# Activity- 4

Suppose that a client performs an intermixed sequence of (queue) enqueue and dequeue operations. The enqueue operations put the integers 0 through 9 in order onto the queue; the dequeue operations print out the return value. Which of the following sequence(s) could not occur?

(a) 0 1 2 3 4 5 6 7 8 9

(b) 4 6 8 7 5 3 2 9 0 1

(c) 2 5 6 7 4 8 9 3 1 0

(d) 4 3 2 1 0 5 6 7 8 9

1. 0 1 2 3 4 5 6 7 8 9

|  |  |  |
| --- | --- | --- |
| ENQUEUE | DEQUEUE | OUTPUT |
| Enqueue 0 | - | - |
| Enqueue 1 | - | - |
| Enqueue 2 | - | - |
| Enqueue 3 | - | - |
| Enqueue 4 | - | - |
| Enqueue 5 | - | - |
| Enqueue 6 | - | - |
| Enqueue 7 | - | - |
| Enqueue 8 | - | - |
| Enqueue 9 | - | - |
|  | Dequeue 0 | 0 |
|  | Dequeue 1 | 0 1 |
|  | Dequeue 2 | 0 1 2 |
|  | Dequeue 3 | 0 1 2 3 |
|  | Dequeue 4 | 0 1 2 3 4 |
|  | Dequeue 5 | 0 1 2 3 4 5 |
|  | Dequeue 6 | 0 1 2 3 4 5 6 |
|  | Dequeue 7 | 0 1 2 3 4 5 6 7 |
|  | Dequeue 8 | 0 1 2 3 4 5 6 7 8 |
|  | Dequeue 9 | 0 1 2 3 4 5 6 7 8 9 |
|  | possible | 0 1 2 3 4 5 6 7 8 9 |

Answer : Could Occur

1. 4 6 8 7 5 3 2 9 0 1

|  |  |  |
| --- | --- | --- |
| ENQUEUE | DEQUEUE | OUTPUT |
| Enqueue 0 | - | - |
| Enqueue 1 | - | - |
| Enqueue 2 | - | - |
| Enqueue 3 | - | - |
| Enqueue 4 | - | - |
| - | Dequeue 4  Error Occured | - |
| - | Not possible | - |

Answer : Could Not Occur

1. 2 5 6 7 4 8 9 3 1 0

|  |  |  |
| --- | --- | --- |
| ENQUEUE | DEQUEUE | OUTPUT |
| Enqueue 0 | - | - |
| Enqueue 1 | - | - |
| Enqueue 2 | - | - |
| - | Dequeue 2  Error Occured | - |
| - | Not possible | - |

Answer : Could Not Occur

1. 4 3 2 1 0 5 6 7 8 9

|  |  |  |
| --- | --- | --- |
| ENQUEUE | DEQUEUE | OUTPUT |
| Enqueue 0 | - | - |
| Enqueue 1 | - | - |
| Enqueue 2 | - | - |
| Enqueue 3 | - | - |
| Enqueue 4 | - | - |
| - | Dequeue 4  Error Occured | - |
| - | Not possible | - |

Answer : Could Not Occur