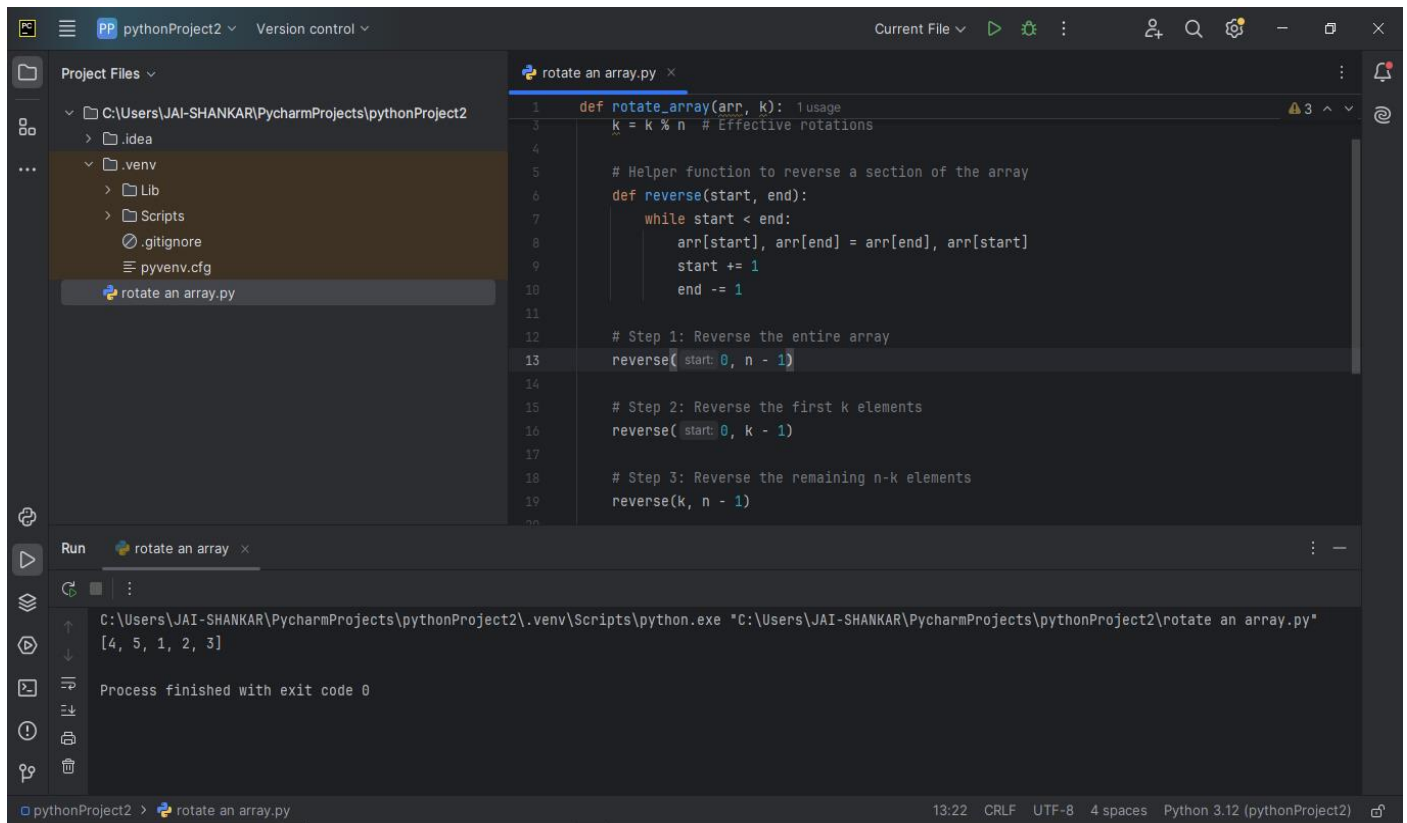


Rotate an Array Right by K Positions Write a program to rotate an array right by k positions without using any built-in array or rotation functions. For example, rotating [1, 2, 3, 4, 5] by 2 would give [4, 5, 1, 2, 3]. Instructions: You should implement the logic manually for rotating the array.

## Program:

```
Current File ▾ ▶ 🔍 ⚙️ — 📄
rotate an array.py ×
1 def rotate_array(arr, k): 1 usage
2     n = len(arr)
3     k = k % n # Effective rotations
4
5     # Helper function to reverse a section of the array
6     def reverse(start, end):
7         while start < end:
8             arr[start], arr[end] = arr[end], arr[start]
9             start += 1
10            end -= 1
11
12    # Step 1: Reverse the entire array
13    reverse(start: 0, n - 1)
14
15    # Step 2: Reverse the first k elements
16    reverse(start: 0, k - 1)
17
18    # Step 3: Reverse the remaining n-k elements
19    reverse(k, n - 1)
20
21    # Example usage
22    arr = [1, 2, 3, 4, 5]
23    k = 2
24    rotate_array(arr, k)
25    print(arr)
26
```

## Output :



The screenshot displays the PyCharm IDE interface. On the left, the 'Project Files' pane shows the project structure, including a file named 'rotate an array.py'. The main editor window shows the code for this file. The code defines a function 'rotate\_array(arr, k)' that rotates an array by 'k' positions. It uses a helper function 'reverse(start, end)' to reverse a section of the array. The algorithm follows three steps: 1. Reverse the entire array. 2. Reverse the first 'k' elements. 3. Reverse the remaining 'n-k' elements. The 'Run' pane at the bottom shows the execution of the script, with the command 'C:\Users\JAI-SHANKAR\PycharmProjects\pythonProject2\.venv\Scripts\python.exe "C:\Users\JAI-SHANKAR\PycharmProjects\pythonProject2\rotate an array.py"' and the output '[4, 5, 1, 2, 3]'. The status bar at the bottom indicates the file is 'rotate an array.py' and the Python version is 3.12.

```
1 def rotate_array(arr, k): 1 usage
2     k = k % n # Effective rotations
3
4
5     # Helper function to reverse a section of the array
6     def reverse(start, end):
7         while start < end:
8             arr[start], arr[end] = arr[end], arr[start]
9             start += 1
10            end -= 1
11
12    # Step 1: Reverse the entire array
13    reverse(start=0, end=n-1)
14
15    # Step 2: Reverse the first k elements
16    reverse(start=0, end=k-1)
17
18    # Step 3: Reverse the remaining n-k elements
19    reverse(start=k, end=n-1)
20
```

Run rotate an array

C:\Users\JAI-SHANKAR\PycharmProjects\pythonProject2\.venv\Scripts\python.exe "C:\Users\JAI-SHANKAR\PycharmProjects\pythonProject2\rotate an array.py"  
[4, 5, 1, 2, 3]

Process finished with exit code 0

pythonProject2 > rotate an array.py 13:22 CRLF UTF-8 4 spaces Python 3.12 (pythonProject2)

## Drive link:

<https://drive.google.com/file/d/1AF1fAIQghBJMEZu8O4dDcFPTgG2qr043/view?usp=drivesdk>