**Flowchart of 3rd Checkpoint**

Queue of 16 elements

|  |
| --- |
| 1 |
| 2 |
| 3 |
| 4 |
| 5 |
| 6 |
| 7 |
| 8 |
| 9 |
| 10 |
| 11 |
| 12 |
| 13 |
| 14 |
| 15 |
| 16 |

|  |
| --- |
| .txt file of 20 lines  No. of Lines  1  2  3  4  5  6  7  8  9  10  11  12  13  14  15  16  17  18  19  20 |

Once the queue is full

Remove the first item from the queue after the 100th clock cycle

|  |
| --- |
| 1 |
| 2 |
| 3 |
| 4 |
| 5 |
| 6 |
| 7 |
| 8 |
| 9 |
| 10 |
| 11 |
| 12 |
| 13 |
| 14 |
| 15 |
| 16 |

Insert the 17th item from the .txt file after the 100th clock cycle

Queue will look like this –

|  |
| --- |
| 2 |
| 3 |
| 4 |
| 5 |
| 6 |
| 7 |
| 8 |
| 9 |
| 10 |
| 11 |
| 12 |
| 13 |
| 14 |
| 15 |
| 16 |
| 17 |