17000777

Karunarathne KPMAL

Appropriate data structure

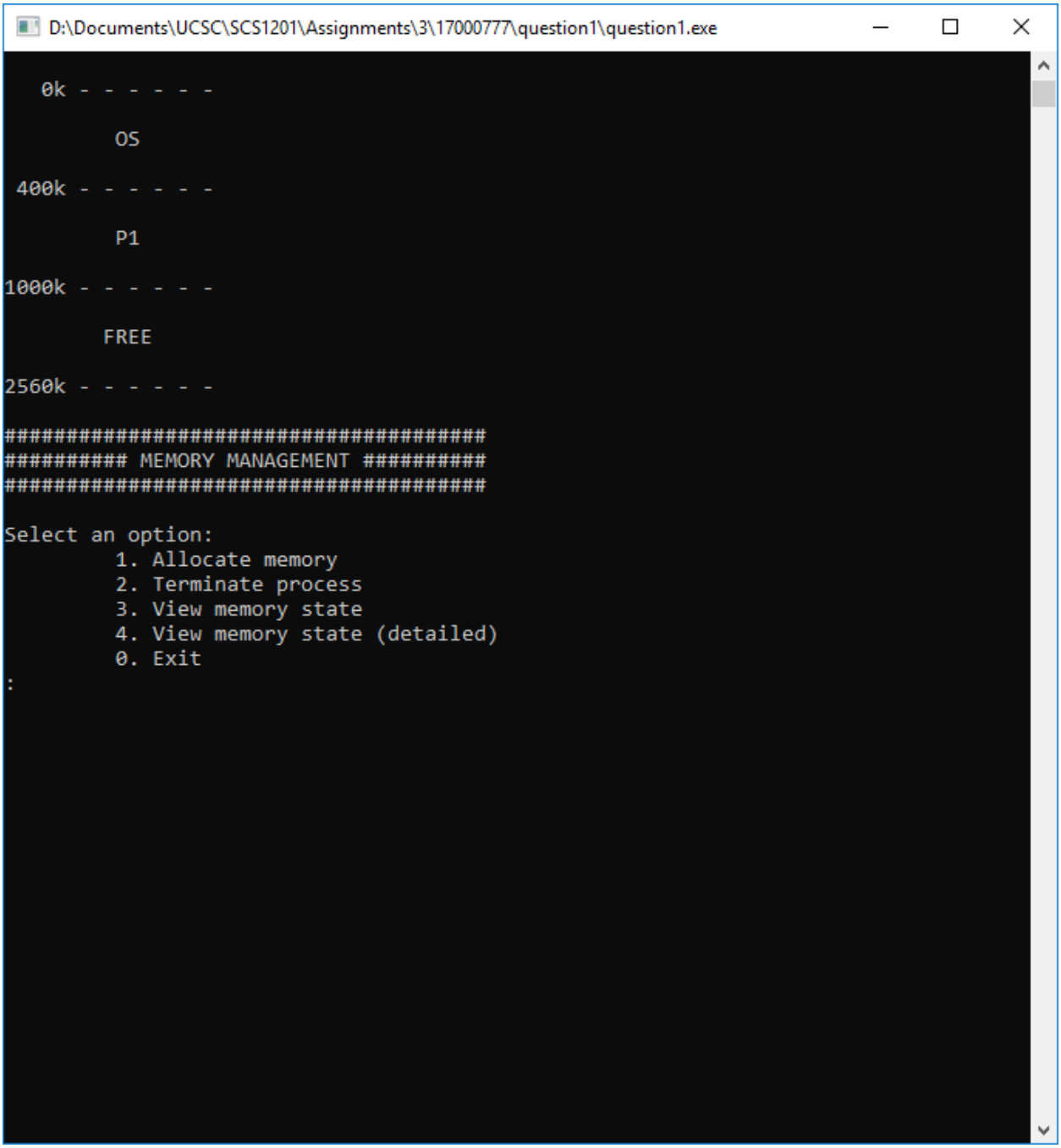
The appropriate data structure for this scenario is linked lists. As we need to add and delete items to and from various places of the list. This type of actions can't be done in standard arrays or queues or stacks. Therefore, a linked list is the most appropriate data structure.

