TASK REPORT

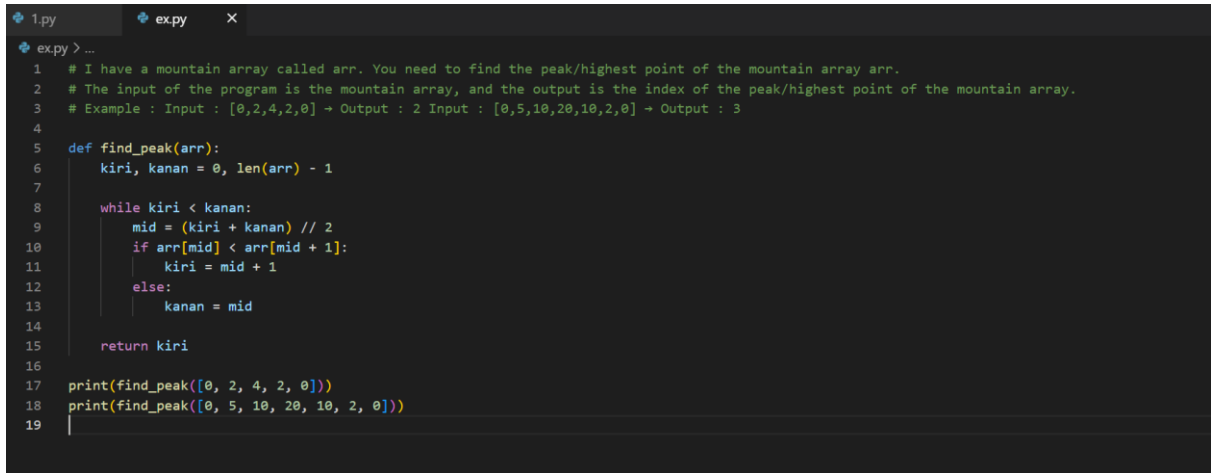**ALGORITHMS AND DATA STRUCTURE**

WEEK 5

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INFORMATICS ENGINEERING

FACULTY OF COMMUNICATION AND INFORMATICS

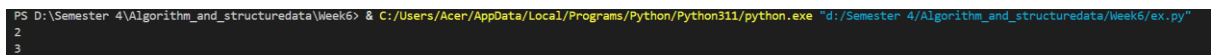**UNIVERSITAS MUHAMMADIYAH SURAKARTA**

2024/2025

TASK

1. **I have a mountain array called arr. You need to find the peak/highest point of the mountain array arr. The input of the program is the mountain array, and the output is the index of the peak/highest point of the mountain array.**

```python
# I have a mountain array called arr. You need to find the peak/highest point of the mountain array arr.
# The input of the program is the mountain array, and the output is the index of the peak/highest point of the mountain array.
# Example : Input : [0,2,4,2,0] → Output : 2 Input : [0,5,10,20,10,2,0] → Output : 3

def find_peak(arr):
    kiri, kanan = 0, len(arr) - 1

    while kiri < kanan:
        mid = (kiri + kanan) // 2
        if arr[mid] < arr[mid + 1]:
            kiri = mid + 1
        else:
            kanan = mid

    return kiri

print(find_peak([0, 2, 4, 2, 0]))
print(find_peak([0, 5, 10, 20, 10, 2, 0]))
```

Picture 1.1 the code.

```
PS D:\Semester 4\Algorithm_and_structuredata\Week6> & C:/Users/Acer/AppData/Local/Programs/Python/Python311/python.exe "d:/Semester 4/Algorithm_and_structuredata/Week6/ex.py"
2
3
```

Picture 1.2 the output.