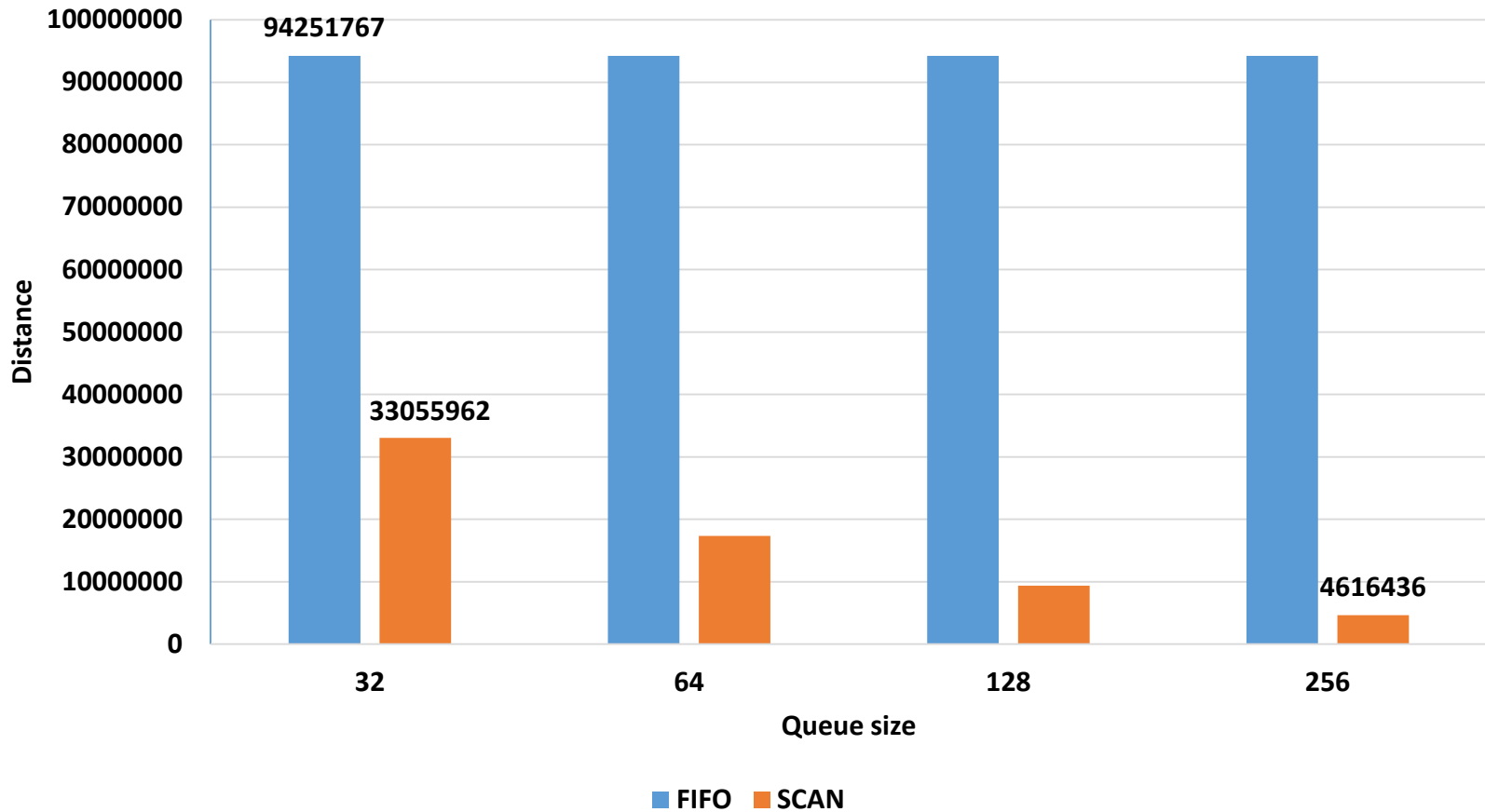
- Distance = 255

SCAN

head

|
10

- Queue size: 3
- Request: 30, 150, 30, 10, 70

- Distance = 255+245 = 500

Input/output format

- Input file:
  - cylinder numbers between [0, 59999]
  - Separated by newline, e.g.,
    - 123
    - 456
    - 245

- Output (print on screen):
  - [Queue size][Total head travel distance], e.g.,
  - 32 94251767
  - 64 xxxxx
  - 128 xxxxx
  - 256 xxxx
  - Queue sizes: 32, 64, 128, 256

Referential Solution

Deadlines

- FIFO: 1/2 midnight
- SCAN: 1/9 midnight

- Turn in two separate programs, do not combine the two algorithms in one program!