SIMATS
ENGINEERING

Questions
262.

Given an array of integers, find the longest increasing subarray.

Run Save

```c
#include<stdio.h>
int main(){
   int arr[]={1,2,3,4};
   int n=sizeof(arr)/sizeof(arr[0]);
   for(int i=0;i<n;i++){
     for(int j=i;j<n;j++){
       for(int k=i;k<=j;k++){
         printf("%d",arr[k]);
       }
       printf("\n");
     }
   }
   return 0;
}
```

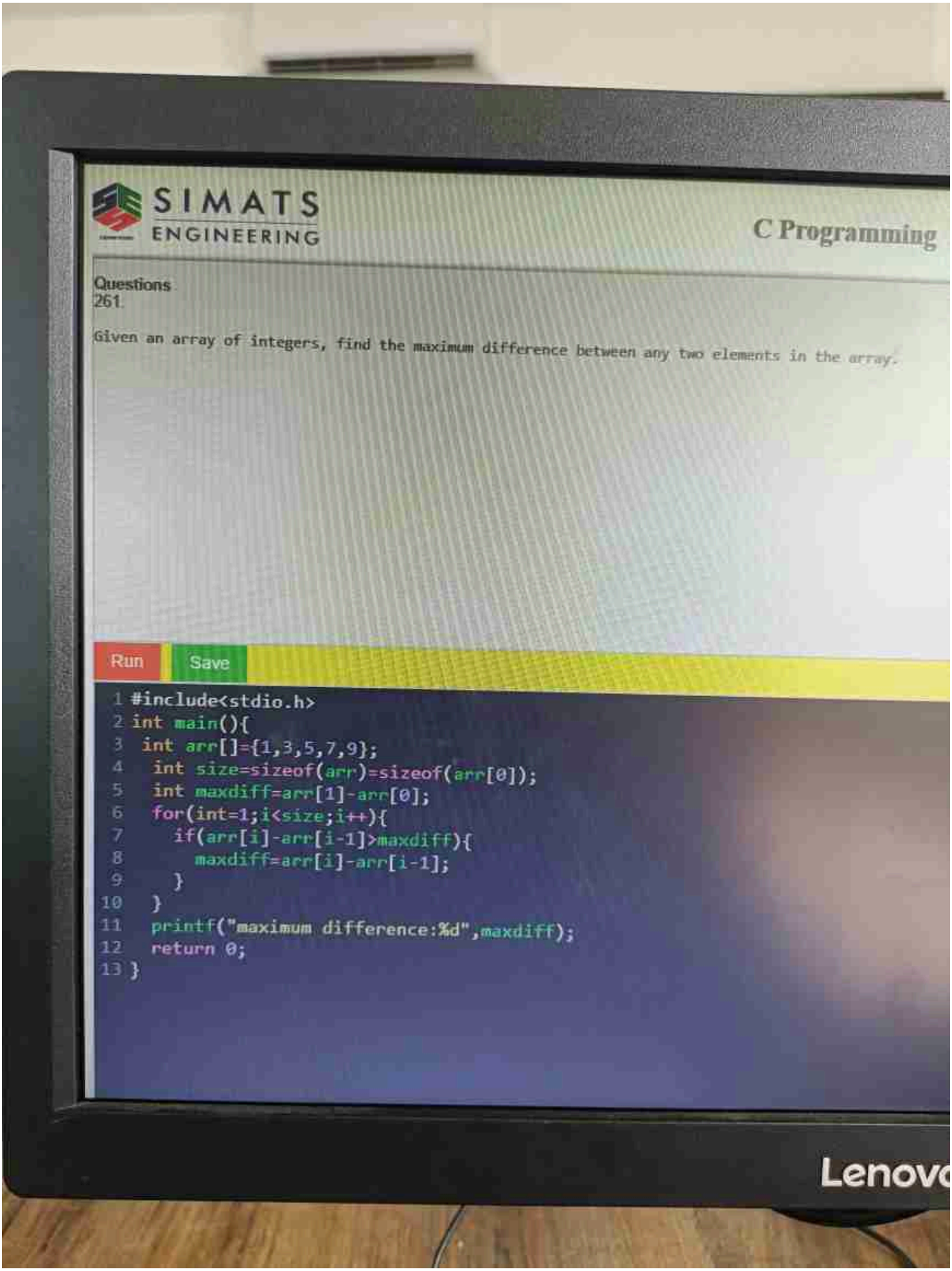
SIMATS
ENGINEERING

Questions

36. Write a C program to find the largest element in an array.

Run Save

```c
#include<stdio.h>
int main(){
   int i;
   int a[]={1,2,3,4,5,0,5,55,6};
   int max=a[0];
   for(i=1;i<10;i++){
     if(a[i]<max){
        max=a[i];
     }
     printf("max numberis %d\n",max);
   }
   return 0;
}
```


SIMATS
ENGINEERING
C Programming
Questions
261
Given an array of integers, find the maximum difference between any two elements in the array.
Run
Save
#include<stdio.h>
int main(){
int arr[]={1,3,5,7,9};
int size=sizeof(arr)=sizeof(arr[0]);
int maxdiff=arr[1]-arr[0];
for(int=1;i<size;i++){
if(arr[i]-arr[i-1]>maxdiff){
maxdiff=arr[i]-arr[i-1];
}
}
printf("maximum difference:%d",maxdiff);
return 0;
}
Lenovo

SIMATS
ENGINEERING

Questions

48. Write a C program to find the maximum and minimum element in an array

Run Save

```c
#include<stdio.h>
int main(){
   int arr[]={1000,5,20000,8,3,9,4,7,10};
   int max=arr[0];
   int min=arr[0];
   int i;
   for(i=1;i<10;i++){
     if(arr[i]>max){
       max=arr[i];
     }
     else if(arr[i]<min){
       min=arr[i];
     }
   }
   printf("max number is %d\n",max);
   printf("min number is %d\n",min);
   return 0;
}
```

SIMATS
ENGINEERING

Questions

47. Write a C program to find the smallest element in an array.

Run Save

```c
#include<stdio.h>
#include<conio.h>
int main(){
   int arr[]={100,5,2,8,3,9,4,7,10,6};
   int smallest=arr[0];
   int i;
for(i=1;i<10;i++){
if(arr[i]<smallest){
   smallest=arr[i];
}
}
printf("smallest element is %d\n",smallest);
}
```

SIMATS ENGINEERING

C Progr

Questions
339

Pascal Triangle
Pascal Triangle is a pattern similar to a triangle. Firstly, 1 is placed at the top, and then we sta
Enter the Number of Rows in the Pascal Triangle:: 6

```
          1
        1   1
      1   2   1
    1   3   3   1
  1   4   6   4   1
1   5   10  10  5   1
```

Run Save

```c
#include<stdio.h>
int main(){
  int num,i,j,k=1;
  printf("enter the number ot rows: ");
  scanf("%d",&num);
  printf("\n");
  for(i=0;i<=num;i++){
    for(j=1;j<=i;j++){
      printf("%3d",k++);
    }

    printf("\n");
  }
  return 0;
}
```

Le

SIMATS ENGINEERING

C Pr

Questions
340.

A star pattern is a pattern that shows up as a staircase of stars.

```
*
**
***
****
*****
```

Run | Save

```c
#include<stdio.h>
int main(){
  int n;
  printf("enter the numbers of rows");
  scanf("%d",&n);
  printf("\n");
  for (int i=0;i<=n;i++){
    for (int j=1;j<=i;j++){
      printf("*");
        }
    printf("\n");
    }
  return 0;
  }