Test results

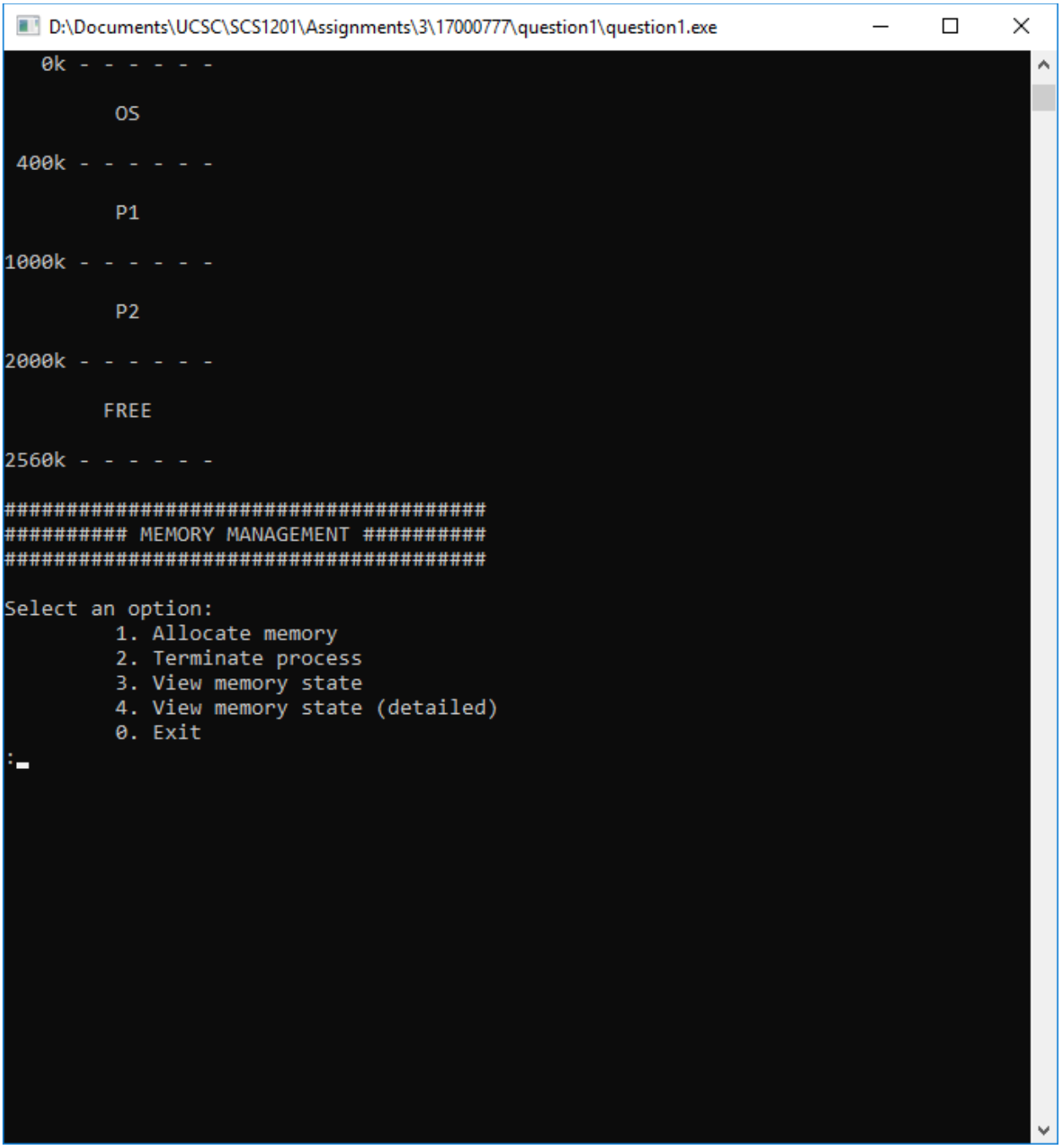
Test Case ID	Test Scenario	Test Steps	Test Data	Expected Results	Actual Results	Pass/Fail
1	Allocate P1 600K	Option: 1 Process ID: 1 Memory size: 600	Process_id = 1 Size = 600	Allocates a memory block of 600k for P1	As expected	Pass
2	Allocate P2 1000K	Option: 1 Process ID: 2 Memory size: 1000	Process_id = 2 Size = 1000	Allocates a memory block of 1000k for P2	As expected	Pass
3	Allocate P3 300K	Option: 1 Process ID: 3 Memory size: 300	Process_id = 3 Size = 300	Allocates a memory block of 300k for P3	As expected	Pass
4	Terminate P2	Option: 2 Process ID: 2	Process_id = 2	Terminate the memory block of P2	As expected	Pass
5	Allocate P4 700K	Option: 1 Process ID: 4 Memory size: 700	Process_id = 4 Size = 700	Allocates a memory block of 700k for P4	As expected	Pass
6	Terminate P1	Option: 2 Process ID: 1	Process_id = 1	Terminate the memory block of P1	As expected	Pass
7	Allocate P5 400K	Option: 1 Process ID: 5 Memory size: 400	Process_id = 5 Size = 400	Allocates a memory block of 600k for P1	As expected	Pass

