

27. Given a circular integer array `nums` of length `n`, return the maximum possible sum of a non-empty subarray of `nums`. A circular array means the end of the array connects to the beginning of the array. Formally, the next element of `nums[i]` is `nums[(i + 1) % n]` and the previous element of `nums[i]` is `nums[(i - 1 + n) % n]`. A subarray may only include each element of the fixed buffer `nums` at most once. Formally, for a subarray `nums[i]`, `nums[i + 1]`, ..., `nums[j]`, there does not exist $i \leq k_1, k_2 \leq j$ with $k_1 \% n \neq k_2 \% n$.

Code:

```
def max_subarray_sum_circular(nums):
    def kadane(nums):
        current_sum = max_sum = nums[0]
        for num in nums[1:]:
            current_sum = max(num, current_sum + num)
            max_sum = max(max_sum, current_sum)
        return max_sum
    max_kadane = kadane(nums)

    total_sum = sum(nums)
    min_kadane = kadane([-num for num in nums])
    min_kadane = -min_kadane
    max_circular = total_sum - min_kadane
    if max_circular == 0:
        return max_kadane
    return max(max_kadane, max_circular)

nums = [5, -3, 5]
print(max_subarray_sum_circular(nums))
```

Output:

A terminal window with a black background. The number '10' is displayed in blue text. A red vertical line is visible on the left side of the terminal, indicating the cursor position.

Time Complexity:

- $T(n) = O(n)$