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 <= k1, k2 <= j with k1 % n == k2 % n.

PROGRAM:

```
def maxSubarraySumCircular(nums):
    def kadane(arr):
        max_sum = float('-inf')
        curr_sum = 0
        for num in arr:
            curr_sum = max(num, curr_sum + num)
            max_sum = max(max_sum, curr_sum)
        return max_sum
    total_sum = sum(nums)
    max_standard = kadane(nums)
    max_wrap = total_sum + kadane([-num for num in nums])
    return max(max_standard, max_wrap) if max_wrap != 0 else max_standard
nums = [1, -2, 3, -2]
result = maxSubarraySumCircular(nums)
print(result)
```

OUTPUT:

```
PS C:\Users\chall\OneDrive\Desktop\DAA> & C:/Users/chall/AppData/Local/Programs/Python/Python312/python.exe
"
3
PS C:\Users\chall\OneDrive\Desktop\DAA>
```

TIME COMPLEXITY:

Time complexity for the above code is O(n)