

# Java Programming II

## Lab2

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# Lab2

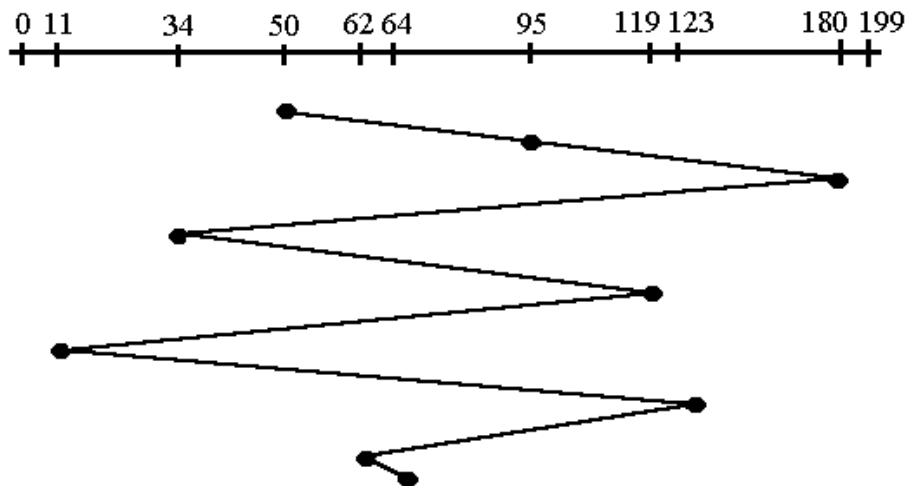
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- Strategy 패턴을 사용하여 다양한 알고리즘으로 디스크 데이터를 seek하는 프로그램을 작성하라.
- Disk scheduling algorithm  
<http://www.cs.iit.edu/~cs561/cs450/disksched/disksched.html>
  - First Come-First Serve (FCFS)
  - Shortest Seek Time First (SSTF)
  - Elevator (SCAN)
  - Circular-SCAN (C-SCAN)
  - Circular-Look (C-LOOK)

# Lab2

## □ First Come-First Serve (FCFS)

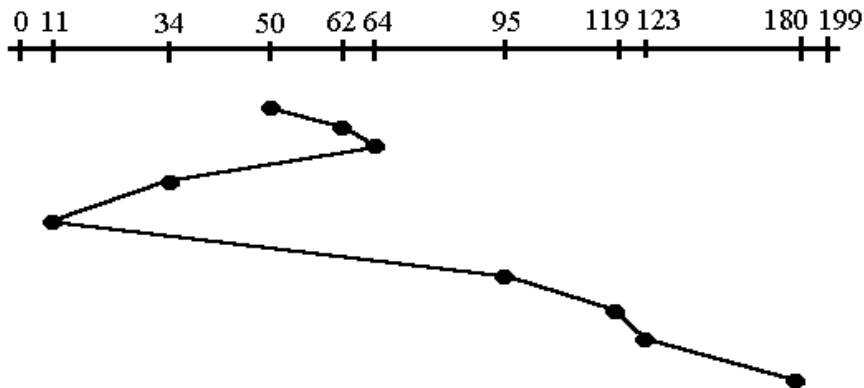
- 가장 먼저 도착한 요청을 우선적으로 처리
- Queue 95, 180, 34, 119, 11, 123, 62, 64 Head start 50
- Seek 95, 180, 34, 119, 11, 123, 62, 64



# Lab2

## □ Shortest Seek Time First (SSTF)

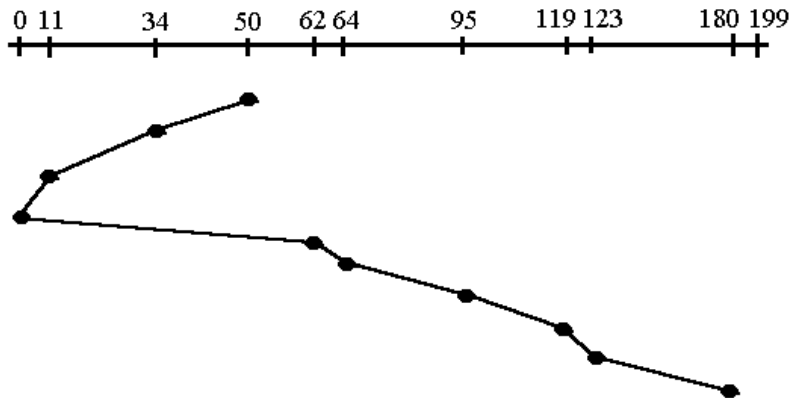
- 탐색 거리가 가장 짧은 트랙에 대한 요청을 먼저 서비스
- 현재 HEAD 위치에서 가까운 요청을 우선적으로 처리
- Queue 95, 180, 34, 119, 11, 123, 62, 64 Head start 50
- Seek 62, 64, 34, 11, 95, 119, 123, 180



