 Data Structures and Algorithm | Jan 2021​

# Assignment 5 | 22nd January 2021

**For any doubts regarding the assignment, ask questions in the** [**Dat**](https://community.letsupgrade.in/group/dsaes0121b2)​ [**a**](https://community.letsupgrade.in/group/dsaes0121b2)

[**Structures and Algorithms**](https://community.letsupgrade.in/group/dsaes0121b2) **Group**​ ​ **in the Community.**​

**Submit Assignments by** ​ **26**​ **th January 2021 11:59 PM**

## Assignment Submit Form: [https://forms.gle/bJBQwoRVk4P8SR4T](https://forms.gle/bJBQwoRVk4P8SR4T8)​ [8](https://forms.gle/bJBQwoRVk4P8SR4T8)

**Submit assignments in Appropriate Dropdowns.**

**Question 1**

Name 5 sorting algorithms, also write their time complexities(best, average, worst).

**Answer:**

|  |  |  |  |
| --- | --- | --- | --- |
| **Sorting Algorithm** | **Time Complexities** | | |
| **Best Case** | **Average Case** | **Worst Case** |
| [Selection Sort](http://geeksquiz.com/selection-sort/) | O(n2) | O(n2) | O(n2) |
| Bubble Sort | O(n) | O(n2) | O(n2) |
| Insertion Sort | O(n) | O(n2) | O(n2) |
| Quick Sort | (n logn) | (n logn) | O(n2) |
| [Merge Sort](http://geeksquiz.com/quick-sort/) | (n logn) | (n logn) | (n logn) |

**Question 2**

Implement selection sort algorithm using Python.

**Answer:**

def selectionSort(array, size):

for step in range(size):

min\_idx = step

for i in range(step + 1, size):

if array[i] < array[min\_idx]:

min\_idx = i

(array[step], array[min\_idx]) = (array[min\_idx], array[step])

data = [64, 25, 12, 22, 11]

size = len(data)

selectionSort(data, size)

print('Sorted Array:', data)

**Output:**

Sorted Array: [11, 12, 22, 25, 64]

**Question 3**

Implement pop operation of the stack

**Answer:**

def pop(self):

if len(self.stack) <= 0:

return ("No element in the Stack")

else:

return self.stack.pop()

Stack = [12, 13, 14]

print('Popped Element: ', Stack.pop())

**Output:**

Popped Element: 14

**Question 4**

Implement dequeue operation of the queue

**Answer:**

q=[12, 13, 14]

def dequeue():

if not q:

print("Queue is Empty")

else:

e=q.pop(0)

print("Deleted element: ",e)

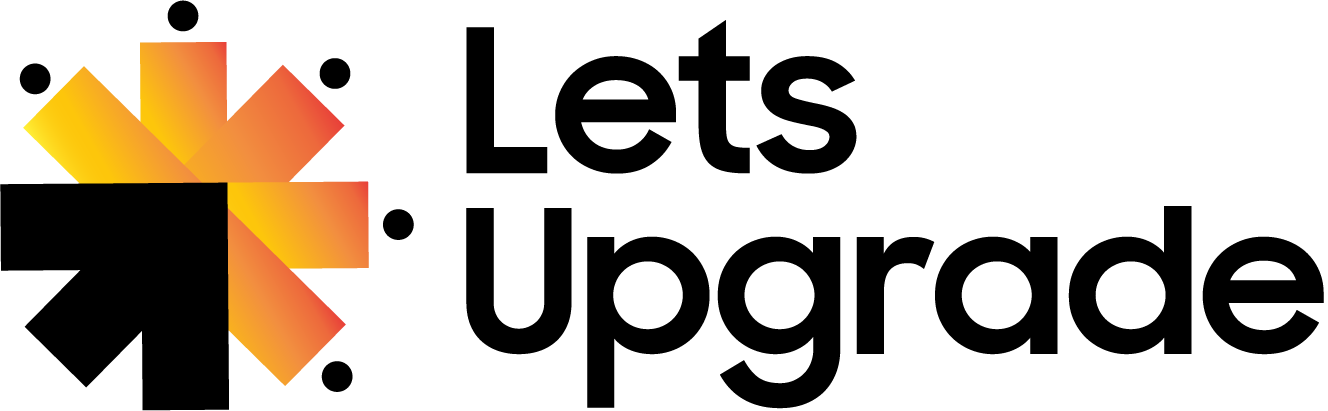
while True:

dequeue()

break

**Output:**

Deleted element: 12

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## FAQs

**Q. When do I submit the Assignments and how?**

1. The assignments for the week should be submitted by 26th January 2021 i.e.Tuesday 11:59 PM IST.
2. You need to submit the answers in Document Format

**Q. Where do I get class links for the next session?**

1. All sessions will be Live on our Youtube Channel. Subscribe to LetsUpgrade​​[YouTube Channel](https://www.youtube.com/channel/UCWUDiLzQZr4VDHNyMsVYn-g)​[.](https://www.youtube.com/channel/UCWUDiLzQZr4VDHNyMsVYn-g)

You'll also get an email with the link to the live session.

1. It will be also updated in the Community Group in the pinned post.

**Q. I have some doubt, who do I ask?**

A. Post your Queries on the community, someone will help you out.

**Q. How can we know if my assignment is verified or not? And is it successfully submitted or not?**

A. You will receive a mail for your successful submission.