



[Course](#) > [Course 4: AI...](#) > [Module 1 - S...](#) > [Sorting Algo...](#)

Sorting Algorithms Exercise #2

Exercise 2:

Scenario

In this exercise, you will implement a Quick Sort.

Task 1: Creating a Quick Sort

1. At the bottom of the Jupyter notebook, click in the empty cell.
2. Copy the following code into the notebook

```
def partition(array, low, high):  
  
    i = (low - 1)  
  
    pivot = array[high]  
  
    for j in range(low, high):  
  
        if array[j] <= pivot:  
  
            i += 1  
  
            array[i], array[j] = array[j], array[i]  
  
    array[i + 1], array[high] = array[high], array[i + 1]  
  
    return (i + 1)  
  
  
def quick_sort(array, low, high):  
  
    if low < high:
```

```
partition_index = partition(array, low, high)

quick_sort(array, low, partition_index - 1)

quick_sort(array, partition_index + 1, high)


array = [1, 0, 4, 2, 3, 5]

print('Unsorted array')

print(array)


low = 0

high = len(array) - 1

quick_sort(array, low, high)


print('Sorted array')

print(array)
```

1. To run the code, click **Run**.
2. View the results.
3. Has the array been sorted correctly?

Lab Review

In this lab you implemented two sorts in Python:

- Insertion Sort
- Quick Sort

Review Questions

1. Which sort will perform more quickly, on average?
2. How did you reach your decision?

Discussion Forums

Go to the discussion forums to discuss your results.



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