# Lab2

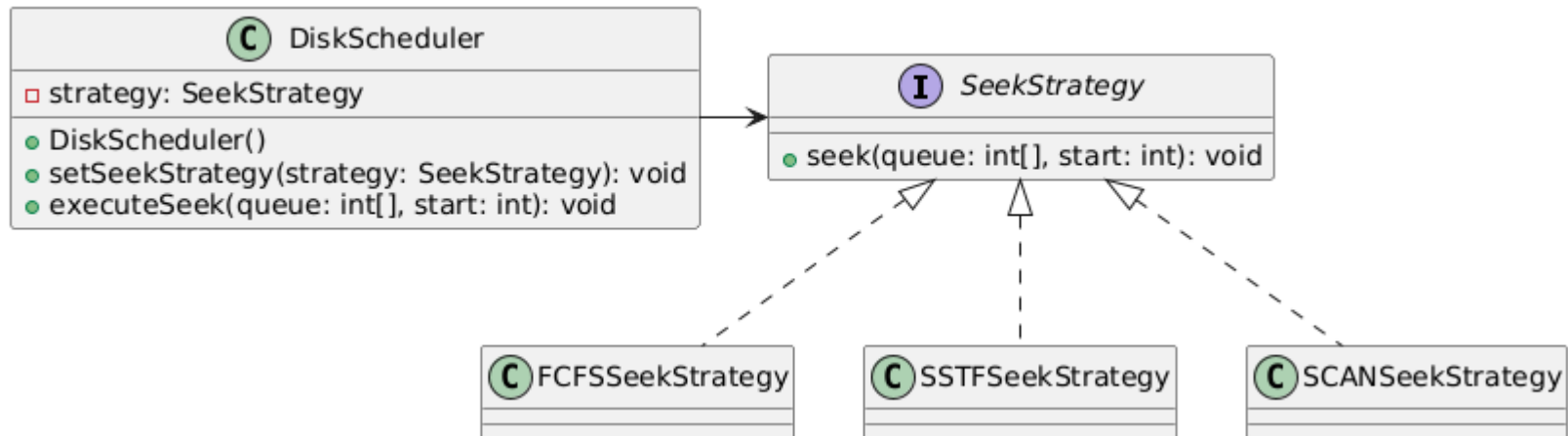
## □ Elevator (SCAN)

- SSTF가 갖는 탐색 시간의 편차를 해소하기 위한 기법
- HEAD가 이동하는 방향의 모든 요청을 서비스하고, 끝까지 이동한 후 역방향의 요청을 서비스
- Queue 95, 180, 34, 119, 11, 123, 62, 64 Head start 50
- Seek 34, 11, 0, 62, 64, 95, 119, 123, 180



# Lab2

## □ Strategy Pattern



# Lab2

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```
public interface SeekStrategy {  
    void seek(int[] queue, int start);  
}
```

## Lab2

```
public class FCFSSeekStrategy implements
SeekStrategy {
    @Override
    public void seek(int[] queue, int start) {
        for (int q: queue) {
            System.out.printf("%d ", q);
        }
        System.out.printf("\n");
    }
}
```



# Lab2

```
public class MainTest {  
    public MainTest() {  
        int[] queue = { 70,153,24,57,140,15,115,80,85 };  
        int start = 43;  
        // seek  
        DiskScheduler scheduler = new DiskScheduler();  
        SeekStrategy[] algorithms = {new  
SCANSeekStrategy(), new FCFSSeekStrategy(), new  
SSTFSeekStrategy(), new SCANSeekStrategy()};  
        for (SeekStrategy algorithm : algorithms) {  
            scheduler.setSeekStrategy(algorithm);  
            scheduler.executeSeek(queue, start);  
        }  
    }  
}
```

FCFS	70	153	24	57	140	15	115	80	85	
SSTF	57	70	80	85	115	140	153	24	15	
SCAN	24	15	0	57	70	80	85	115	140	153

# Submit to e-learning

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- Lab2 과제에 yourcode (e.g.: 다른 strategy 예)를 추가 (yourcode 없을시 10점에서 -1점 감점)
- **Java24-2-HW2-YourID-YourName.zip** 과제(보고서에 반드시 yourcode 설명 포함)를 e러닝에 제출 (**due by 9/24**).