

Problem 1 : Maximum Product Subarray in an Array

```
def max_product_subarray(nums):
```

```
    if not nums:
```

```
        return 0
```

```
    max_ending_here = nums[0]
```

```
    min_ending_here = nums[0]
```

```
    max_product = nums[0]
```

```
    for num in nums[1:]:
```

```
        prev_max_ending_here = max_ending_here
```

```
        max_ending_here = max(num, num * max_ending_here, num * min_ending_here)
```

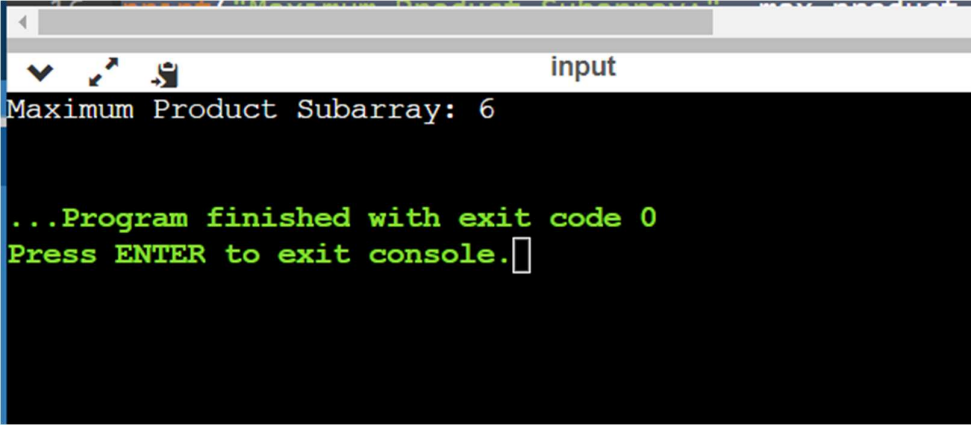
```
        min_ending_here = min(num, num * prev_max_ending_here, num * min_ending_here)
```

```
        max_product = max(max_product, max_ending_here)
```

```
    return max_product
```

```
arr = [2, 3, -2, 4]
```

```
print("Maximum Product Subarray:", max_product_subarray(arr)) # Output: 6 (subarray [2, 3])
```

A screenshot of a terminal window with a dark background. The window title is "input". The first line of output is "Maximum Product Subarray: 6". The second line is "...Program finished with exit code 0". The third line is "Press ENTER to exit console." followed by a cursor icon.

```
Maximum Product Subarray: 6

...Program finished with exit code 0
Press ENTER to exit console.
```