Screenshots

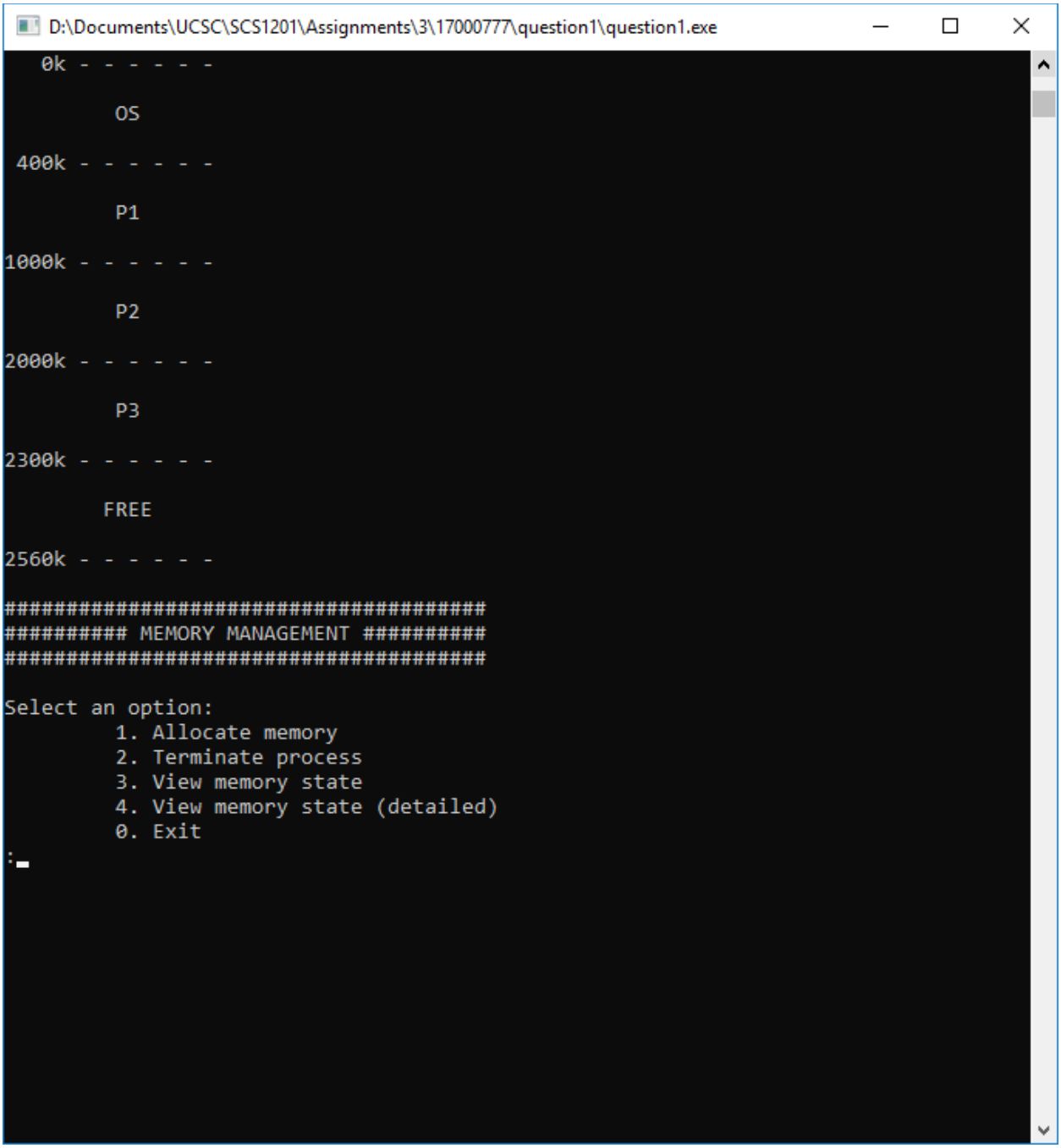
Test 1



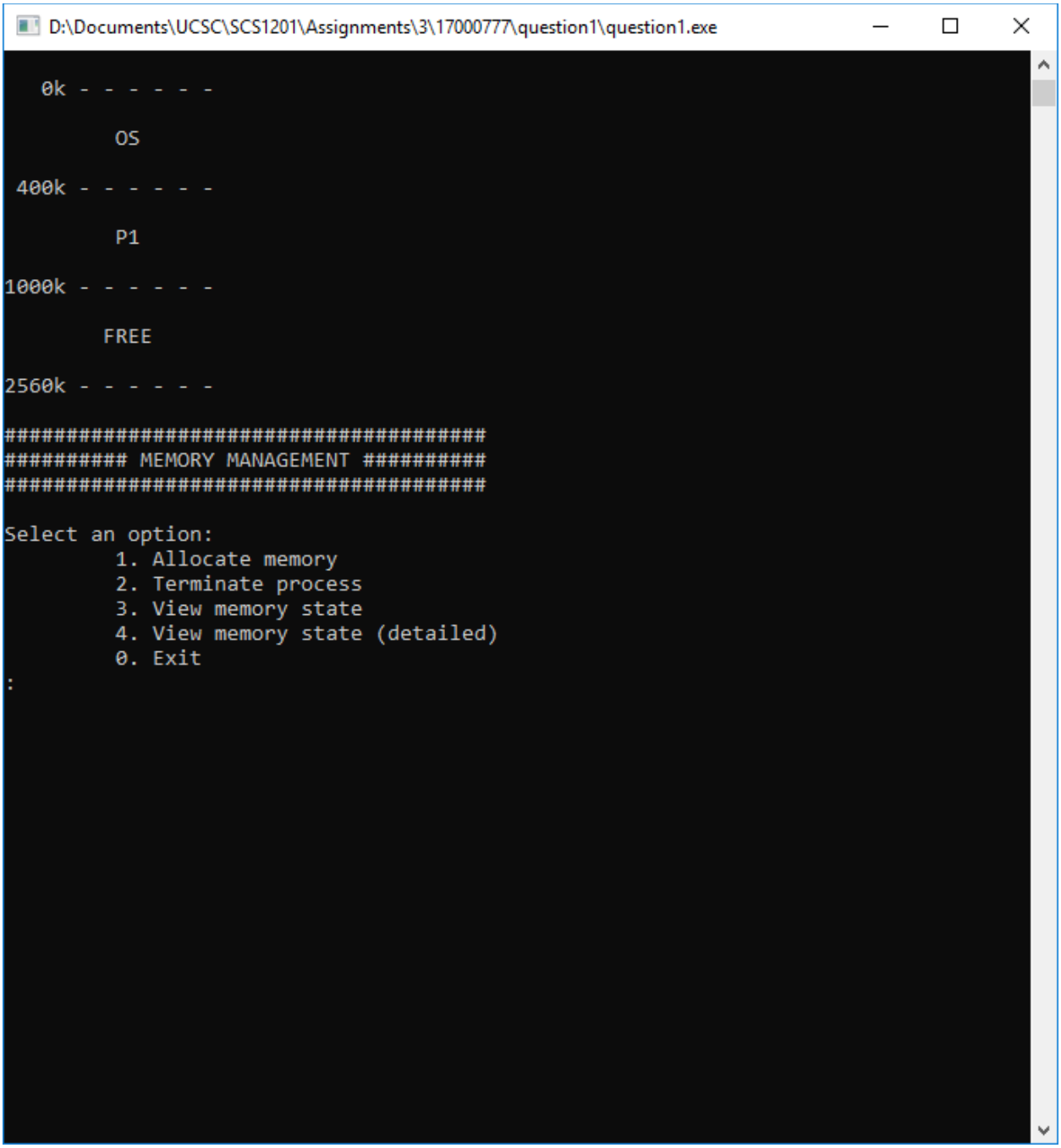
Test 2


D:\Documents\UCSC\SCS1201\Assignments\3\17000777\question1\question1.exe
0k - - - - - -
OS
400k - - - - - -
P1
1000k - - - - - -
P2
2000k - - - - - -
FREE
2560k - - - - - -
##
########## MEMORY MANAGEMENT ##########
##
Select an option:
1. Allocate memory
2. Terminate process
3. View memory state
4. View memory state (detailed)
0. Exit
:

