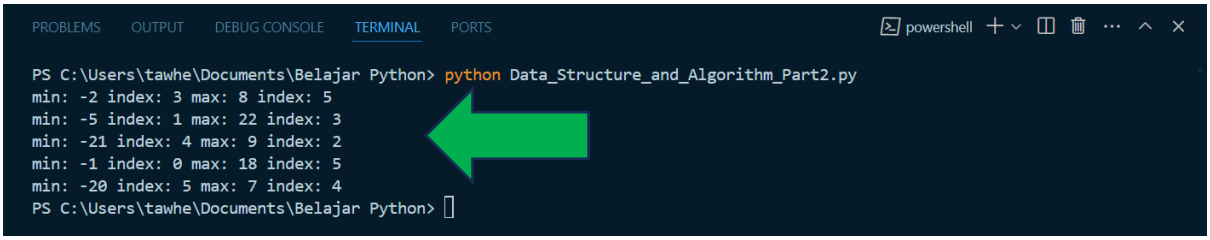
Part 2 – Searching and Sorting

1. <u>Problem 1 – Find Min and Max Number</u>

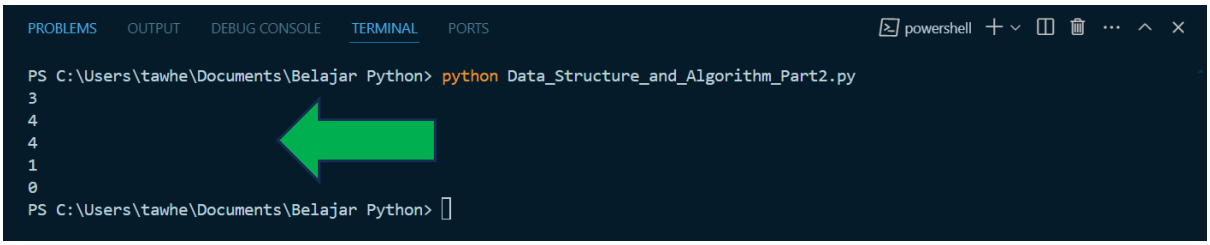
```
def find_min_and_max(arr):
    if not arr:
        return ''

    min_val = float('inf')
    max_val = float('-inf')
    min_idx = -1
    max_idx = -1

    for idx, num in enumerate(arr):
        if num < min_val:
            min_val = num
            min_idx = idx
        if num > max_val:
            max_val = num
            max_idx = idx

    return f"min: {min_val} index: {min_idx} max: {max_val} index: {max_idx}"

print(find_min_and_max([5, 7, 4, -2, -1, 8]))
print(find_min_and_max([2, -5, -4, 22, 7, 7]))
print(find_min_and_max([4, 3, 9, 4, -21, 7]))
print(find_min_and_max([-1, 5, 6, 4, 2, 18]))
print(find_min_and_max([-2, 5, -7, 4, 7, -20]))
```



2. <u>Problem 2 – Maximum Buy Product</u>

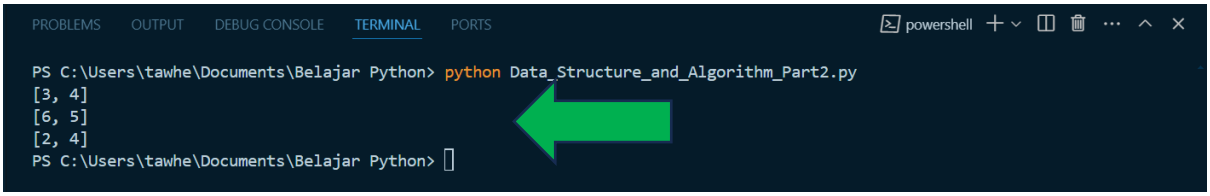
```
def maximum_buy_product(money, product_price):
    product_price.sort()
    count = 0
    for price in product_price:
        if money >= price:
            money -= price
            count += 1
        else:
            break
    return count
```

```
print(maximum_buy_product(50000, [25000, 25000, 10000, 14000]))
print(maximum_buy_product(30000, [15000, 10000, 12000, 5000, 3000]))
print(maximum_buy_product(10000, [2000, 3000, 1000, 2000, 10000]))
print(maximum_buy_product(4000, [7500, 3000, 2500, 2000]))
print(maximum_buy_product(0, [10000, 30000]))
```



3. <u>Problem 3 – Playing Domino</u>

```
def playing_domino(cards, deck):
    for card in cards:
        if deck[0] in card or deck[1] in card:
            return card
    return []

print(playing_domino([[6, 5], [3, 4], [2, 1], [3, 3], [4, 3]], [3, 4]))
print(playing_domino([[6, 5], [3, 3], [3, 4], [2, 1], [3, 6]], [3, 6]))
print(playing_domino([[6, 6], [2, 4], [3, 6], [5, 1]], [2, 4]))
```



4. <u>Problem 4 – Count Item and Sort</u>

```
def count_item_and_sort(items):
    from collections import Counter

    counter = Counter(items)

    sorted_items = sorted(counter.items(), key=lambda x: (x[1], x[0]))

    result = " ".join([f"{item}->{count}" for item, count in sorted_items])

    return result

print(count_item_and_sort(["js", "js", "golang", "ruby", "ruby", "js", "js"]))
print(count_item_and_sort(["A", "B", "B", "C", "A", "A", "B", "A", "D", "D"]))
print(count_item_and_sort(["football", "basketball", "tenis"]))
```