```

SIMATS ENGINEERING

C Program

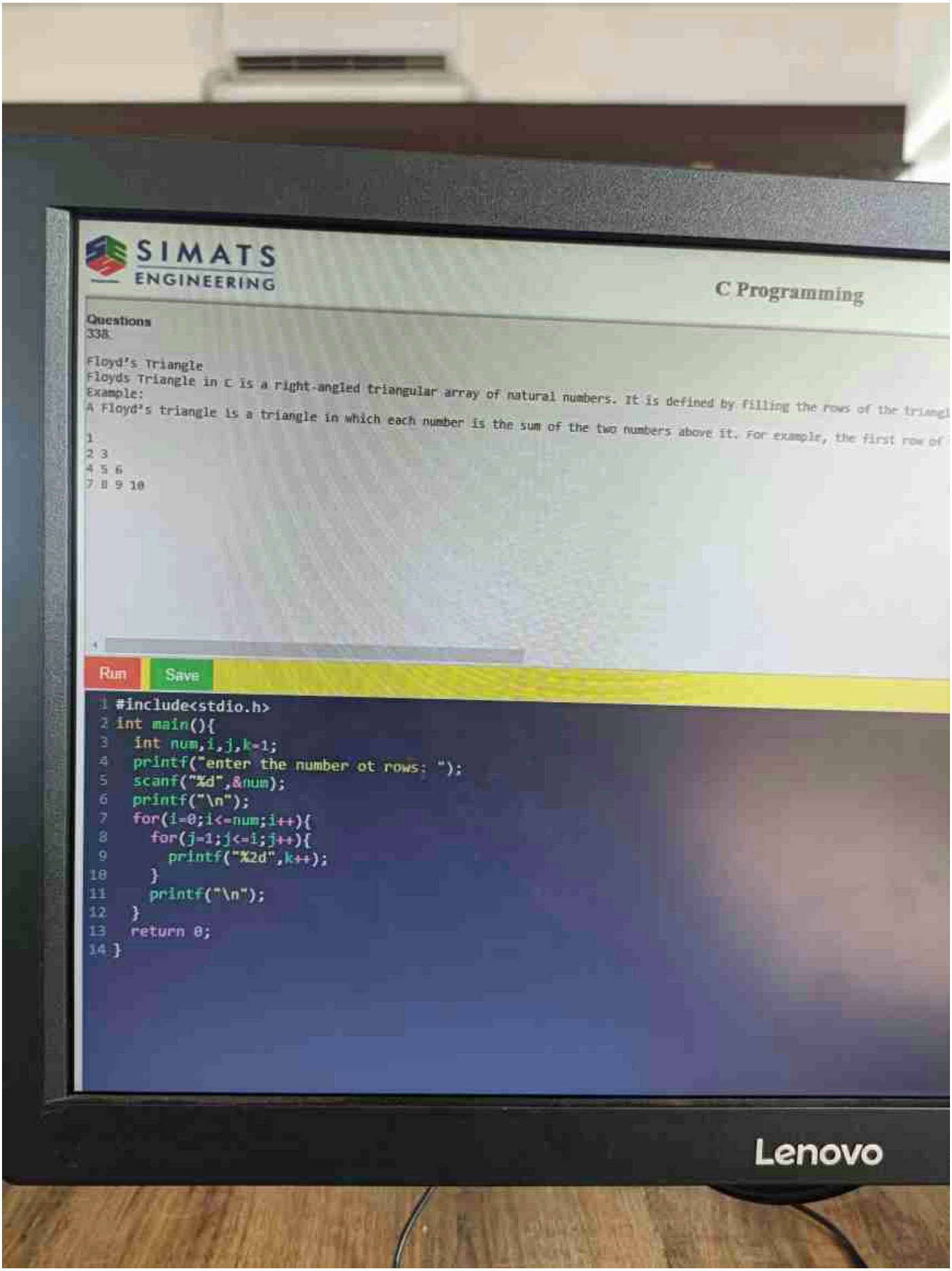
Questions
337

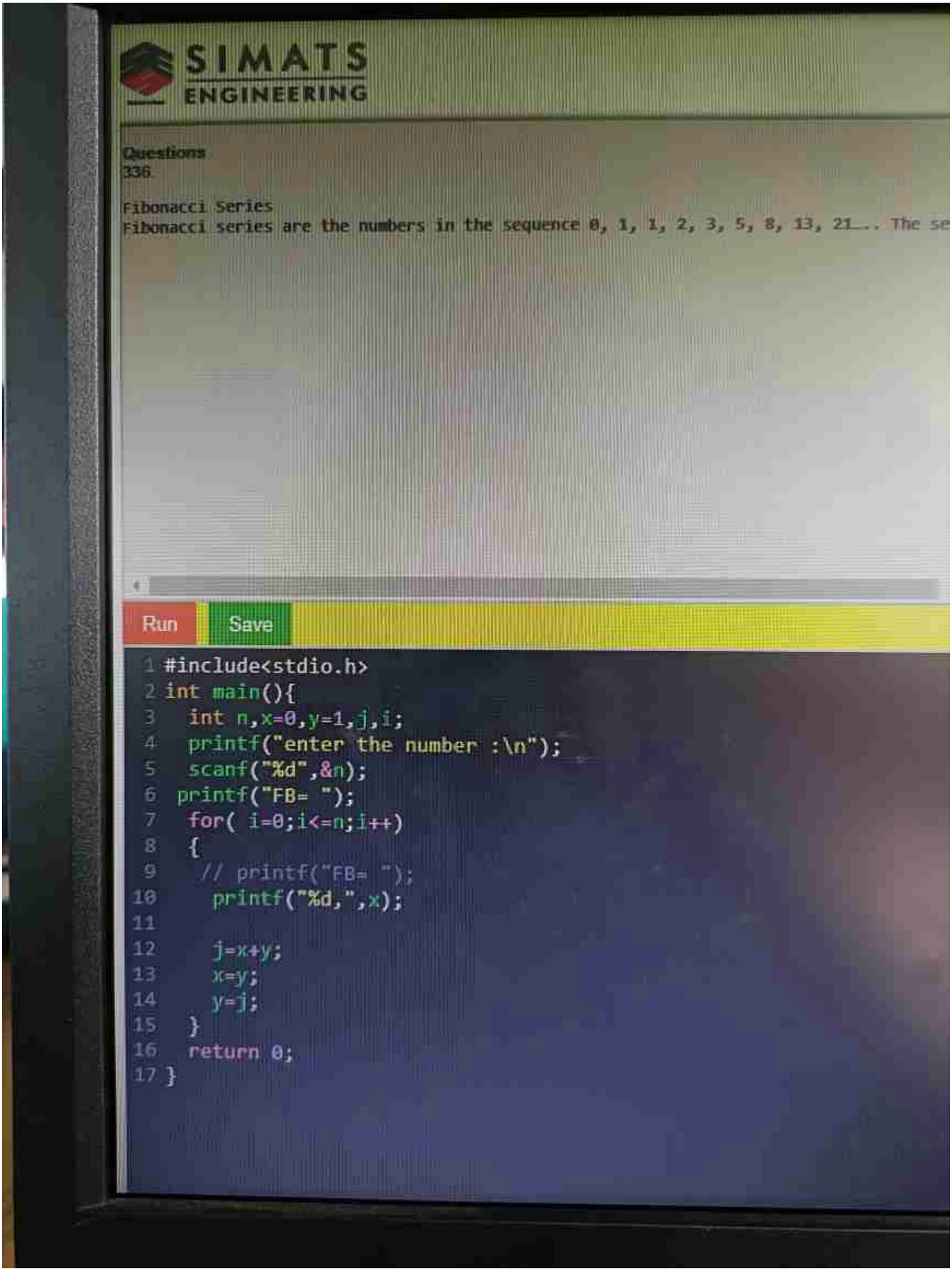
Factorial
When you multiply a positive integer by all the integers smaller than that positive integer, you get its
For example, factorial of 3 is 3! = 1*2*3 = 6 and factorial of 6 is 6! = 6 * 5 * 4 * 3 * 2 * 1 which equ
By default, the factorial of 0 is 1, and Factorial of a negative number is not defined.

Run Save

```c
#include<stdio.h>
int main(){
  int i,n,fact=1;
  printf("enter the number:\n");
  scanf("%d",&n);
  for(i=1;i<=n;i++){
    fact=fact*i;
  }
  printf("factorial of %d is: %d ",n,fact);
  return 0;
}
```

Len


SIMATS
ENGINEERING
C Programming
Questions
338
Floyd's Triangle
Floyds Triangle in C is a right-angled triangular array of natural numbers. It is defined by filling the rows of the triangl
Example:
A Floyd's triangle is a triangle in which each number is the sum of the two numbers above it. For example, the first row of
1
2 3
4 5 6
7 8 9 10
Run
Save
#include<stdio.h>
int main(){
int num,i,j,k=1;
printf("enter the number ot rows: ");
scanf("%d",&num);
printf("\n");
for(i=0;i<=num;i++){
for(j=1;j<=i;j++){
printf("%2d",k++);
}
printf("\n");
}
return 0;
}
Lenovo


SIMATS
ENGINEERING
Questions
336
Fibonacci Series
Fibonacci series are the numbers in the sequence 0, 1, 1, 2, 3, 5, 8, 13, 21_.. The se
Run
Save
#include<stdio.h>
int main(){
int n,x=0,y=1,j,i;
printf("enter the number :\n");
scanf("%d",&n);
printf("FB= ");
for(i=0;i<=n;i++)
{
// printf("FB= ");
printf("%d,",x);
j=x+y;
x=y;
y=j;
}
return 0;
}

SIMATS
ENGINEERING

Questions
332

Reverse a Number and Check if it is a Palindrome
Problem Description
Accepts an integer, reverse it and also checks if it is a palindrome or not.

Run Save

```c
#include<stdio.h>
int main(){
  int n,r,sum=0,temp;
  printf("enter the number:");
  scanf("%d",&n);
  temp=n;
  while(n>0){
    r=n%10;
    sum=(sum*10)+r;
    n=n/10;
  }
  if(temp==sum)
    printf("p");
  else
    printf("np");
  return 0;
}
```

SIMATS ENGINEERING

C P

Questions
335

Leap Year
Leap Year: A year is a Leap Year if it satisfies the following conditions:

The year is exactly divisible by 400 (such as 2000,2400) or,
The year is exactly divisible by 4 (such as 2008, 2012, 2016) and not a multiple of 100 (such

Run Save

```c
#include<stdio.h>
int main(){
 int y;
  printf("enter the year:<<-->>");
  scanf("%d",&y);
  if(y%400==0)
    printf("leap year");
  else if (y%100==0)
    printf("not leap year");
    else if (y%4==0)
      printf("leap year");
  else
    printf("not leap year");
  return 0;
}
```

SIMATS ENGINEERING

C Pr

Questions
330

Check Armstrong Number
Armstrong Number in C: An Armstrong number is an n-digit base b number such that the sum of its

Armstrong Number Formula: wxyz = pow(w,n) + pow(x,n) + pow(y,n) + pow(z,n)

Run Save

```c
#include<stdio.h>
int main(){
  int n,r,sum=0,temp;
  printf("enter the number= ");
  scanf("%d",&n);
  for(temp=n;n!=0;n=n/10){
    r=n%10;
    sum=sum+(r*r*r);
  }
  if (sum==temp)
    printf("it is a armstrong");
  else
    printf("it is not armstrong");
  return 0;
}
```

SIMATS ENGINEERING

Questions
331

Reverse a Number
Reverse a Number means moving the digit at the last position to the first position and vice

For example, if the given number is "1234", the reverse number will be "4321".

Run Save

```c
#include<stdio.h>
int main(){
  int n,r=0,re;
  printf("enter the number=\n");
  scanf("%d",&n);
  while(n!=0){
    re=n%10;
    r=r*10+re;
    n/=10;
  }
  printf("reverse number = %d",r);
  return 0;
}
```

SIMATS ENGINEERING

C Prog

Questions
324

Increment by 1 to all the Digits of a Given Integer
Problem Description
Increases 1 to all of the given integer digit and print the sum of all digits.

Run Save

```c
#include<stdio.h>
int main(){
  int a,b,c;
  printf("enter the a value:\n");
  scanf("%d",&a);
  printf("enter the b value:\n");
  scanf("%d",&b);
  printf("enter the c value:\n");
  scanf("%d",&c);
  --a;
  --b;
  --c;
// ++a;
// ++b;
// ++c;
  printf("\na value is: %d",a);
  printf("\nb value is: %d",b);
  printf("\nc value is: %d",c);
  return 0;
}
```

ENGINEERING

Questions
329

Check Whether a Given Number is Perfect Number
A perfect number is a number that is equal to the sum of its proper divisors. For exampl

Problem Description
Ask the user for a number and then check whether the number is a perfect number or not.

Run Save

```c
#include<stdio.h>
int main(){
  int r,n,s=0,i;
  printf("enter the number: ");
  scanf("%d",&n);
  for (i=1;i<=n-1;i++){
    r=n%i;
    if(r==0){
      s=s+i;
    }

  }
  if(s==n)
    printf("it is perfect number");
  else
    printf("it is not a perfect number");
  return 0;
}
```

SIMATS
ENGINEERING

Questions
320.

Swap Two Numbers
Swapping two numbers in C programming means swapping the values of two variable
Before Swapping: m value = 2; n value = 3
After Swapping: m value = 3; n value = 2

Run Save

```c
#include<stdio.h>
int main(){
   int m,n,temp;
   printf("enter the m value:\n ");
   scanf("%d",&m);
   printf("enter the n value:\n ");
   scanf("%d",&n);
   if(temp=m)
   m=n;
   n=temp;
   printf("the m value=%d\n",m);
   printf("the n value=%d\n",n);
   return 0;
}
```

SIMATS
ENGINEERING

Questions

86. Write a program that calculates the sum of two numbers using a function

Run Save

```c
#include<stdio.h>
int sum(int num1,int num2){
  return num1+num2;
}
int main() {
  int num1,num2;
  printf("enter the nums:\n");
  scanf("%d %d",&num1,&num2);
  int result=sum(num1,num2);
  printf("the sum of %d and %d is %d\n",num1,num2,result);
  return 0;
}
```

Questions
322.

