

```
C:\Users\HP\Desktop\OS-Project>g++ final.cpp
C:\Users\HP\Desktop\OS-Project>a.exe
Enter Memory Size: 2000
Enter the number of processes: 9
Enter process details as stated:
Process ID: 1
Process Arrival Time: 0
Process Lifetime: 200
No of segments of Process: 2
Enter size of segments separated by space: 200 200
Process ID: 2
Process Arrival Time: 0
Process Lifetime: 2000
No of segments of Process: 1
Enter size of segments separated by space: 200
Process ID: 3
Process Arrival Time: 0
Process Lifetime: 200
No of segments of Process: 2
Enter size of segments separated by space: 200 100
Process ID: 4
Process Arrival Time: 0
Process Lifetime: 2000
No of segments of Process: 1
Enter size of segments separated by space: 100
Process ID: 5
Process Arrival Time: 0
Process Lifetime: 200
No of segments of Process: 3
Enter size of segments separated by space: 200 200 100
Process ID: 6
Process Arrival Time: 0
Process Lifetime: 2000
No of segments of Process: 1
Enter size of segments separated by space: 400
Process ID: 7
Process Arrival Time: 500
Process Lifetime: 1500
No of segments of Process: 2
Enter size of segments separated by space: 300 500
Process ID: 8
Process Arrival Time: 600
```

Process Lifetime: 1500

No of segments of Process: 3

Enter size of segments separated by space: 200 200 200

Process ID: 9

Process Arrival Time: 700

Process Lifetime: 1500

No of segments of Process: 2

Enter size of segments separated by space: 200 200

Press 1 for first fit or 2 for best fit or 3 for worst fit or any other number key for exiting: 2

-----QUEUE STATUS-----

At time  $t = 0$ , these are the processes present in Queue:

Process: 1 Arrival Time: 0

-----QUEUE STATUS-----

At time  $t = 0$ , these are the processes present in Queue:

Process: 1 Arrival Time: 0

Process: 2 Arrival Time: 0

-----QUEUE STATUS-----

At time  $t = 0$ , these are the processes present in Queue:

Process: 1 Arrival Time: 0

Process: 2 Arrival Time: 0

Process: 3 Arrival Time: 0

-----QUEUE STATUS-----

At time  $t = 0$ , these are the processes present in Queue:

Process: 1 Arrival Time: 0

Process: 2 Arrival Time: 0

Process: 3 Arrival Time: 0

Process: 4 Arrival Time: 0

-----QUEUE STATUS-----

At time  $t = 0$ , these are the processes present in Queue:

Process: 1 Arrival Time: 0

Process: 2 Arrival Time: 0

Process: 3 Arrival Time: 0

Process: 4 Arrival Time: 0

Process: 5 Arrival Time: 0

-----QUEUE STATUS-----

At time  $t = 0$ , these are the processes present in Queue:

