Task:5 Basic Number theorey ⇒ 3

eucliden :- Give four integers x_1, y_1, x_2, y_2 which represent two coordinates (x_1, y_1) and (x_2, y_2) of a two dimensional graphics. The task is to find the eucliden distance b/w these two points b/w those two given points.

approach: Since the equidean distance is nothing but the straight b/w two given point. therefore the distance formula derived from the pythagorem theorem.

Aim:

1. Read the value of x_1, y_1, x_2 and y_2
2. Calculate the difference b/w x_2 and x_1 and store in a variable dx.
3. Calculate the diff b/w y_2 and y_2 and store it in a variable dy.
4. calculate the square dx and store it in a variable dy_2
5. Calculate the sum of dx_2 and dy_2 and store a variable dx.

6 calculate the square root of d2 and store it in a variable distance.

7. print the value of distance as output.

8. end the program.

Program:

```
#include <stdio.h>
#include <math.h>
int main(){
  int x1, y1, x2, y2;
  double distance;
   printf(" enter x1 and y1 ");
    scanf("%d %d", &x1,&y1);
   printf("enter x2 and y2 : ");
    scanf("%d %d",&x2,&y2);
distance= sqrt(pow(x1, x2)+pow(y2-y1))
printf("The euclid ean distance b/w (%d %d) and
        (%d %d) is %.2f \n, x1, y1, x2, y2, distance)
 return 0;
}
```

GCD:- Give an array of size of integers with each element denoted as array[i] In this problem we are given a parameter and we are supposed to find the size of the largest continuous sub array. where GCD is atleast print "0".

Input:-

The first line contains 2 integer N and k the size of the array the second line contains space seperated integers denoting the array.

Output:

print a sample integer in a single line denoting the max contiguous sub array size whose GCD is atleast k.

Constraints:

1<=N<=5,00,000

1<=array[i],k<=100,00,000

algorithm:

1. Read the value of N and the array of integer array[ ] of size N.

2. Read the value of k.

3. Initialize two variables max len to 0. which was store the length.

4. Initalize two variables max-len to 0, left to right, too, which represent the left and right, too, which represent current sub array.

5. Initalize a variable current_GCD to array [0] which represent to GCD of the current subarray

6. If max-len is still 0, print "0" there no sub array whose gcd is atleast.

7. end the program.

Program:

```
#include <stdio.h>
int gcd (int a, int b);
 if (b==0) {
      return 0;
  }
  else{
return gcd (b, a % b);
  }
}
int main ()
  int n, k
  scanf("%d %d", and k);
 int arr [n];

for(int i=0; i<n , i++){
  scanf("%d", arr [i]);
 }
```

output

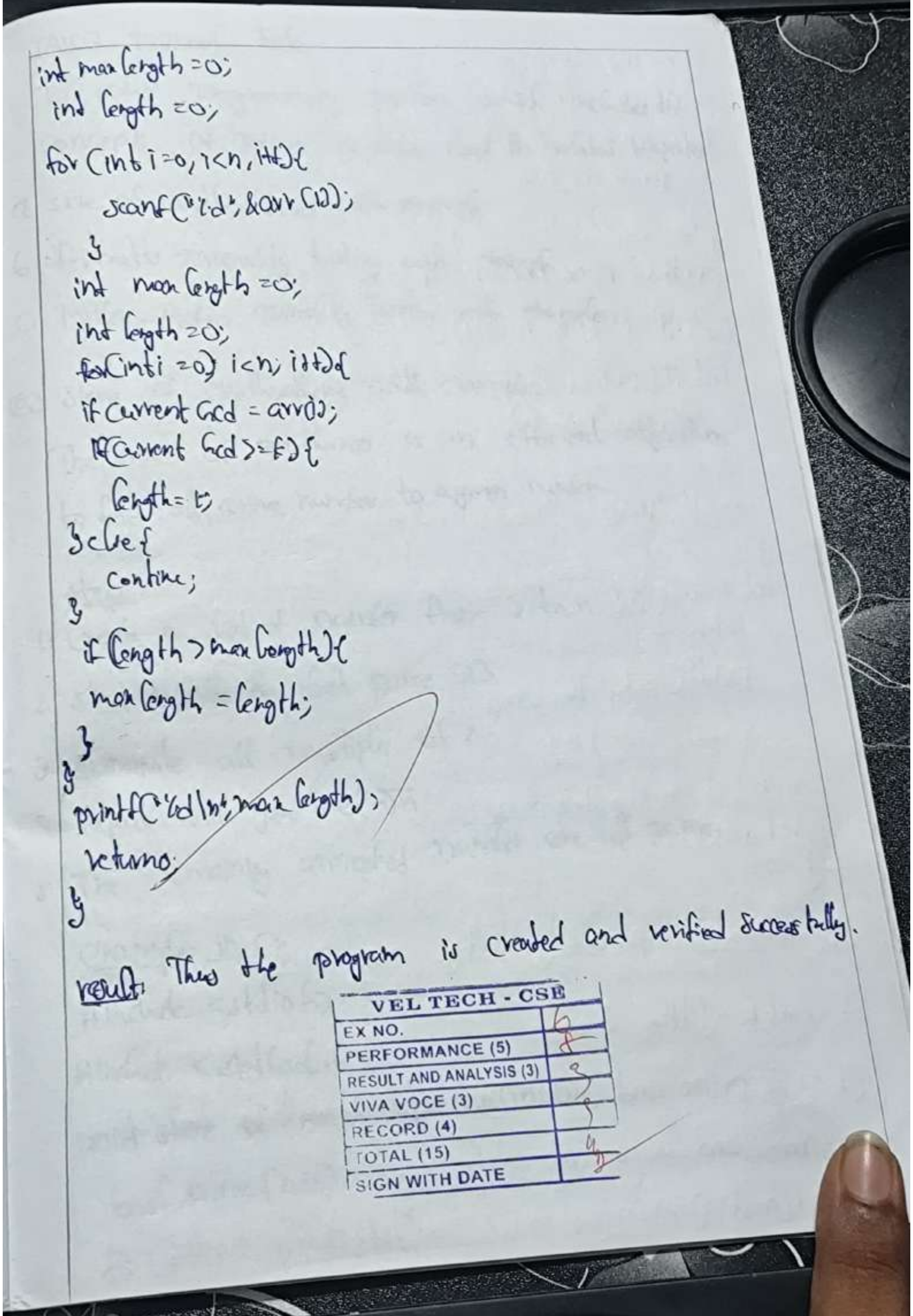
Input:

5 4

10 20 5 16

output:

2



```
int maxlength =0;
 ind length =0;
for (int i=0, i<n, i++){
    scanf("%d", &arr(i));
  }
 int maxlength =0;
 int length =0;
 for(int i =0; i<n; i++){
 if current Gcd = arr(i);
  if(current Gcd >=k){
    length= i;
}else{
   contine;
}
 if (length > maxlength){
 maxlength =length;
 }
}
printf("%d\n", maxlength);
 returno;
}
```

result: Thus the program is created and verified successfully.

VEL TECH - CSE	
EX NO.	6
PERFORMANCE (5)	5
RESULT AND ANALYSIS (3)	3
VIVA VOCE (3)	3
RECORD (4)	4
TOTAL (15)	[illegible]
SIGN WITH DATE	