

Problem Statement:

Find the Second Largest Element in an Array Write a program to find the second-largest element in an array of integers without using any sorting algorithms or built-in array functions.

Instructions: Traverse the array manually to find both the largest and second-largest element

Program Code:

```
def get_largest(array, n):
```

```
    largest = 0
```

```
    for i in range(1, n):
```

```
        if array[i] > array[largest]:
```

```
            largest = i
```

```
    return largest
```

```
def get_second_largest(array, n):
```

```
    largest = get_largest(array, n)
```

```
    result = -1
```

```
    for i in range(n):
```

```
        if array[i] != array[largest]:
```

```
            if result == -1 or array[i] > array[result]:
```

```
                result = i
```

```
    return result
```

```
def main():
```

```
    elements = input("Enter the elements separated by space or comma: ")
```

```
    array = [int(x) for x in elements.replace(",", " ").split()]
```

```
    n = len(array)
```

```
    if n < 2:
```

```

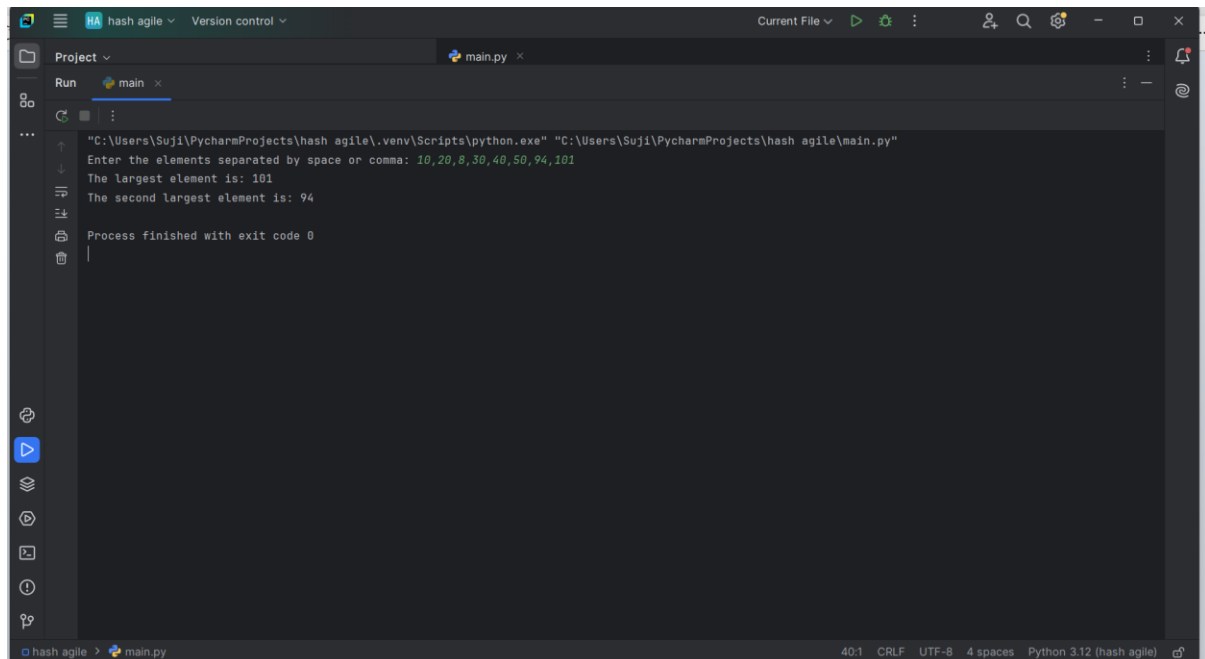
        print("At least two elements are required to find the second largest.")
    return

    largest_ind = get_largest(array, n)
    second_largest_ind = get_second_largest(array, n)
    print(f"The largest element is: {array[largest_ind]}")

    if second_largest_ind != -1:
        print(f"The second largest element is: {array[second_largest_ind]}")
    else:
        print("There is no second largest element.")
main()

```

Sample input 1:



The screenshot shows a PyCharm IDE window with a project named 'hash agile'. The 'Run' tab is active, showing the execution of 'main.py'. The console output is as follows:

```

C:\Users\Sujii\PycharmProjects\hash agile\.venv\Scripts\python.exe "C:\Users\Sujii\PycharmProjects\hash agile\main.py"
Enter the elements separated by space or comma: 10,20,8,30,40,50,94,101
The largest element is: 101
The second largest element is: 94
Process finished with exit code 0

```

The status bar at the bottom indicates the file encoding is UTF-8, 4 spaces, and Python 3.12 (hash agile).

Sample input 2:

The screenshot shows the PyCharm IDE interface. The top toolbar includes icons for file operations, a search icon, and a settings icon. The 'Project' tab shows 'hash agile' and 'main.py'. The 'Run' tab is active, displaying the execution of 'main.py'. The console output is as follows:

```
"C:\Users\Suji\PycharmProjects\hash agile\.venv\Scripts\python.exe" "C:\Users\Suji\PycharmProjects\hash agile\main.py"
Enter the elements separated by space or comma: 12,8,45,20,5
The largest element is: 45
The second largest element is: 20
Process finished with exit code 0
```

The status bar at the bottom indicates the file encoding is UTF-8, line endings are CRLF, and the Python version is 3.12 (hash agile).

Sample input 3:

The screenshot shows the PyCharm IDE interface. The top toolbar includes icons for file operations, a search icon, and a settings icon. The 'Project' tab shows 'hash agile' and 'main.py'. The 'Run' tab is active, displaying the execution of 'main.py'. The console output is as follows:

```
"C:\Users\Suji\PycharmProjects\hash agile\.venv\Scripts\python.exe" "C:\Users\Suji\PycharmProjects\hash agile\main.py"
Enter the elements separated by space or comma: 10,12,40,7,8
The largest element is: 40
The second largest element is: 12
Process finished with exit code 0
```

The status bar at the bottom indicates the file encoding is UTF-8, line endings are CRLF, and the Python version is 3.12 (hash agile). The Windows taskbar is visible at the bottom of the screen.