Process: 1 Arrival Time: 0

Process: 2 Arrival Time: 0

Process: 3 Arrival Time: 0

Process: 4 Arrival Time: 0

Process: 5 Arrival Time: 0

Process: 6 Arrival Time: 0

Process: 1 added at time t = 0

-----MEMORY STATUS----- at time t = 0

Process :- 1 Segment :- 0 Size :-200 Location :- 0 - 199

Process :- 1 Segment :- 1 Size :-200 Location :- 200 - 399

Hole Present :- Size :- 1600 Location :- 400 - 1999

Process: 2 added at time t = 0

-----MEMORY STATUS----- at time t = 0

Process :- 1 Segment :- 0 Size :-200 Location :- 0 - 199

Process :- 1 Segment :- 1 Size :-200 Location :- 200 - 399

Process :- 2 Segment :- 0 Size :-200 Location :- 400 - 599

Hole Present :- Size :- 1400 Location :- 600 - 1999

Process: 3 added at time t = 0

-----MEMORY STATUS----- at time t = 0

Process :- 1 Segment :- 0 Size :-200 Location :- 0 - 199

Process :- 1 Segment :- 1 Size :-200 Location :- 200 - 399

Process :- 2 Segment :- 0 Size :-200 Location :- 400 - 599

Process :- 3 Segment :- 0 Size :-100 Location :- 600 - 699

Process :- 3 Segment :- 1 Size :-200 Location :- 700 - 899

Hole Present :- Size :- 1100 Location :- 900 - 1999

Process: 4 added at time t = 0

-----MEMORY STATUS----- at time t = 0

Process :- 1 Segment :- 0 Size :-200 Location :- 0 - 199

Process :- 1 Segment :- 1 Size :-200 Location :- 200 - 399

Process :- 2 Segment :- 0 Size :-200 Location :- 400 - 599

Process :- 3 Segment :- 0 Size :-100 Location :- 600 - 699

Process :- 3 Segment :- 1 Size :-200 Location :- 700 - 899

Process :- 4 Segment :- 0 Size :-100 Location :- 900 - 999

Hole Present :- Size :- 1000 Location :- 1000 - 1999

Process: 5 added at time t = 0

-----MEMORY STATUS----- at time t = 0

Process :- 1 Segment :- 0 Size :-200 Location :- 0 - 199

Process :- 1 Segment :- 1 Size :-200 Location :- 200 - 399

Process :- 2 Segment :- 0 Size :-200 Location :- 400 - 599

Process :- 3 Segment :- 0 Size :-100 Location :- 600 - 699

Process :- 3 Segment :- 1 Size :-200 Location :- 700 - 899

Process :- 4 Segment :- 0 Size :-100 Location :- 900 - 999

Process :- 5 Segment :- 0 Size :-100 Location :- 1000 - 1099

Process :- 5 Segment :- 1 Size :-200 Location :- 1100 - 1299

Process :- 5 Segment :- 2 Size :-200 Location :- 1300 - 1499

Hole Present :- Size :- 500 Location :- 1500 - 1999

Process: 6 added at time t = 0

-----MEMORY STATUS----- at time t = 0

Process :- 1 Segment :- 0 Size :-200 Location :- 0 - 199  
 Process :- 1 Segment :- 1 Size :-200 Location :- 200 - 399  
 Process :- 2 Segment :- 0 Size :-200 Location :- 400 - 599  
 Process :- 3 Segment :- 0 Size :-100 Location :- 600 - 699  
 Process :- 3 Segment :- 1 Size :-200 Location :- 700 - 899  
 Process :- 4 Segment :- 0 Size :-100 Location :- 900 - 999  
 Process :- 5 Segment :- 0 Size :-100 Location :- 1000 - 1099  
 Process :- 5 Segment :- 1 Size :-200 Location :- 1100 - 1299  
 Process :- 5 Segment :- 2 Size :-200 Location :- 1300 - 1499  
 Process :- 6 Segment :- 0 Size :-400 Location :- 1500 - 1899  
 Hole Present :- Size :- 100 Location :- 1900 - 1999  
 Process: 1 is completed and removed at time t = 200  
 -----MEMORY STATUS----- at time t = 200  
 Hole Present :- Size :- 200 Location :- 0 - 199  
 Hole Present :- Size :- 200 Location :- 200 - 399  
 Process :- 2 Segment :- 0 Size :-200 Location :- 400 - 599  
 Process :- 3 Segment :- 0 Size :-100 Location :- 600 - 699  
 Process :- 3 Segment :- 1 Size :-200 Location :- 700 - 899  
 Process :- 4 Segment :- 0 Size :-100 Location :- 900 - 999  
 Process :- 5 Segment :- 0 Size :-100 Location :- 1000 - 1099  
 Process :- 5 Segment :- 1 Size :-200 Location :- 1100 - 1299  
 Process :- 5 Segment :- 2 Size :-200 Location :- 1300 - 1499  
 Process :- 6 Segment :- 0 Size :-400 Location :- 1500 - 1899  
 Hole Present :- Size :- 100 Location :- 1900 - 1999  
 Process: 3 is completed and removed at time t = 200  
 -----MEMORY STATUS----- at time t = 200  
 Hole Present :- Size :- 200 Location :- 0 - 199  
 Hole Present :- Size :- 200 Location :- 200 - 399  
 Process :- 2 Segment :- 0 Size :-200 Location :- 400 - 599  
 Hole Present :- Size :- 100 Location :- 600 - 699  
 Hole Present :- Size :- 200 Location :- 700 - 899  
 Process :- 4 Segment :- 0 Size :-100 Location :- 900 - 999  
 Process :- 5 Segment :- 0 Size :-100 Location :- 1000 - 1099  
 Process :- 5 Segment :- 1 Size :-200 Location :- 1100 - 1299  
 Process :- 5 Segment :- 2 Size :-200 Location :- 1300 - 1499  
 Process :- 6 Segment :- 0 Size :-400 Location :- 1500 - 1899  
 Hole Present :- Size :- 100 Location :- 1900 - 1999  
 Process: 5 is completed and removed at time t = 200  
 -----MEMORY STATUS----- at time t = 200  
 Hole Present :- Size :- 200 Location :- 0 - 199  
 Hole Present :- Size :- 200 Location :- 200 - 399  
 Process :- 2 Segment :- 0 Size :-200 Location :- 400 - 599

