Program 70.Maximum Subarray

Given an integer array nums, find the subarray which has the largest sum and return *its sum*.

Example 1:

Input: nums = [-2,1,-3,4,-1,2,1,-5,4]

Output: 6
Explanation: [4,-1,2,1] has the largest sum = 6.

Program:

```
def maxSubArray(nums):
    # Initialize the current and max sum to the first element
    current_sum = max_sum = nums[0]

    # Iterate through the array starting from the second element
    for num in nums[1:]:
        # Update current sum to be the maximum of the current number
        # and the current sum plus the current number
        current_sum = max(num, current_sum + num)

        # Update the max sum if the current sum is greater
        max_sum = max(max_sum, current_sum)

    return max_sum

# Example usage:
nums = [-2, 1, -3, 4, -1, 2, 1, -5, 4]
print(maxSubArray(nums))  # Output: 6
```

Output:

```
"C:\Program Files\Python312\python.exe" "C:\Work Space\DAA\DAA COADS.PYTHON\program 70.py"
6

Process finished with exit code 0
```

Time complexity:
O(n)