

이 과제는 스케줄링 알고리즘을 구현하는 것이다.

FCFS SJF만 구현에 성공하였다 .

다음은 실행 결과이다.

1. FCFS

```
"C:\Program Files\Java\jdk1.8.0_321\bin\java.exe" ...
Process Count
1
0 0 1 0
-----
FcFs 알고리즘의 수행 결과입니다
-----
프로세스인덱스 0
FinishingTime is 5
TurnAroundTime is 5
CpuTime is 5
IOTime is 0
WaitingTime is 0
-----
SummaryData
FinishingTime is 5
CPU Utilization is 100.0
IOUtilization is 0.0
AverageTurnAroundTime is 5.0
AverageWaitingTime is 0.0
```

```
"C:\Program Files\Java\jdk1.8.0_321\bin\java.exe" ...
Process Count
1
0 0 1 1
-----
FcFs 알고리즘의 수행 결과입니다
-----
프로세스인덱스 0
FinishingTime is 9
TurnAroundTime is 9
CpuTime is 5
IOTime is 4
WaitingTime is 0
-----
SummaryData
FinishingTime is 9
CPU Utilization is 55.555557
IOUtilization is 44.444443
AverageTurnAroundTime is 9.0
AverageWaitingTime is 0.0
```

FcFs 알고리즘의 수행 결과입니다

프로세스인덱스 0

FinishingTime is 12

TurnAroundTime is 12

CpuTime is 5

IOTime is 4

WaitingTime is 3

프로세스인덱스 1

FinishingTime is 14

TurnAroundTime is 14

CpuTime is 5

IOTime is 4

WaitingTime is 5

프로세스인덱스 2

FinishingTime is 15

TurnAroundTime is 12

CpuTime is 5

IOTime is 4

WaitingTime is 3

SummaryData

FinishingTime is 15

CPU Utilization is 100.0

IOUtilization is 80.0

AverageTurnAroundTime is 12.666667

AverageWaitingTime is 3.0

Process Count

5

0 200 3 3

0 500 9 3

0 500 20 3

100 100 1 0

100 500 100 3

FcFs 알고리즘의 수행 결과입니다

프로세스인덱스 4

FinishingTime is 730

TurnAroundTime is 630

CpuTime is 500

IOTime is 20

WaitingTime is 110

프로세스인덱스 2

FinishingTime is 1400

TurnAroundTime is 1400

CpuTime is 500

IOTime is 107

WaitingTime is 793

프로세스인덱스 3

FinishingTime is 1639

TurnAroundTime is 1539

CpuTime is 100

IOTime is 0

WaitingTime is 1439

```
-----  
-----  
프로세스인덱스 1  
FinishingTime is 1831  
TurnAroundTime is 1831  
CpuTime is 500  
IOTime is 220  
WaitingTime is 1111  
-----  
SummaryData  
FinishingTime is 1831  
CPU Utilization is 98.30694  
IOUtilization is 26.652103  
AverageTurnAroundTime is 1432.4  
AverageWaitingTime is 966.0  
  
Process finished with exit code 0
```

다음과 같은 결과가 출력되었다.

다음으로 SJF 스케줄링의 결과이다.

```
"C:\Program Files\Java\jdk1.8.0_321\bin\java.exe"
Process Count
1
0 5 1 1
-----
SJF 알고리즘의 수행 결과입니다
-----
프로세스인덱스 0
FinishingTime is 9
TurnAroundTime is 9
CpuTime is 5
IOTime is 4
WaitingTime is 0
-----
SummaryData
FinisningTime is 9
CPU Utilization is 55.555557
IOUtilization is 44.444443
AverageTurnAroundTime is 9.0
AverageWaitingTime is 0.0

Process finished with exit code 0
```

```
Process Count
1
0 5 1 0
-----
SJF 알고리즘의 수행 결과입니다
-----
프로세스인덱스 0
FinishingTime is 5
TurnAroundTime is 5
CpuTime is 5
IOTime is 0
WaitingTime is 0
-----
SummaryData
FinisningTime is 5
CPU Utilization is 100.0
IOUtilization is 0.0
AverageTurnAroundTime is 5.0
AverageWaitingTime is 0.0

Process finished with exit code 0
```

```
-----  
SJF 알고리즘의 수행 결과입니다  
-----
```

```
프로세스인덱스 0
```

```
FinishingTime is 12
```

```
TurnAroundTime is 12
```

```
CpuTime is 5
```

```
IOTime is 4
```

```
WaitingTime is 3  
-----
```

```
-----  
프로세스인덱스 1
```

```
FinishingTime is 14
```

```
TurnAroundTime is 14
```

```
CpuTime is 5
```

```
IOTime is 4
```

```
WaitingTime is 5  
-----
```

```
-----  
프로세스인덱스 2
```

```
FinishingTime is 15
```

```
TurnAroundTime is 12
```

```
CpuTime is 5
```

```
IOTime is 4
```

```
WaitingTime is 3  
-----
```

```
SummaryData
```

```
FinishingTime is 15
```

```
CPU Utilization is 100.0
```

```
IOUtilization is 80.0
```

```
AverageTurnAroundTime is 12.666667
```

```
AverageWaitingTime is 3.0
```

```
Process finished with exit code 0
```

```
Process Count
5
0 200 3 3
0 500 9 3
0 500 20 3
100 100 1 0
100 500 100 3
```

SJF 알고리즘의 수행 결과입니다

프로세스인덱스 3
FinishingTime is 207
TurnAroundTime is 107
CpuTime is 100
IOTime is 0
WaitingTime is 7

프로세스인덱스 4
FinishingTime is 791
TurnAroundTime is 691
CpuTime is 500
IOTime is 14
WaitingTime is 177

프로세스인덱스 2
FinishingTime is 1461
TurnAroundTime is 1461
CpuTime is 500
IOTime is 99
WaitingTime is 862

프로세스인덱스 0
FinishingTime is 1801
TurnAroundTime is 1801

프로세스인덱스 1
FinishingTime is 1832
TurnAroundTime is 1832
CpuTime is 500
IOTime is 217
WaitingTime is 1115

SummaryData
FinishingTime is 1832
CPU Utilization is 98.25327
IOUtilization is 26.037117
AverageTurnAroundTime is 1178.4
AverageWaitingTime is 711.0

Process finished with exit code 0