Hole Present :- Size :- 100 Location :- 600 - 699  
Hole Present :- Size :- 200 Location :- 700 - 899  
Process :- 4 Segment :- 0 Size :-100 Location :- 900 - 999  
Hole Present :- Size :- 100 Location :- 1000 - 1099  
Hole Present :- Size :- 200 Location :- 1100 - 1299  
Hole Present :- Size :- 200 Location :- 1300 - 1499  
Process :- 6 Segment :- 0 Size :-400 Location :- 1500 - 1899  
Hole Present :- Size :- 100 Location :- 1900 - 1999

-----QUEUE STATUS-----

At time t = 500, these are the processes present in Queue:

Process: 7 Arrival Time: 500

Process: 7 added at time t = 500

-----MEMORY STATUS----- at time t = 500

Hole Present :- Size :- 400 Location :- 0 - 399  
Process :- 2 Segment :- 0 Size :-200 Location :- 400 - 599  
Process :- 7 Segment :- 0 Size :-300 Location :- 600 - 899  
Process :- 4 Segment :- 0 Size :-100 Location :- 900 - 999  
Process :- 7 Segment :- 1 Size :-500 Location :- 1000 - 1499  
Process :- 6 Segment :- 0 Size :-400 Location :- 1500 - 1899  
Hole Present :- Size :- 100 Location :- 1900 - 1999

-----QUEUE STATUS-----

At time t = 600, these are the processes present in Queue:

Process: 8 Arrival Time: 600

-----QUEUE STATUS-----

At time t = 700, these are the processes present in Queue:

Process: 8 Arrival Time: 600

Process: 9 Arrival Time: 700

Process: 9 added at time t = 700

-----MEMORY STATUS----- at time t = 700

Process :- 9 Segment :- 0 Size :-200 Location :- 0 - 199  
Process :- 9 Segment :- 1 Size :-200 Location :- 200 - 399  
Process :- 2 Segment :- 0 Size :-200 Location :- 400 - 599  
Process :- 7 Segment :- 0 Size :-300 Location :- 600 - 899  
Process :- 4 Segment :- 0 Size :-100 Location :- 900 - 999  
Process :- 7 Segment :- 1 Size :-500 Location :- 1000 - 1499  
Process :- 6 Segment :- 0 Size :-400 Location :- 1500 - 1899  
Hole Present :- Size :- 100 Location :- 1900 - 1999

Process: 2 is completed and removed at time t = 2000

-----MEMORY STATUS----- at time t = 2000

Process :- 9 Segment :- 0 Size :-200 Location :- 0 - 199  
Process :- 9 Segment :- 1 Size :-200 Location :- 200 - 399  
Hole Present :- Size :- 200 Location :- 400 - 599