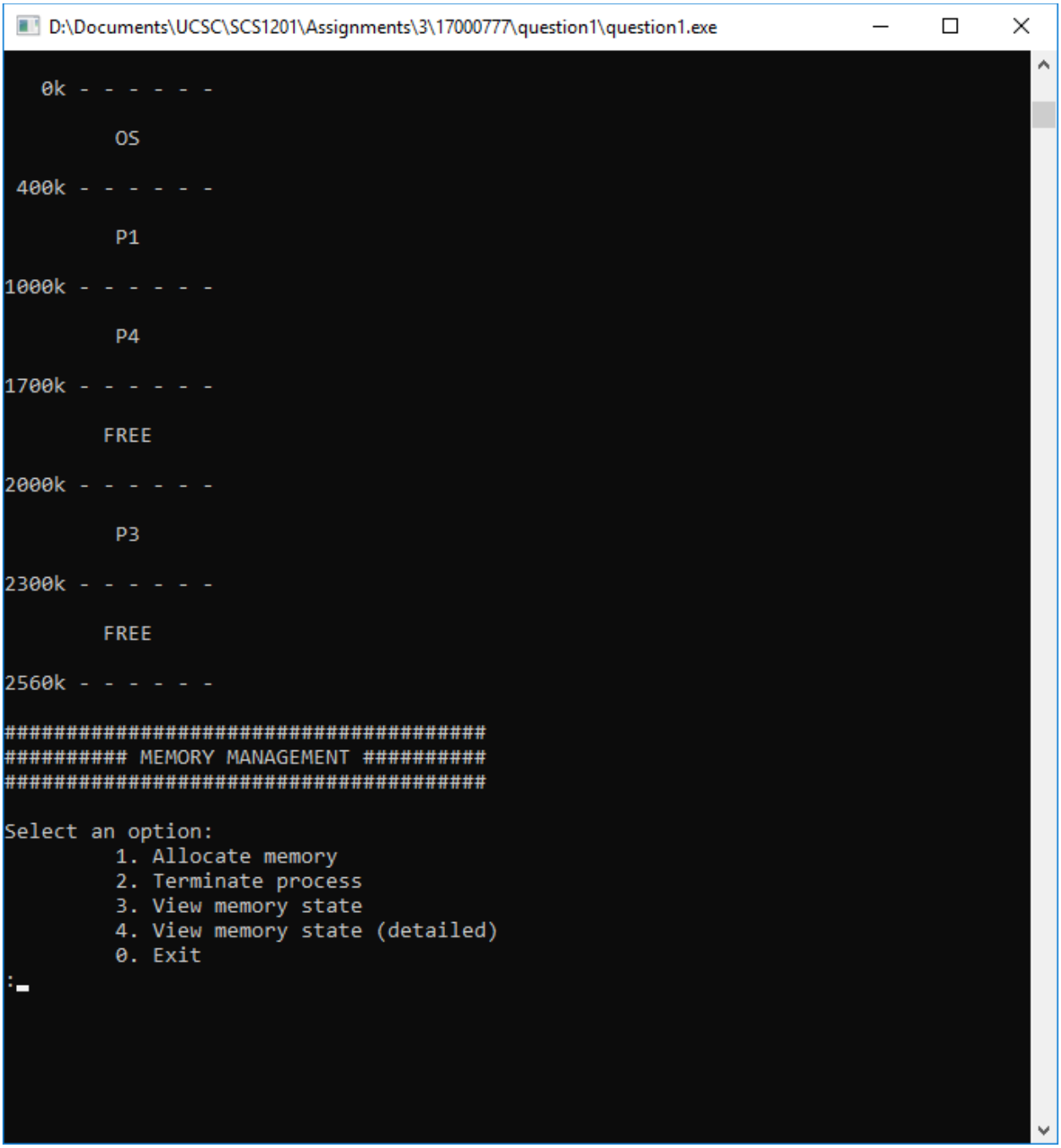
Test 3


D:\Documents\UCSC\SCS1201\Assignments\3\17000777\question1\question1.exe
0k - - - - - -
OS
400k - - - - - -
P1
1000k - - - - - -
P2
2000k - - - - - -
P3
2300k - - - - - -
FREE
2560k - - - - - -
##
########## MEMORY MANAGEMENT ##########
##
Select an option:
1. Allocate memory
2. Terminate process
3. View memory state
4. View memory state (detailed)
0. Exit
:

