**19CSE303 EMBEDDED SYSTEMS**

**M PRAVEEN KUMAR - CB.EN.U4CSE20449**

**S ADITHYA - CB.EN.U4CSE20403**

**Problem statement:**

Given an integer array nums, return the largest perimeter of a triangle with a non-zero area, formed from three of these lengths. If it is impossible to form any triangle of a non-zero area, return 0.

Example 1:

Input: nums = [2,1,2]

Output: 5

Explanation: You can form a triangle with three side lengths: 1, 2, and 2.

Example 2:

Input: nums = [1,2,1,10]

Output: 0

Explanation:

You cannot use the side lengths 1, 1, and 2 to form a triangle.

You cannot use the side lengths 1, 1, and 10 to form a triangle.

You cannot use the side lengths 1, 2, and 10 to form a triangle.

As we cannot use any three side lengths to form a triangle of non-zero area, we return 0.

**Python Code:**

class Solution(object):

def largestPerimeter(self, nums):

index=-1

sum=0

nums.sort()

if len(nums)>2:

for i in range(0,len(nums)-2):

if nums[i]+nums[i+1]>nums[i+2]:

index=i

if index != -1:

sum=nums[index]+nums[index+1]

sum=sum+nums[index+2]

return sum

else:

return 0

**ARM Code:**

AREA bubble,CODE,READONLY

ENTRY

Main

LDR R0,=0X40000000

MOV R1, #6

STR R1, [R0],#4

MOV R1, #5

STR R1, [R0],#4

MOV R1, #4

STR R1, [R0],#4

MOV R1, #3

STR R1, [R0],#4

MOV R1, #1

STR R1, [R0],#4

MOV R1, #0

STR R1, [R0],#4

MOV R2,#6

MOV R3,#0

MOV R4,#0

Outer

LDR R0,=0X40000000

CMP R3, R2

MOVGT R3,#0

BGT Loop

MOV R4,#0

SUB R5,R2,R3

SUB R5,R5,#1

BL Inner

ADD R3,R3,#1

B Outer

Inner

CMP R4, R5

BXGE LR

LDR R6,[R0],#4

LDR R7,[R0]

CMP R6, R7

MOVGT R8,R6

MOVGT R6,R7

MOVGT R7,R8

STR R7,[R0]

STR R6,[R0,#-4]

ADD R4,R4,#1

B Inner

Loop

CMP R3, R2

LDRGT R0,=0X40000000

MOVGT R3,#2

BGT Loop1

LDR R8, [R0],#4

ADD R1, R8, #0

ADD R3,R3,#1

B Loop

Loop1

CMP R3, R2

LDRGT R0,=0X40000000

MOVGT R3,#0

BGT Loop2

LDR R8, [R0],#4

LDR R9, [R0],#4

LDR R10, [R0],#-4

ADD R1, R8, R9

CMP R1, R10

SUBGT R11, R3, #2

ADD R3,R3,#1

B Loop1

Loop2

CMP R3, R11

BGT Exit

LDR R8, [R0],#4

LDR R9, [R0],#4

LDR R10, [R0]

ADD R3,R3,#1

B Loop2

Exit B Exit

END

**Output:**

 