Check if Two Numbers are Equal
Problem Description
This problem accepts two integers and check if they are equal or not.

Run Save

```c
#include<stdio.h>
int main(){
  int n1,n2;
  printf("enter the 1st number= \n");
  scanf("%d",&n1);
  printf("enter the 2nd number= \n");
  scanf("%d",&n2);
  if(n1==n2){
    printf("<the numbers are equal>");
  }
    else {
      printf("<the numbers are not equal>");
    }
  return 0;
  }

```

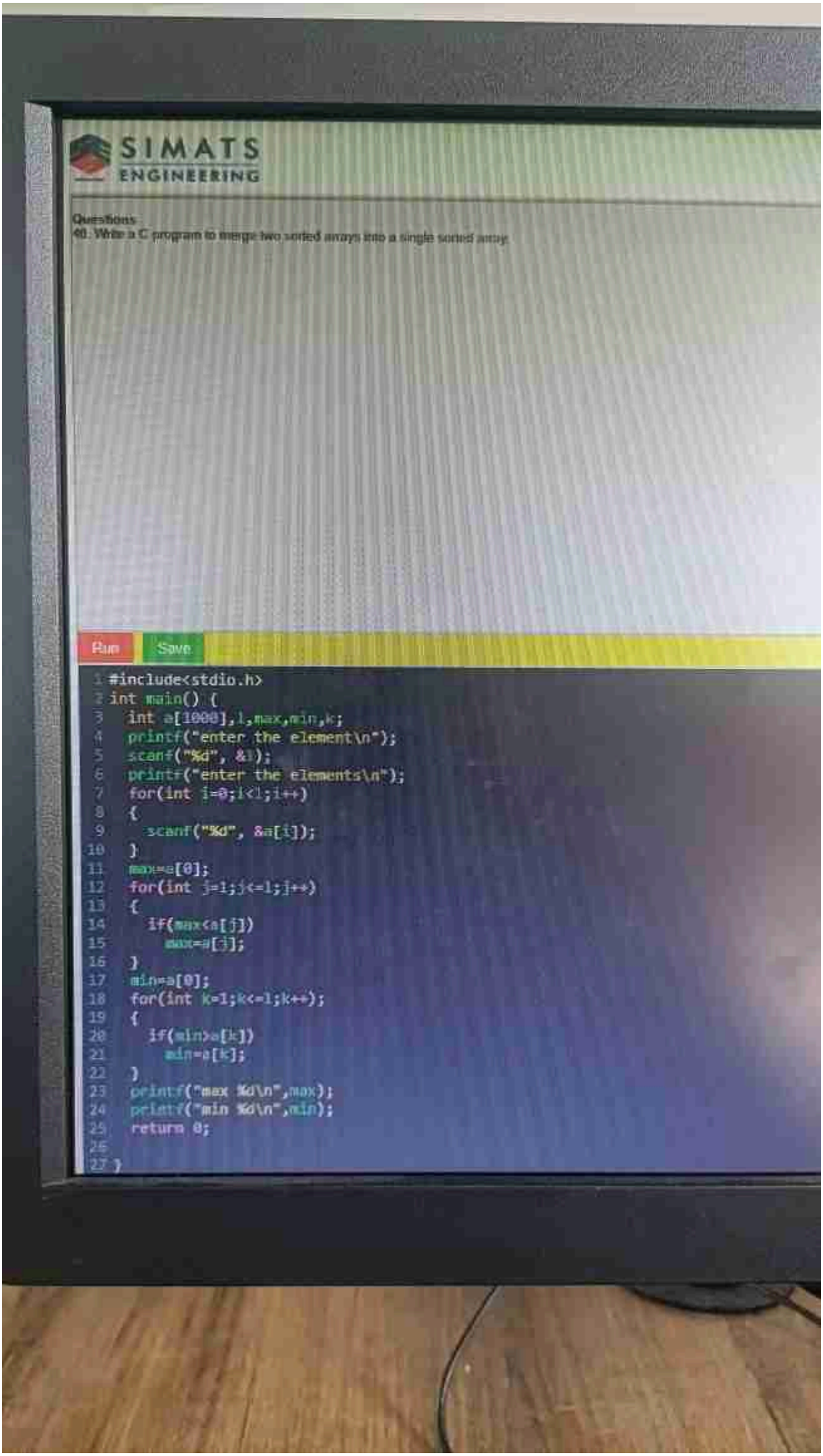
ENGINEERING

Questions
256.

```
C Program to Find Missing Numbers in Array
Enter size of array : 6
Enter elements into array :
1
2
3
5
6
Missing element is : 4
```

Run Save

```c
#include<stdio.h>
int main()
{
   int arr[]={ 1,2,3,5,6 };
   int size=0;
   int i=0;
   int missing=0;
   size=sizeof(arr)/sizeof(arr[0]);
   missing=(size+1)*(size+2)/2;
   for( i=0;i<size;i++ )
   missing=missing-arr[i];
   printf("missing is :%d\n",missing);
   return 0;
}
```


SIMATS
ENGINEERING
Questions:
40. Write a C program to merge two sorted arrays into a single sorted array
Run
Save
#include<stdio.h>
int main() {
int a[1000],l,max,min,k;
printf("enter the element\n");
scanf("%d", &l);
printf("enter the elements\n");
for(int i=0;i<l;i++)
{
scanf("%d", &a[i]);
}
max=a[0];
for(int j=1;j<=l;j++)
{
if(max<a[j])
max=a[j];
}
min=a[0];
for(int k=1;k<=l;k++);
{
if(min>a[k])
min=a[k];
}
printf("max %d\n",max);
printf("min %d\n",min);
return 0;
}

SIMATS ENGINEERING

C Program

Questions
316

Check Whether a Given Number is Even or Odd
Even Number:
A number is said to be an even number if it is completely divisible by 2.
In other words, if a number is divided by 2 and leaves a remainder of 0, then it is said to

Example: 36, 24

Odd Number:
A number is said to be an odd number if it is not completely divisible by 2.
In other words, if a number is divided by 2 and the remainder is 1, it is said to be an odd

Example: 21, 15

Run Save

```c
#include<stdio.h>
int main(){
int num,num2;
printf("enter the num:");
scanf("%d",&num);
if(num%2==0){
  printf("it is even");
}
  else {
    printf("it is odd");
  }
  return 0;
}
```

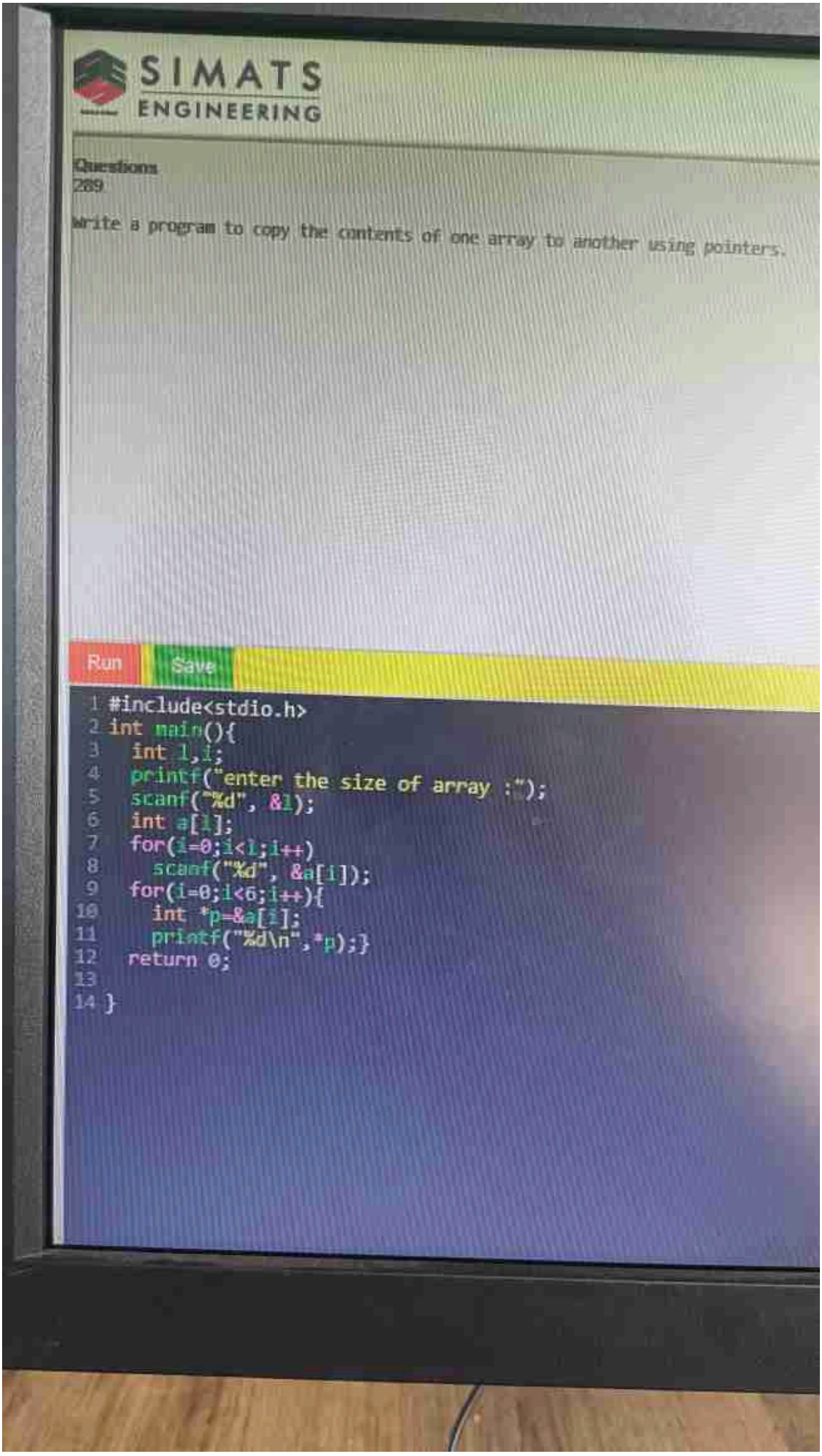
Len

SIMATS
ENGINEERING

Questions
41. Write a C program to check if two arrays are equal or not.

Run Save

```c
#include<stdio.h>
int main(){
  int a,l1,l2;
  printf("enter the lengths of arrays:");
  scanf("%d %d",&l1,&l2);
  int arr1[l1],arr2[l2];
  if(l1==l2){
    for(int i=0;i<l1;i++)
      scanf("%d",&arr1[i]);
      for(int j=1;j<l;j++)
        scanf("%d",&arr2[j]);
  }
  for(int i=0;i<l1;i++)
    for(int j=0;j<l2;j++)
      if(i==j)
        if(arr1[i]==arr2[j])
          printf("equal arrays");
        else
          printf("not equal arrays");
  return 0;

}

```


SIMATS
ENGINEERING
Questions
289
Write a program to copy the contents of one array to another using pointers.
Run
Save
#include<stdio.h>
int main(){
int l,i;
printf("enter the size of array :");
scanf("%d", &l);
int a[l];
for(i=0;i<l;i++)
scanf("%d", &a[i]);
for(i=0;i<6;i++){
int *p=&a[i];
printf("%d\n",*p);}
return 0;
}

SIMATS ENGINEERING

Questions
286.