Process :- 7 Segment :- 0 Size :-300 Location :- 600 - 899  
Process :- 4 Segment :- 0 Size :-100 Location :- 900 - 999  
Process :- 7 Segment :- 1 Size :-500 Location :- 1000 - 1499  
Process :- 6 Segment :- 0 Size :-400 Location :- 1500 - 1899  
Hole Present :- Size :- 100 Location :- 1900 - 1999  
Process: 7 is completed and removed at time t = 2000

-----MEMORY STATUS----- at time t = 2000

Process :- 9 Segment :- 0 Size :-200 Location :- 0 - 199  
Process :- 9 Segment :- 1 Size :-200 Location :- 200 - 399  
Hole Present :- Size :- 200 Location :- 400 - 599  
Hole Present :- Size :- 300 Location :- 600 - 899  
Process :- 4 Segment :- 0 Size :-100 Location :- 900 - 999  
Hole Present :- Size :- 500 Location :- 1000 - 1499  
Process :- 6 Segment :- 0 Size :-400 Location :- 1500 - 1899  
Hole Present :- Size :- 100 Location :- 1900 - 1999  
Process: 4 is completed and removed at time t = 2000

-----MEMORY STATUS----- at time t = 2000

Process :- 9 Segment :- 0 Size :-200 Location :- 0 - 199  
Process :- 9 Segment :- 1 Size :-200 Location :- 200 - 399  
Hole Present :- Size :- 200 Location :- 400 - 599  
Hole Present :- Size :- 300 Location :- 600 - 899  
Hole Present :- Size :- 100 Location :- 900 - 999  
Hole Present :- Size :- 500 Location :- 1000 - 1499  
Process :- 6 Segment :- 0 Size :-400 Location :- 1500 - 1899  
Hole Present :- Size :- 100 Location :- 1900 - 1999  
Process: 6 is completed and removed at time t = 2000

-----MEMORY STATUS----- at time t = 2000

Process :- 9 Segment :- 0 Size :-200 Location :- 0 - 199  
Process :- 9 Segment :- 1 Size :-200 Location :- 200 - 399  
Hole Present :- Size :- 200 Location :- 400 - 599  
Hole Present :- Size :- 300 Location :- 600 - 899  
Hole Present :- Size :- 100 Location :- 900 - 999  
Hole Present :- Size :- 500 Location :- 1000 - 1499  
Hole Present :- Size :- 400 Location :- 1500 - 1899  
Hole Present :- Size :- 100 Location :- 1900 - 1999

Process: 8 added at time t = 2000

-----MEMORY STATUS----- at time t = 2000

Process :- 9 Segment :- 0 Size :-200 Location :- 0 - 199  
Process :- 9 Segment :- 1 Size :-200 Location :- 200 - 399  
Process :- 8 Segment :- 0 Size :-200 Location :- 400 - 599  
Process :- 8 Segment :- 1 Size :-200 Location :- 600 - 799  
Process :- 8 Segment :- 2 Size :-200 Location :- 800 - 999

Hole Present :- Size :- 1000 Location :- 1000 - 1999

Process: 9 is completed and removed at time t = 2200

-----MEMORY STATUS----- at time t = 2200

Hole Present :- Size :- 200 Location :- 0 - 199

Hole Present :- Size :- 200 Location :- 200 - 399

Process :- 8 Segment :- 0 Size :-200 Location :- 400 - 599

Process :- 8 Segment :- 1 Size :-200 Location :- 600 - 799

Process :- 8 Segment :- 2 Size :-200 Location :- 800 - 999

Hole Present :- Size :- 1000 Location :- 1000 - 1999

Process: 8 is completed and removed at time t = 3500

-----MEMORY STATUS----- at time t = 3500

Hole Present :- Size :- 400 Location :- 0 - 399

Hole Present :- Size :- 200 Location :- 400 - 599

Hole Present :- Size :- 200 Location :- 600 - 799

Hole Present :- Size :- 200 Location :- 800 - 999

Hole Present :- Size :- 1000 Location :- 1000 - 1999

Average turnaround time is: 1388.89