1. **Write algorithms (pseudo-code) for the following problems:**

a) Find the maximum and minimum element in a list of n integers.

max ← A[0]

min ← A[0]

for i from 1 to n - 1 do:

if A[i] > max then:

max ← A[i]

if A[i] < min then:

min ← A[i]

return (max, min)

b) Count the number of odd and even numbers in an array of size n.

Algorithm CountOddEven (A, n):

oddCount ← 0

evenCount ← 0

for i from 0 to n - 1 do:

if A[i] mod 2 = 0 then:

evenCount ← evenCount + 1

else:

oddCount ← oddCount + 1

return (oddCount, evenCount)

c) Reverse a given array of integers of size n.

Algorithm ReverseArray(A, n):

left ← 0

right ← n - 1

while left < right do:

temp ← A[left]

A[left] ← A[right]

A[right] ← temp

left ← left + 1

right ← right - 1

return A

**Part B: Asymptotic Analysis**

Find Maximum and Minimum Element in a List

**Pseudo-code Recap:**

pseudo

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max ← A[0]

min ← A[0]

for i from 1 to n - 1 do:

if A[i] > max then:

max ← A[i]

if A[i] < min then:

min ← A[i]

## **Count Odd and Even Numbers in an Array**

### ****Pseudo-code Recap****:

pseudo

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oddCount ← 0

evenCount ← 0

for i from 0 to n - 1 do:

if A[i] mod 2 == 0:

evenCount ← evenCount + 1

else:

oddCount ← oddCount + 1

## **Reverse a Given Array**

### ****Pseudo-code Recap****:

pseudo

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left ← 0

right ← n - 1

while left < right do:

temp ← A[left]

A[left] ← A[right]

A[right] ← temp

left ← left + 1

right ← right – 1