Write a program to delete an element from an array using pointers.

Run | Save | Changes Updated, Saved 286

```c
#include<stdio.h>
int main(){
  int size,i,pos;
  printf("enter the length of array:\n");
  scanf("%d",&size);
  int arr[size];
  printf("enter the elements:\n");
  for(i=0;i<size;i++){
    scanf("%d",&arr[i]);}
  printf("enter the position pf the element to be deleted:\n");
  scanf("%d",&pos);
  if(pos<0||pos>=size){
    printf("invalid position");
  }
  else{
    for(i=pos;i<size-1;i++)
      arr[i]=arr[i+1];}
  size--;
  pfintf("element deleted updated array:");
  for(i=0;i<size;i++){
    printf("%d",arr[i]);}
  return 0;
}
```

Question
316.

Create a structure named "Student" to store student details such as name, roll number, and struc

Run Save

```c
#include<stdio.h>
struct student
{
  int roll_no,m1,m2,m3,total,average;
  char name;
  //float average,total;
};
int main()
{
  int roll_no=143, m1=45,m2=89,m3=90;
  float total,average;
  char name='s';
  printf("enter the information of the student:\n");
  printf("enter name:%c\n",name);
  scanf("%c",&s.name);
  printf("enter the roll_no.:%d\n",roll_no);
  scanf("%d",&s.roll_no);
  printf("enter m1:%d\n",m1);
  scanf("%d",&s.m1);
  printf("enter m2:%d\n",m2);
  scanf("%d",&s.m2);
  printf("enter m3:%d\n",m3);
  scanf("%d",&s.m3);
  total=m1+m2+m3;
  average=total/3.0;
  printf("total marks=%f\n",total);
  //average=total/3.0;
  printf("average marks=%f\n",average);
//printf("average=%f",average);
  return 0;
}
```

SIMATS
ENGINEERING

Given a matrix (2D array) of integers, find the saddle point(s) (an element that is the minim

Run Save

```c
#include<stdio.h>
int main()
{
  int i,j,temp,a[6],difference;
  printf("Enter the 6 element in an array:");
  for(i=0;i<6;i++)
    scanf("%d",&a[i]);
  for(i=0;i<6;i++)
  {
    for(j=i+1;j<6;j++)
    {
      if(a[i]>a[j])
      {
        temp=a[i];
        a[i]=a[j];
        a[j]=temp;
      }
    }
  }
  for(i=0;i<6;i++)
  {
    printf("%d",a[i]);
  }
  {
  difference=a[5]-a[0];
  printf("\nmax difference is:%d",difference);
  }
  return 0;
}
```

SIMATS ENGINEERING

C Program

Questions
252

C program to Delete an Element from an Array
Example: arr[6] = {12,65,32,75,48,11}

```
Value:  12  65  32  75  48  11
            ↑   ↑   ↑   ↑   ↑   ↑
Index:   0   1   2   3   4   5
```

The Element we are deleting here is "75".

Original Array:

12 65 32 75 48 11

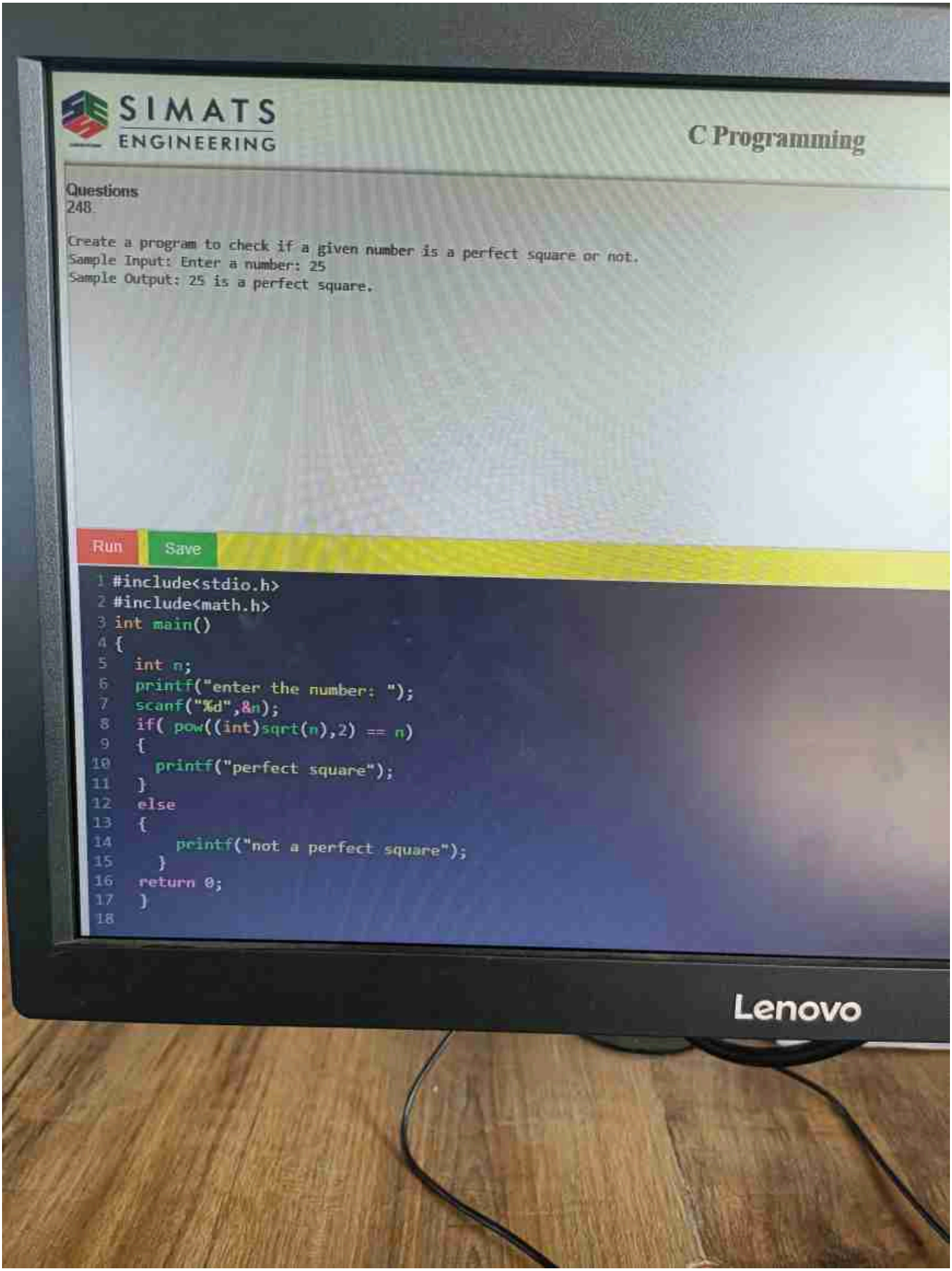
New Array:

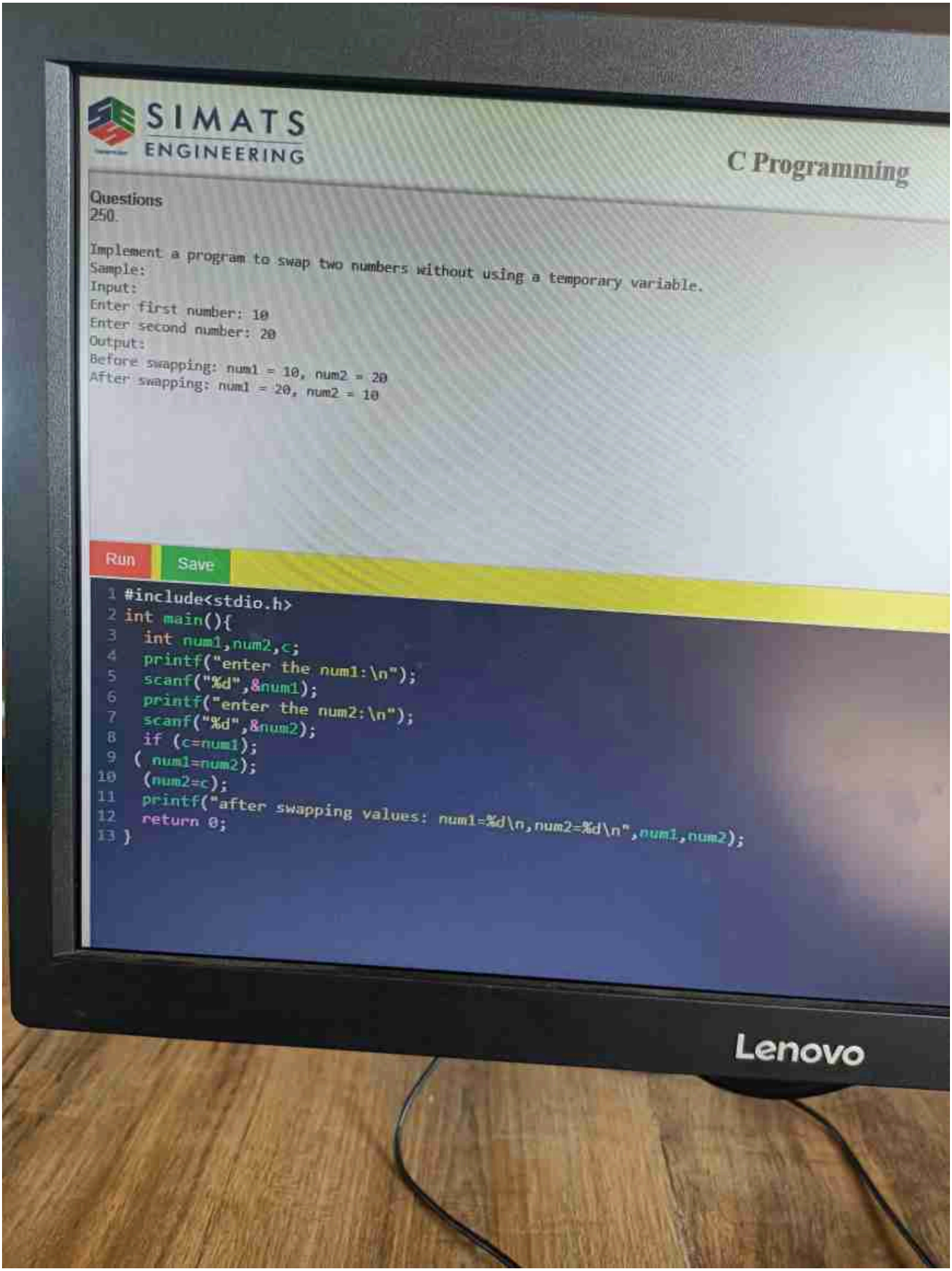
12 65 32 48 11

Run Save

```c
#include<stdio.h>
int main(){
  int n,i,j;
  printf("enter the number :\n");
  scanf("%d",&n);
  for(i=1;i<=n;i++){
    for(j=1;j<=n;j++){
      if(i==1||i==n||j==1||j==n)
        printf(" * ");
      else
        printf("   ");
    }
    printf("\n");
  }
  return 0;
}
```

