Assignment 7

**Problem Statement 1:**

Given a sequence of n values x1, x2, ..., xn and a window size k>0, the k-th moving

average of the given sequence is defined as follows:

The moving average sequence has n-k+1 elements as shown below.

The moving averages with k=4 of a ten-value sequence (n=10) is shown below

i 1 2 3 4 5 6 7 8 9 10

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Input 10 20 30 40 50 60 70 80 90 100

y1 25 = (10+20+30+40)/4

y2 35 = (20+30+40+50)/4

y3 45 = (30+40+50+60)/4

y4 55 = (40+50+60+70)/4

y5 65 = (50+60+70+80)/4

y6 75 = (60+70+80+90)/4

y7 85 = (70+80+90+100)/4

Thus, the moving average sequence has n-k+1=10-4+1=7 values.

**Code:**

# Moving Average

mylist = [10,20,30,40,50,60,70,80,90,100]

N = 4

cumsum, moving\_aves = [0], []

for i, x in enumerate(mylist, 1):

cumsum.append(cumsum[i-1] + x)

if i>=N:

moving\_ave = (cumsum[i] - cumsum[i-N])/N

#can do stuff with moving\_ave here

moving\_aves.append(moving\_ave)

print("Moving Average:", moving\_ave)

**Screenshot:**

