**PAF - Kiet**

**Data Structures**

**Graded Assignment – 2**

**Issue Date : 21 – Oct – 2021 Due Date : 03-Oct-2021**

1. Write a program that calculate the product of n x n matrix and find T(n). Determine the upper and lower limit
2. Write a program that find the median of n elements and find T(n). Determine the upper and lower limit

Ans 1 :

for I = 1 to n

for j = 1 to n

c [i , j ] = 0

for k = 1 to n

c [ i , j ] = c [ i , j ] + A [ i , k ] \* B [ k , j ]

end

end

end

T(n) = 21n3 + 10n2 + 5n + 2

Ans 2 :

n = length ( x )

for i = 1 to n

smaller = 0

larger = 0

for j = 1 to n

if x [ i ] > x [ j ] then

smaller = smaller + 1

if x [ i ] < x [ j ]

larger = larger + 1

end

if smaller < n / 2 and larger < n / 2

then exit

end

T ( n ) = time at most quadratic in n