Lenc


SIMATS
ENGINEERING
C Programming
Questions
248.
Create a program to check if a given number is a perfect square or not.
Sample Input: Enter a number: 25
Sample Output: 25 is a perfect square.
Run
Save
#include<stdio.h>
#include<math.h>
int main()
{
int n;
printf("enter the number: ");
scanf("%d",&n);
if(pow((int)sqrt(n),2) == n)
{
printf("perfect square");
}
else
{
printf("not a perfect square");
}
return 0;
}
Lenovo


SIMATS
ENGINEERING
C Programming
Questions
250.
Implement a program to swap two numbers without using a temporary variable.
Sample:
Input:
Enter first number: 10
Enter second number: 20
Output:
Before swapping: num1 = 10, num2 = 20
After swapping: num1 = 20, num2 = 10
Run
Save
#include<stdio.h>
int main(){
int num1,num2,c;
printf("enter the num1:\n");
scanf("%d",&num1);
printf("enter the num2:\n");
scanf("%d",&num2);
if (c=num1);
(num1=num2);
(num2=c);
printf("after swapping values: num1=%d\n,num2=%d\n",num1,num2);
return 0;
}
Lenovo

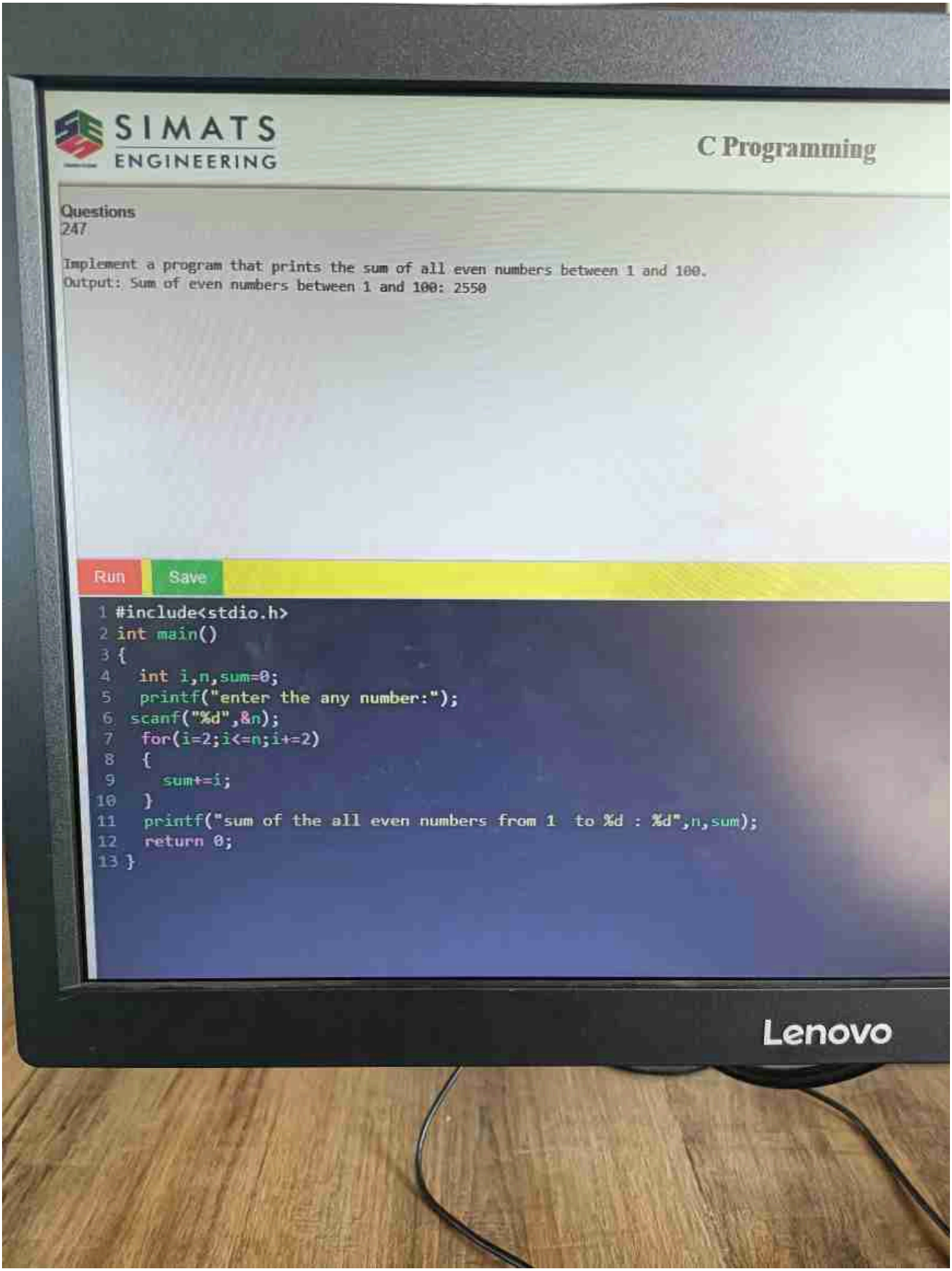
SIMATS
ENGINEERING

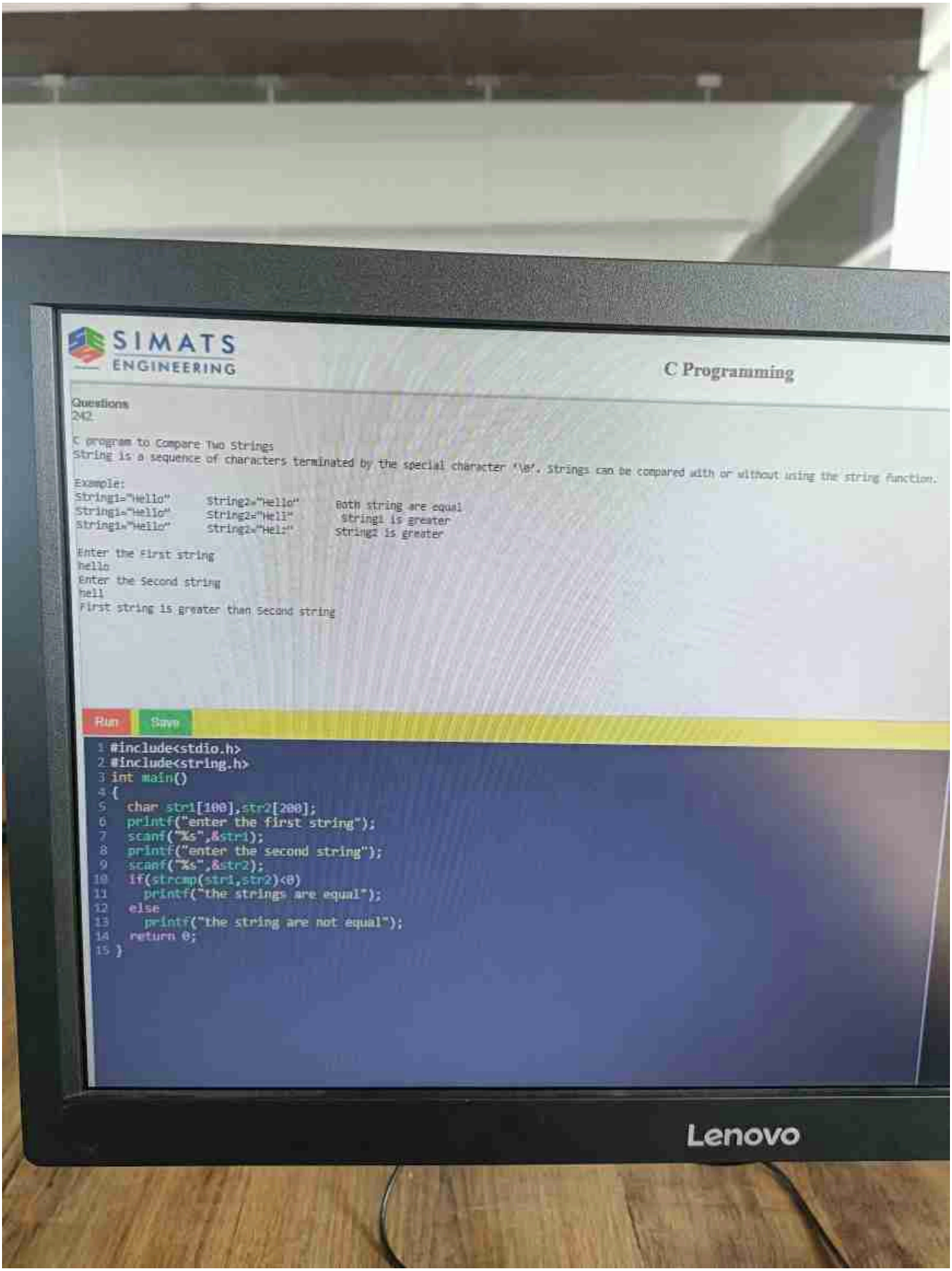
Questions
254.