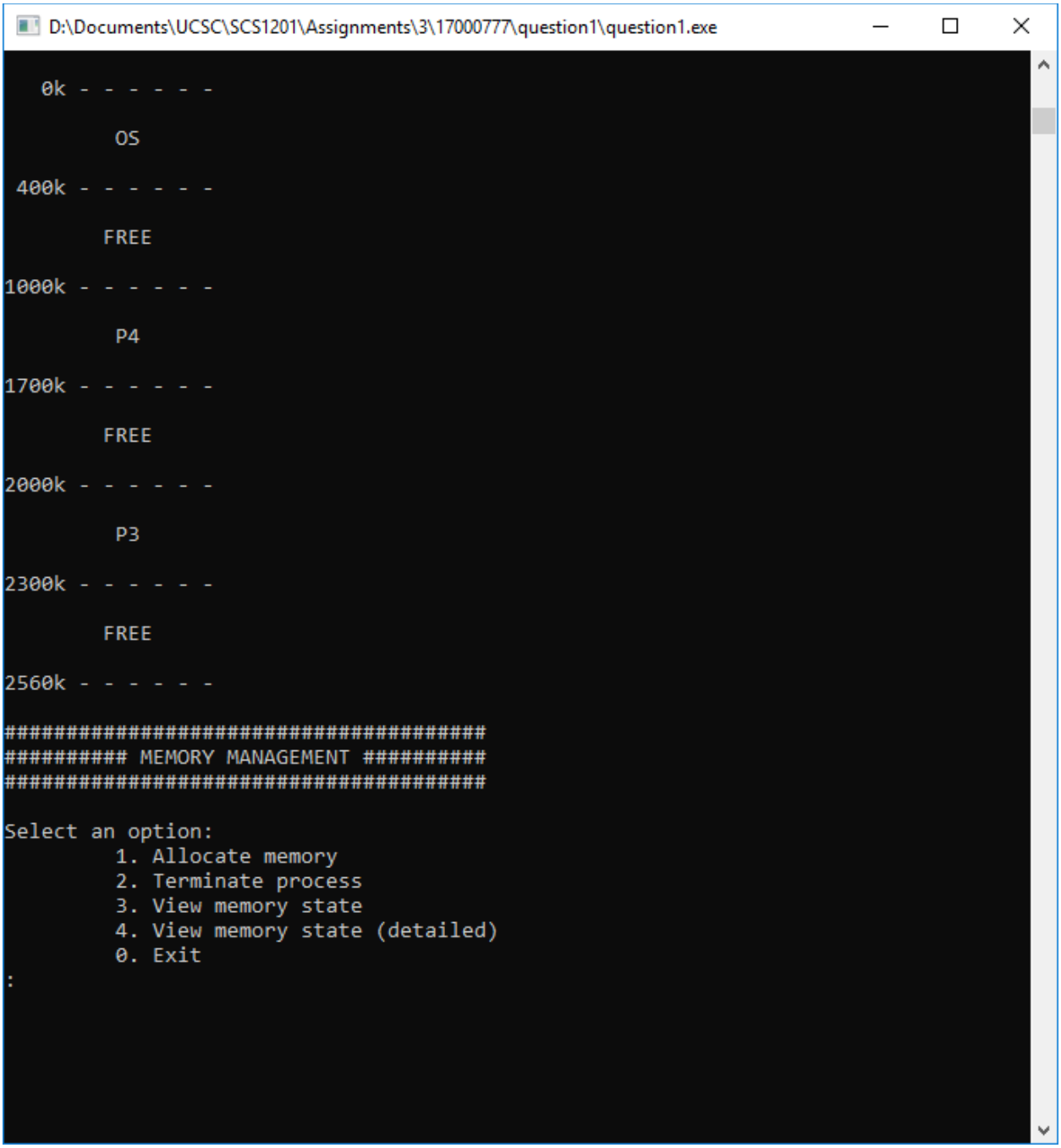
Test 4


D:\Documents\UCSC\SCS1201\Assignments\3\17000777\question1\question1.exe
0k - - - - - -
OS
400k - - - - - -
P1
1000k - - - - - -
FREE
2560k - - - - - -
##
########## MEMORY MANAGEMENT ##########
##
Select an option:
1. Allocate memory
2. Terminate process
3. View memory state
4. View memory state (detailed)
0. Exit
:

