

# AU Multithreading Assignment

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Question1) Write a Multi threaded program to demonstrate Producer and Consumer who share a common queues of similar items

The Role of the Producer is to generate the item and place it in the queue and make sure he doesn't generate when the queue is full

The Role of the Consumer is to remove the item from the queue and consume it and make sure he doesn't consume when the queue is empty

Take a few items in the queue initially instead of an empty queue.

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```
Getting-->1
Length of queue=4
Inserting-->6
Length of queue=5
Getting-->2
Length of queue=4
Inserting-->7
Length of queue=5
Getting-->3
Length of queue=4
Inserting-->8
Length of queue=5
Getting-->4
Length of queue=4
Inserting-->9
Length of queue=5
Getting-->5
Length of queue=4
Getting-->6
Length of queue=3
Inserting-->10
Length of queue=4
Getting-->7
Length of queue=3
Inserting-->11
Length of queue=4
Getting-->8
Length of queue=3
Inserting-->12
Length of queue=4
Getting-->9
Length of queue=3
Inserting-->13
```

When the queue becomes empty the consumer waits until the producer inserts item into the queue,

```
Getting-->18
Length of queue=1
Inserting-->20
Length of queue=2
Getting-->19
Length of queue=1
Inserting-->21
Length of queue=2
Getting-->20
Length of queue=1
Inserting-->22
Length of queue=2
Getting-->21
Length of queue=1
Getting-->22
Length of queue=0
Inserting-->23
Length of queue=1
Getting-->23
Length of queue=0
Inserting-->24
Length of queue=1
Getting-->24
Length of queue=0
Inserting-->25
Length of queue=1
Getting-->25
Length of queue=0
Inserting-->26
Length of queue=1
Getting-->26
Length of queue=0
```

Question2) Take a List of lines (String) with dummy data and count the total words of all the lines and check the time taken to perform the task using threads and without threads.

Change the no of threads, no of lines and give a report/summary.

```
Number of words : 90531
Without Multithreading : 110milliseconds
Number of words : 90531
With Multithreading : 37milliseconds
```

When we use threads then the time required for execution is reduced.