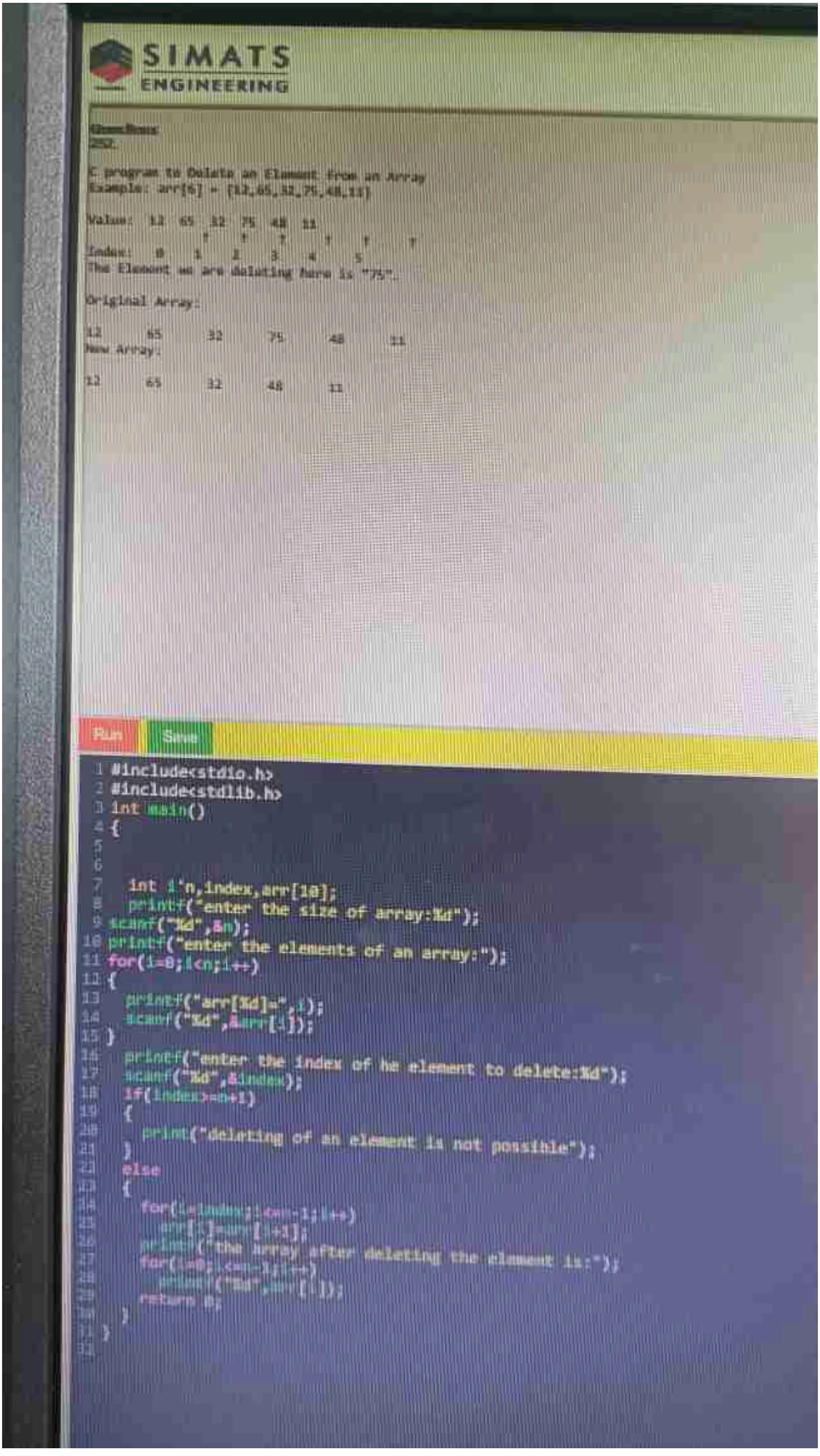
```
C Program to Print all Non Repeated Elements in an Array
Enter size of the array: 6

Enter 6 elements of an array: 12
10
4
10
12
56

The array after removing duplicates is:  12 10 4 56
```

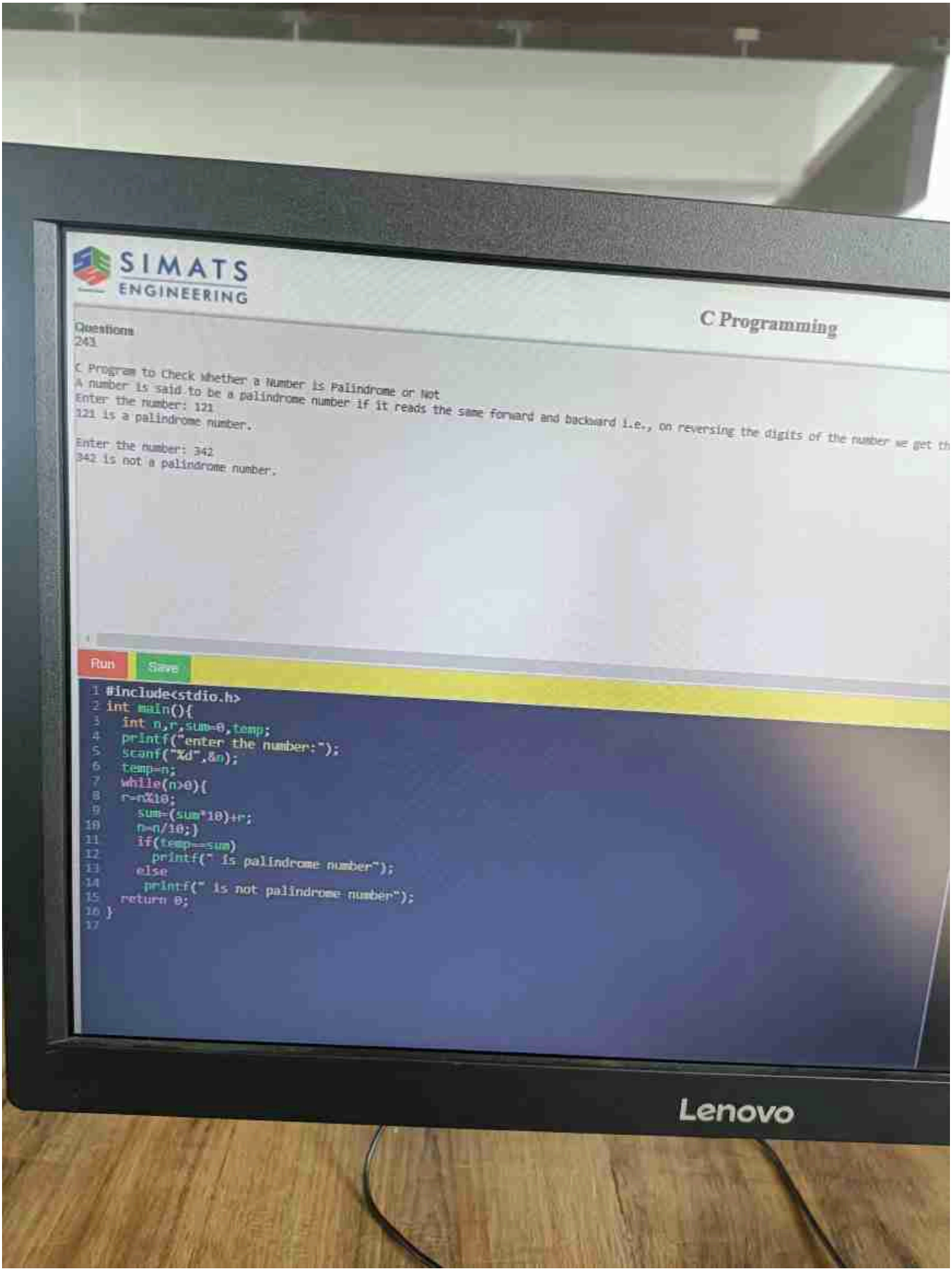
Run Save

```c
#include<stdio.h>
int main()
{
   int a,b,c;
   printf("enter the first ineger:%d\n",a);
   scanf("%d",&a);
   printf("enter the second integer:%d\n",b);
   scanf("%d",&b);
   c=a*b;
   printf("product of above two integers:%d",c);
   return 0;
}
```


SIMATS
ENGINEERING
C Programming
Questions
247
Implement a program that prints the sum of all even numbers between 1 and 100.
Output: Sum of even numbers between 1 and 100: 2550
Run
Save
#include<stdio.h>
int main()
{
int i,n,sum=0;
printf("enter the any number:");
scanf("%d",&n);
for(i=2;i<=n;i+=2)
{
sum+=i;
}
printf("sum of the all even numbers from 1 to %d : %d",n,sum);
return 0;
}
Lenovo


SIMATS
ENGINEERING
C Programming
Questions
242
C program to Compare Two Strings
String is a sequence of characters terminated by the special character '\0'. Strings can be compared with or without using the string function.
Example:
String1="Hello" String2="Hello" Both string are equal
String1="Hello" String2="Hell" String1 is greater
String1="Hello" String2="Helz" String2 is greater
Enter the first string
hello
Enter the Second string
hell
First string is greater than Second string
Run
Save
#include<stdio.h>
#include<string.h>
int main()
{
char str1[100],str2[200];
printf("enter the first string");
scanf("%s",&str1);
printf("enter the second string");
scanf("%s",&str2);
if(strcmp(str1,str2)<0)
printf("the strings are equal");
else
printf("the string are not equal");
return 0;
}
Lenovo


SIMATS
ENGINEERING
202.
C program to Delete an Element from an Array
Example: arr[6] = {12,65,32,75,48,11}
Value: 12 65 32 75 48 11
Index: 0 1 2 3 4 5
The Element we are deleting here is "75".
Original Array:
12 65 32 75 48 11
New Array:
12 65 32 48 11
Run
Save
#include<stdio.h>
#include<stdlib.h>
int main()
{
int i,n,index,arr[10];
printf("enter the size of array:%d");
scanf("%d",&n);
printf("enter the elements of an array:");
for(i=0;i<n;i++)
{
printf("arr[%d]=",i);
scanf("%d",&arr[i]);
}
printf("enter the index of he element to delete:%d");
scanf("%d",&index);
if(index>=n+1)
{
printf("deleting of an element is not possible");
}
else
{
for(i=index;i<n-1;i++)
arr[i]=arr[i+1];
printf("the array after deleting the element is:");
for(i=0;i<n-1;i++)
printf("%d",arr[i]);
return 0;
}
}


SIMATS
ENGINEERING
C Programming
Questions
243
C Program to Check Whether a Number is Palindrome or Not
A number is said to be a palindrome number if it reads the same forward and backward i.e., on reversing the digits of the number we get th
Enter the number: 121
121 is a palindrome number.
Enter the number: 342
342 is not a palindrome number.
Run
Save
#include<stdio.h>
int main(){
int n,r,sum=0,temp;
printf("enter the number:");
scanf("%d",&n);
temp=n;
while(n>0){
r=n%10;
sum=(sum*10)+r;
n=n/10;}
if(temp==sum)
printf(" is palindrome number");
else
printf(" is not palindrome number");
return 0;
}
Lenovo

