# MIPS ASSIGNMENT 3
# Question 1
# Semester 5
# Group No. 17

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## Report :-

We will use 1-based indexing for all our arrays.

We are taking a cap on the maximum number of elements in the array, i.e.

Now after taking the number of elements as the input, we also input the elements of the array.

We calculate the array for prefix sum for the the inputted array, i.e. the prefix sum array will store the sum of the elements of the inputted array upto that index. We initialise the zeroth index for the prefix sum array to be zero.

Now we make use of two loops to iterate through the prefix sum array and calculate the sum for different sub-arrays. We store the maximum of already maximum sum (which in initialised with INT_MIN), sum of the current sub-array and (total sum of array - sum of the current sub-array). Thus finally leads to the complexity of O(n^2). The pseudocode for the loop would be :-

preff is the array for prefix sum.

```
int maxsum = INT_MIN
for (i=0; i<=n; j++)
{
        for (j=i+1; j<=n; j++)
        {
                sub_sum1 = preff[j] - preff[i];
                sub_sum2 = total_ sum - sub_sum1
                maxsum = max (maxsum, sub_sum1, sub_sum2
        }
}
```