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CSCD340
Lab9

Initial State

Process	Start	Size	End
H	112	60	172
P1	172	40	212
H	212	12	224
P2	224	12	236
P3	236	32	268
H	268	44	312
P4	312	48	360
H	360	22	382
P5	382	8	390
P6	390	90	480
H	480	24	504
P7	504	8	512

Problem One

Process	Start	Size	End
P8	112	32	144
P13	144	24	168
H	168	4	172
P1	172	40	212
P10	212	20	232
H	232	4	236
P3	236	32	268
P11	268	16	284
P12	284	16	300
H	300	204	504
P7	504	8	512

First fit numbers(calculations based on end state)
Number of fragments: 3
Average fragment size: 70.66
Largest fragment: 204
Smallest fragment size: 4
Average process size: 28.46(All 13 processes)
Smallest process: 8

The largest fragment is definitely usable, as its larger than any given process and thus should be large enough to contain at least one future process. The smallest fragment is probably not usable, as it is smaller than both the average process and the smallest given process.

Problem Two

Process	Start	Size	End
P12	112	16	128
P13	128	24	152
H	152	20	172
P1	172	40	212
P11	212	16	228
H	228	8	236
P3	236	32	268
P8	268	32	300
H	300	60	360
P10	360	20	380
H	380	124	504
P7	504	8	512

Best fit numbers(calculations based on end state)
Number of fragments: 4
Average fragment size: 53
Largest fragment: 124
Smallest fragment size: 8
Average process size: 28.46(All 13 processes)
Smallest process: 8

The largest fragment is definitely usable, as its larger than any given process and thus should be large enough to contain at least one future process. The smallest fragment is possibly usable, as it is smaller than the average process but equal to the smallest given process.

Problem Three

Process	Start	Size	End
P8	112	32	144
H	144	28	172
P1	172	40	212
H	212	24	236
P3	236	32	268
H	268	122	390
P10	390	20	410
P11	410	16	426
P12	426	16	442
P13	442	24	466
H	466	38	504
P7	504	8	512

Worst fit numbers(calculations based on end state)
Number of fragments: 4
Average fragment size: 53
Largest fragment: 122
Smallest fragment size: 24
Average process size: 28.46(All 13 processes)
Smallest process: 8

The largest fragment is definitely usable, as its larger than any given process and thus should be large enough to contain at least one future process. The smallest fragment should be usable, as it is almost as large as the average process and much larger than the smallest given process.

Problem Four

Process	Start	Size	End
P8	112	32	144
H	144	28	172
P1	172	40	212
P10	212	20	232
H	232	4	236
P3	236	32	268
P11	268	16	284
P12	284	16	300
H	300	60	360
P13	360	24	384
H	384	120	504
P7	504	8	512

Next fit numbers(calculations based on end state)
Number of fragments: 4
Average fragment size: 53
Largest fragment: 120
Smallest fragment size: 4
Average process size: 28.46(All 13 processes)
Smallest process: 8

The largest fragment is definitely usable, as its larger than any given process and thus should be large enough to contain at least one future process. The smallest fragment is probably not usable, as it is smaller than both the average process and the smallest given process.

Analysis

The First Fit algorithm has the smallest number of fragments compared to the rest. The average fragment size of First Fit is the largest at 70.66. The other three have the same average fragment size of 53. The average given process size is 28.46. So the Worst Fit algorithm has the highest amount of likely usable fragments.

The First Fit algorithm has by far a largest fragment of 204. Next Fit and First Fit both tie for the smallest fragment of four, but First Fit has two fragments of size four. So First Fit has the highest number of unusable fragments. First Fit has both the most small fragmenting in lower memory and the largest fragmenting in higher memory. Worst Fit seems to have the most even distribution. Next Fit and Best Fit are similar in distribution.