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ENGINEERING

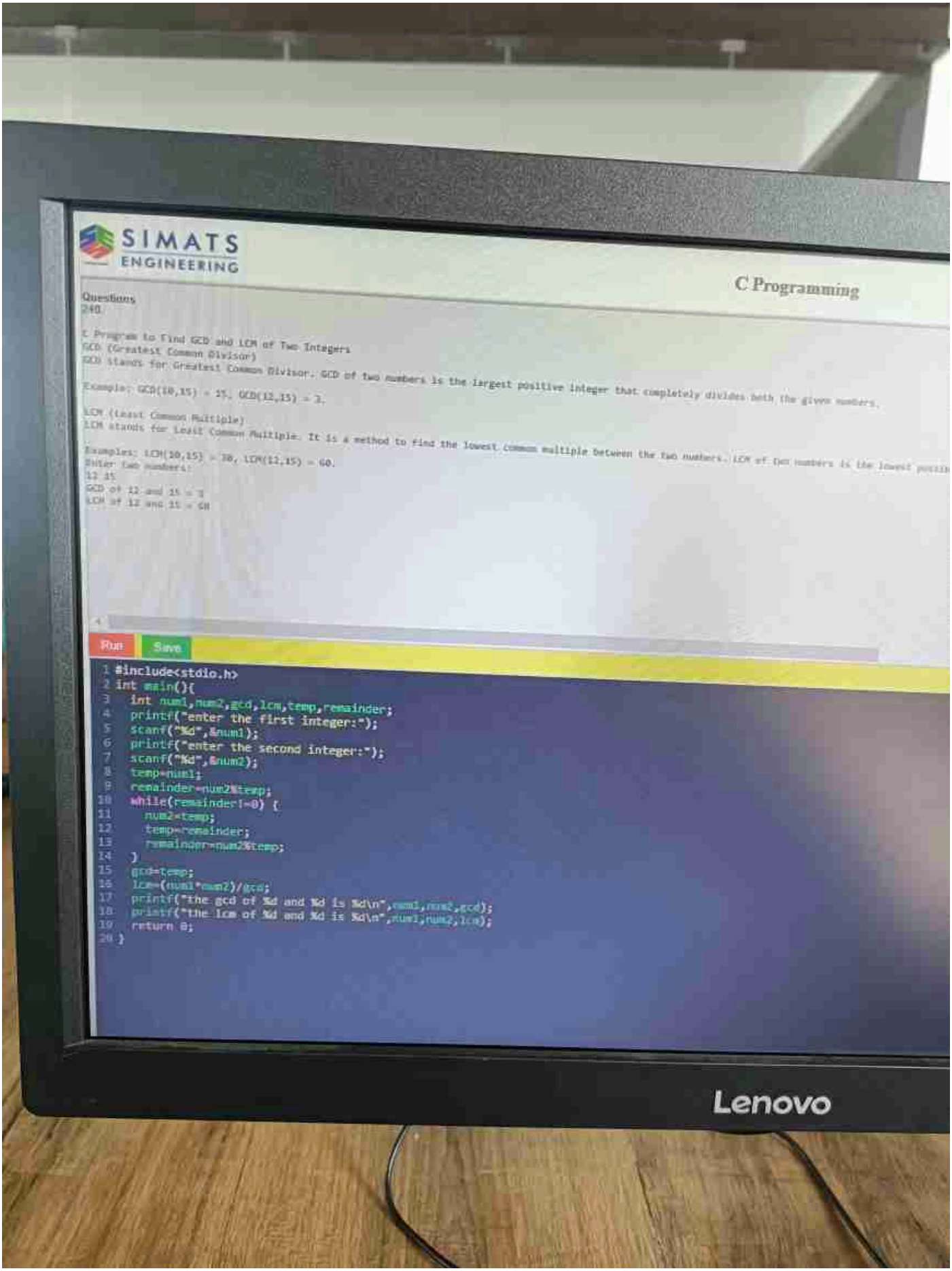
Questions
253

C Program to Find Sum of Array Elements using Pointer
Expected Input and Output
If we are entering 5 elements (N = 5), with array element values as 4, 9, 10, 56 and
Sum of Elements of the array will be: 4 + 9 + 10 + 56 + 100 = 179

Run Save

```c
#include<stdio.h>
int main()
{
   int i,n=5;
     printf("enter the number of elements in the array:\n");
  // scanf("%d",&n);
   int arr[n];
   printf("enter the elements of the array:\n");
   for(i=0;i<=n;i++)
   {
     scanf("%d",&arr[i]);

   printf("print the elements:%d ",arr[i]);
    // printf("enter the elements:");
   }
   return 0;
}
```


SIMATS
ENGINEERING
C Programming
Questions
240
C Program to Find GCD and LCM of Two Integers
GCD (Greatest Common Divisor)
GCD stands for Greatest Common Divisor. GCD of two numbers is the largest positive integer that completely divides both the given numbers.
Example: GCD(10,15) = 15, GCD(12,15) = 3.
LCM (Least Common Multiple)
LCM stands for Least Common Multiple. It is a method to find the lowest common multiple between the two numbers. LCM of two numbers is the lowest positi
Examples: LCM(10,15) = 30, LCM(12,15) = 60.
Enter two numbers:
12 15
GCD of 12 and 15 = 3
LCM of 12 and 15 = 60
Run
Save
1 #include<stdio.h>
2 int main(){
3 int num1,num2,gcd,lcm,temp,remainder;
4 printf("enter the first integer:");
5 scanf("%d",&num1);
6 printf("enter the second integer:");
7 scanf("%d",&num2);
8 temp=num1;
9 remainder=num2%temp;
10 while(remainder!=0) {
11 num2=temp;
12 temp=remainder;
13 remainder=num2%temp;
14 }
15 gcd=temp;
16 lcm=(num1*num2)/gcd;
17 printf("the gcd of %d and %d is %d\n",num1,num2,gcd);
18 printf("the lcm of %d and %d is %d\n",num1,num2,lcm);
19 return 0;
20 }
Lenovo

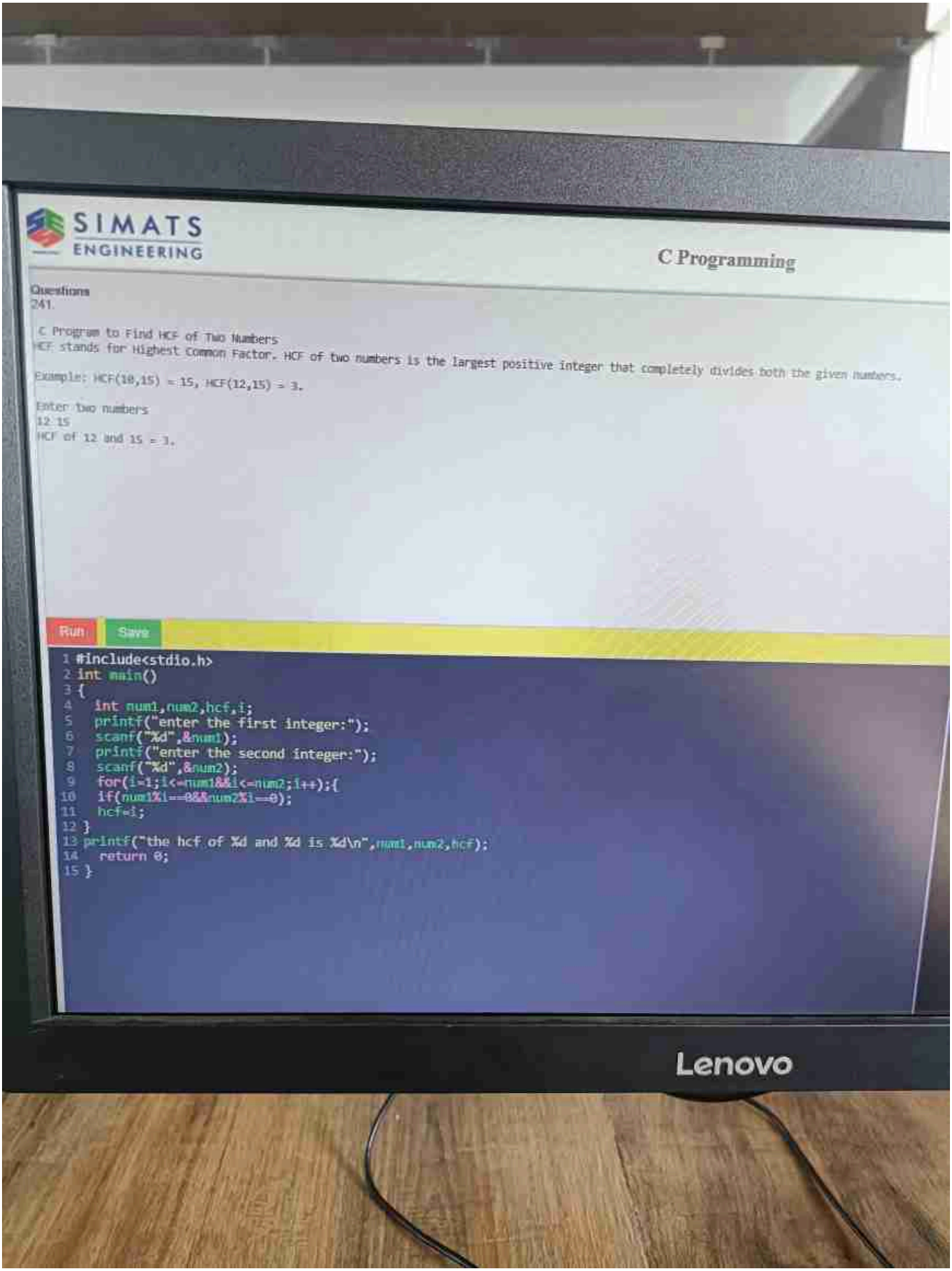
Exercise:
240.

Write a program to find the sum of all even digits in a given number.
Sample:
Input: Enter a number: 356824
Output: Sum of even digits: 20

Run Save

```c
#include<stdio.h>
int main()
{
   int n,r,s1=0;
printf("enter the number:\n");
scanf("%d",&n);
while(n!=0)
{
  r=n%10;
  if(r%2==1)
      s1=s1+r;
   // else
     //s1=s1+r;
 n=n/10;

}
   printf(" sum of odd digits is:%d",s1);
   return 0;
}
```


SIMATS
ENGINEERING
C Programming
Questions
241
C Program to Find HCF of Two Numbers
HCF stands for Highest Common Factor. HCF of two numbers is the largest positive integer that completely divides both the given numbers.
Example: HCF(10,15) = 15, HCF(12,15) = 3.
Enter two numbers
12 15
HCF of 12 and 15 = 3.
Run
Save
#include<stdio.h>
int main()
{
int num1,num2,hcf,i;
printf("enter the first integer:");
scanf("%d",&num1);
printf("enter the second integer:");
scanf("%d",&num2);
for(i=1;i<=num1&&i<=num2;i++){
if(num1%i==0&&num2%i==0);
hcf=i;
}
printf("the hcf of %d and %d is %d\n",num1,num2,hcf);
return 0;
}
Lenovo

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Question
251.

C Program to Find the Number of Elements in an Array
array[] = {15, 50, 34, 20, 10, 79, 100};
Size of the given array is 7

Run Save

```c
#includecstdio.h>
int main()
{

   char arr[]={'a','d','s','t','5'};
int length=sizeof(arr)/sizeof(arr[0]);
printf("the size of given array is:%d",length);
return 0;
}

```

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Some Items
46. Write a C program to merge two sorted arrays into a single sorted array.