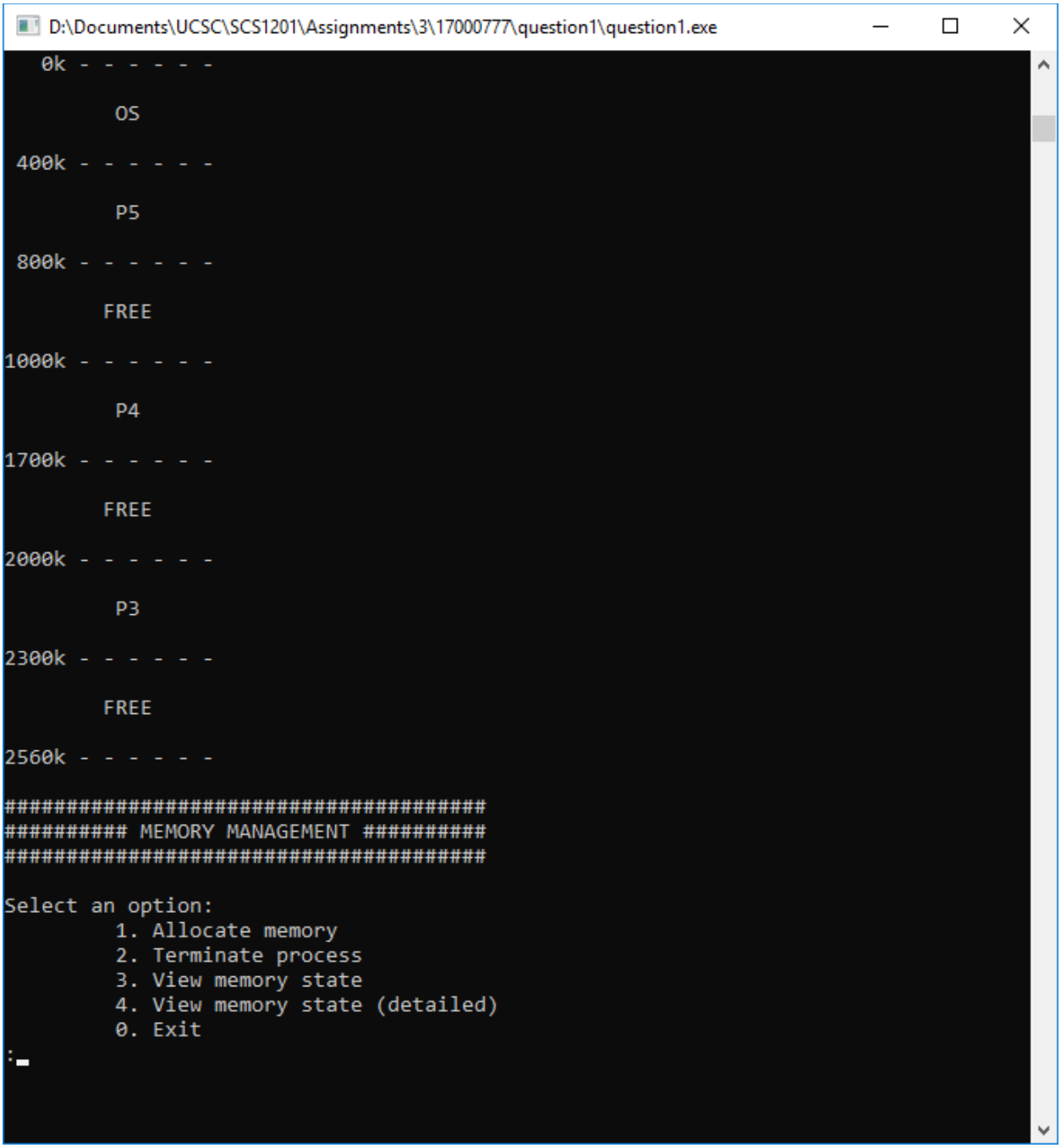
Test 5


D:\Documents\UCSC\SCS1201\Assignments\3\17000777\question1\question1.exe
0k - - - - - -
OS
400k - - - - - -
P1
1000k - - - - - -
P4
1700k - - - - - -
FREE
2000k - - - - - -
P3
2300k - - - - - -
FREE
2560k - - - - - -
##
########## MEMORY MANAGEMENT ##########
##
Select an option:
1. Allocate memory
2. Terminate process
3. View memory state
4. View memory state (detailed)
0. Exit
:

Test 6


D:\Documents\UCSC\SCS1201\Assignments\3\17000777\question1\question1.exe
0k - - - - - -
OS
400k - - - - - -
FREE
1000k - - - - - -
P4
1700k - - - - - -
FREE
2000k - - - - - -
P3
2300k - - - - - -
FREE
2560k - - - - - -
##
########## MEMORY MANAGEMENT ##########
##
Select an option:
1. Allocate memory
2. Terminate process
3. View memory state
4. View memory state (detailed)
0. Exit
:

Test 7


D:\Documents\UCSC\SCS1201\Assignments\3\17000777\question1\question1.exe
0k - - - - - -
OS
400k - - - - - -
P5
800k - - - - - -
FREE
1000k - - - - - -
P4
1700k - - - - - -
FREE
2000k - - - - - -
P3
2300k - - - - - -
FREE
2560k - - - - - -
##
########## MEMORY MANAGEMENT ##########
##
Select an option:
1. Allocate memory
2. Terminate process
3. View memory state
4. View memory state (detailed)
0. Exit
: