

### 3.e. 5-G-Product of Array Elements-Minimum

**Aim:**

Given two arrays array\_One[] and array\_Two[] of same size N. We need to first rearrange the arrays such that the sum of the product of pairs( 1 element from each) is minimum. That is  $SUM (A[i] * B[i])$  for all i is minimum.

**Algorithm:**

```
function main() {  
    initialize n // number of elements  
    read n from user  
  
    initialize array_One of size n // first array initialize  
    array_Two of size n // second array  
  
    // read values into array_One  
    for i from 0 to n-1 {  
        read array_One[i] from user  
    }  
  
    // read values into array_Two  
    for i from 0 to n-1 {  
        read array_Two[i] from user  
    }  
  
    // sorting both arrays  
    for i from 0 to n-2 {  
        for j from 0 to n-i-2 {
```

```

// sort array_One in ascending order
if array_One[j+1] is less than array_One[j] {
    // swap array_One[j] and array_One[j+1]
    initialize temp as array_One[j]
    array_One[j] = array_One[j+1]
    array_One[j+1] = temp
}

// sort array_Two in descending order
if array_Two[j+1] is greater than array_Two[j] {
    // swap array_Two[j] and array_Two[j+1]
    initialize temp as array_Two[j]
    array_Two[j] = array_Two[j+1]
    array_Two[j+1] = temp
}
}
}

initialize sum to 0 // variable to hold the final sum

// calculate the sum of products of corresponding elements
for i from 0 to n-1 {
    sum = sum + (array_One[i] * array_Two[i]) // accumulate the product
}

print sum // output the final result
}

```

**Program:**

```
#include<stdio.h>

int main(){

    int n;

    scanf("%d",&n);


    int array_One[n];

    int array_Two[n];


    for(int i=0;i<n;i++){

        scanf("%d",&array_One[i]);

    }

    for(int i=0;i<n;i++){

        scanf("%d",&array_Two[i]);

    }

    for(int i=0;i<n-1;i++){

        for(int j=0;j<n-i-1;j++){

            if(array_One[j+1]<array_One[j]){

                int temp=array_One[j];

                array_One[j]=array_One[j+1];

                array_One[j+1]=temp;

            }

            if(array_Two[j+1]>array_Two[j]){

                int temp=array_Two[j];

                array_Two[j]=array_Two[j+1];

                array_Two[j+1]=temp;

            }

        }

    }

}
```

```
}  
  
int sum=0;  
  
for(int i=0;i<n;i++){  
    sum+=(array_One[i]*array_Two[i]);  
}  
  
printf("%d",sum);  
}
```

Output:

	Input	Expected	Got	
✓	3 1 2 3 4 5 6	28	28	✓
✓	4 7 5 1 2 1 3 4 1	22	22	✓
✓	5 20 10 30 10 40 8 9 4 3 10	590	590	✓