Run Save

```c
#include<stdio.h>
int main()
{
  int n1,n2,n3,i;
  int a[1000],b[1000],c[2000];
  printf("\nenter the size of array: ");
  scanf("%d ",&n1);
  printf("\nenter the elements: ");
  for(i=0;i<n1;i++)
    scanf("%d ",&a[i]);
  printf("\nenter the size of array: ");
  scanf("%d ",&n2);
  printf("\nenter the elements: ");
  for(i=0;i<n2;i++)
    scanf("%d ",&b[i]);
  n3=n1+n2;
  for(i=0;i<n1;i++)
    c[i]=a[i];
  for(i=0;i<n2;i++)
    c[i+n1]=b[i];
  printf("\nmerged array is: ");
  for(i=0;i<n3;i++)
    printf("%d ",c[i]);
  return 0;
}
```

```
length of "teacher" = 7
Case 1 passed.

Case 2:
Set of characters in
hectare ('h' , 'e' , 'c' , 't' , 'a' , 'r' , 'e')
teacher ('t' , 'e' , 'a' , 'c' , 'h' , 'e', 'r')

Every character from the first string has a similar character to it in the other string. Case 2 p

"teacher" and "hectare" are anagrams.

Enter the string
study
Enter another string
dusty
"study" and "dusty" are anagrams.
```

Run Save

```c
#include<stdio.h>
#include<string.h>
int main()
{
  char str1[100],str2[100];
  int i,j,len,len1,len2,found=0,notfound=0;
  printf("enter the first string:\n");
  scanf("%s",str1);
  printf("enter the second string:\n");
  scanf("%s",str2);
  len1=strlen(str1);
  len2=strlen(str2);
 if(len1==len2)
 {
   len=len1;
   for(i=0;i<len;i++)
   {
     for(j=0;j<len;j++)
     {
       if(str1[i]==str2[j])
       {
         found=1;
         break;
       }
     }
     if(found==0)
     {
       notfound=1;
       break;
     }
   }
   if(notfound==1)
   {
     printf("not anagram");
   }
   else
   {
     printf("anagram");
   }
 }
 else
 {
   printf("size is different");
 }
 return 0;
}
```

SIMATS ENGINEERING

C Programming

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192211787

Palindrome Number

Given an integer x, return true if x is a
palindrome
, and false otherwise.

Example 1:

Input: x = 121
Output: true
Explanation: 121 reads as 121 from left to right and from right to left.
Example 2:

Input: x = -121
Output: false
Explanation: From left to right, it reads -121. From right to left, it becomes 121-. Therefore it is not a palindrome.
Example 3:

Input: x = 10
Output: false
Explanation: Reads 01 from right to left. Therefore it is not a palindrome.

Run Save

```c
#include<stdio.h>
int main()
{
  int n,r,sum=0,temp;
  printf("enter the number=");
  scanf("%d",&n);
  temp=n;
  while(n>0)
  {
    r=n%10;
      sum=(sum*10)+r;
    n=n/10;
  }
  if(temp==sum)
    printf("palindrome");
  else
    printf("not palindrome");
return 0;
  }

```

```
-121
enter the numbe
palindrome
```

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C Programming

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Two Sum

Given an array of integers nums and an integer target, return indices of the two numbers such that they add up to target

You may assume that each input would have exactly one solution, and you may not use the same element twice.

You can return the answer in any order.

Example 1:

```
Input: nums = [2,7,11,15], target = 9
Output: [0,1]
Explanation: Because nums[0] + nums[1] == 9, we return [0, 1].
```

Example 2:

```
Input: nums = [3,2,4], target = 6
Output: [1,2]
```

Example 3:

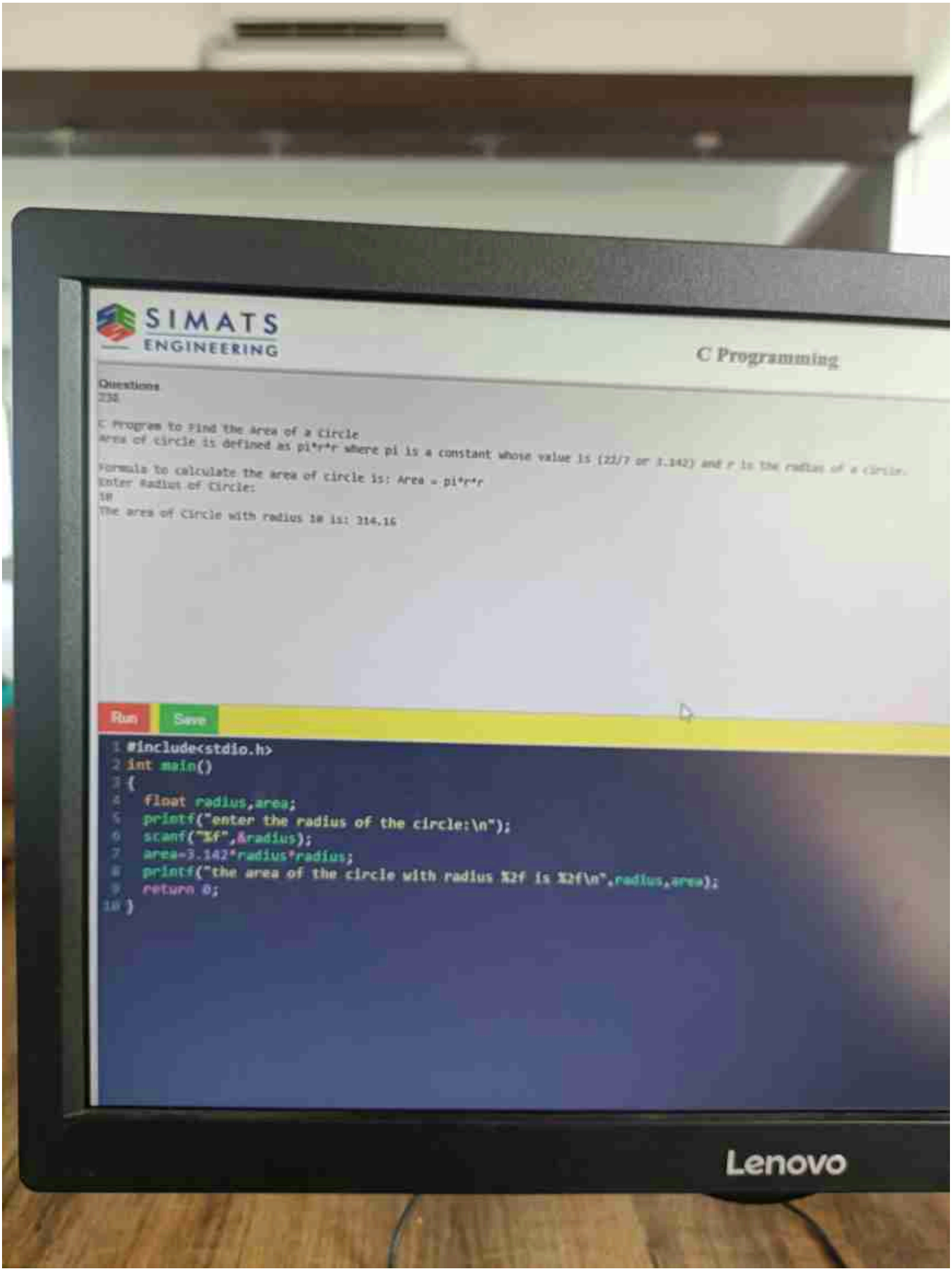
```
Input: nums = [3,3], target = 6
Output: [0,1]
```

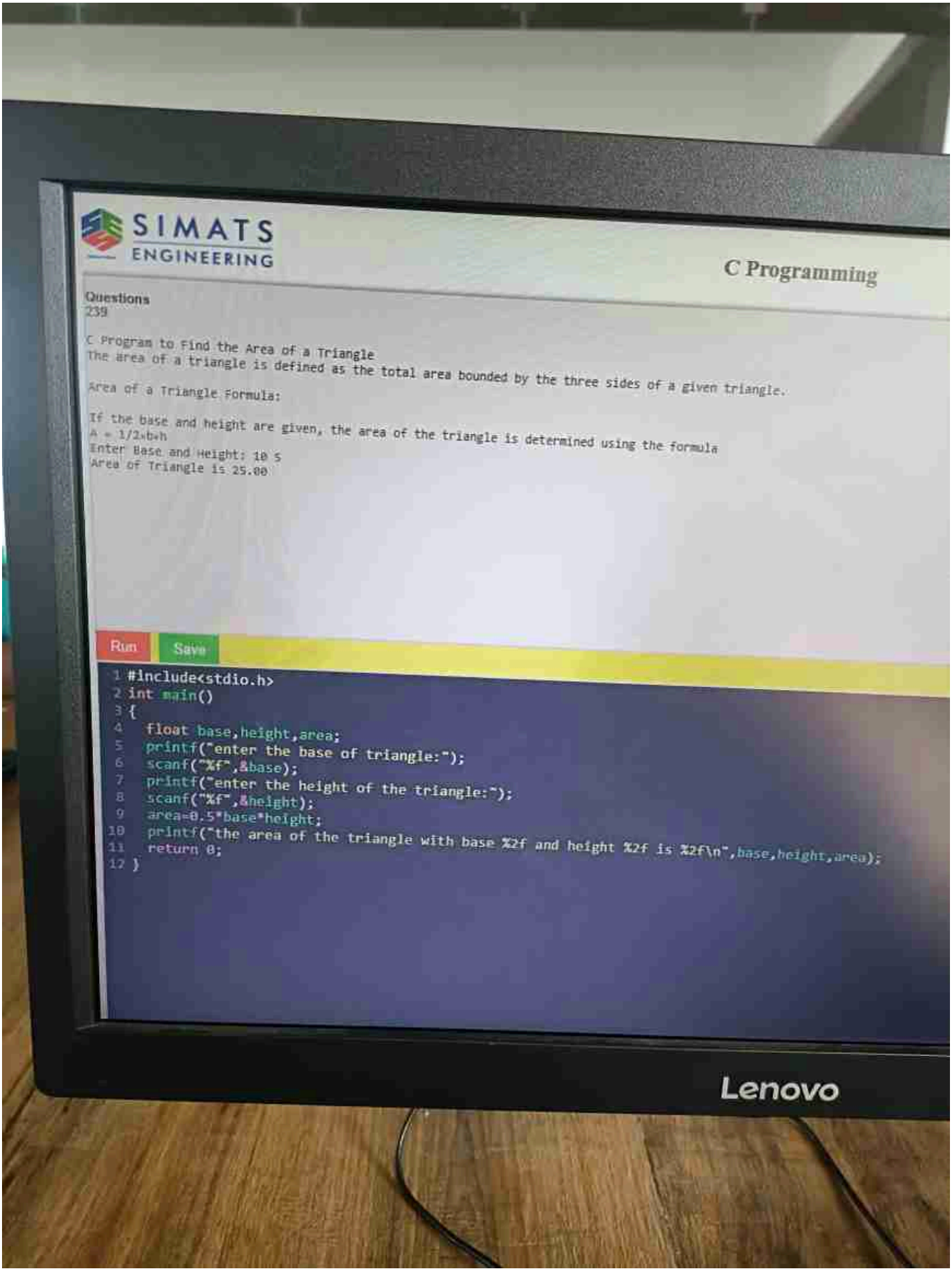
Run Save

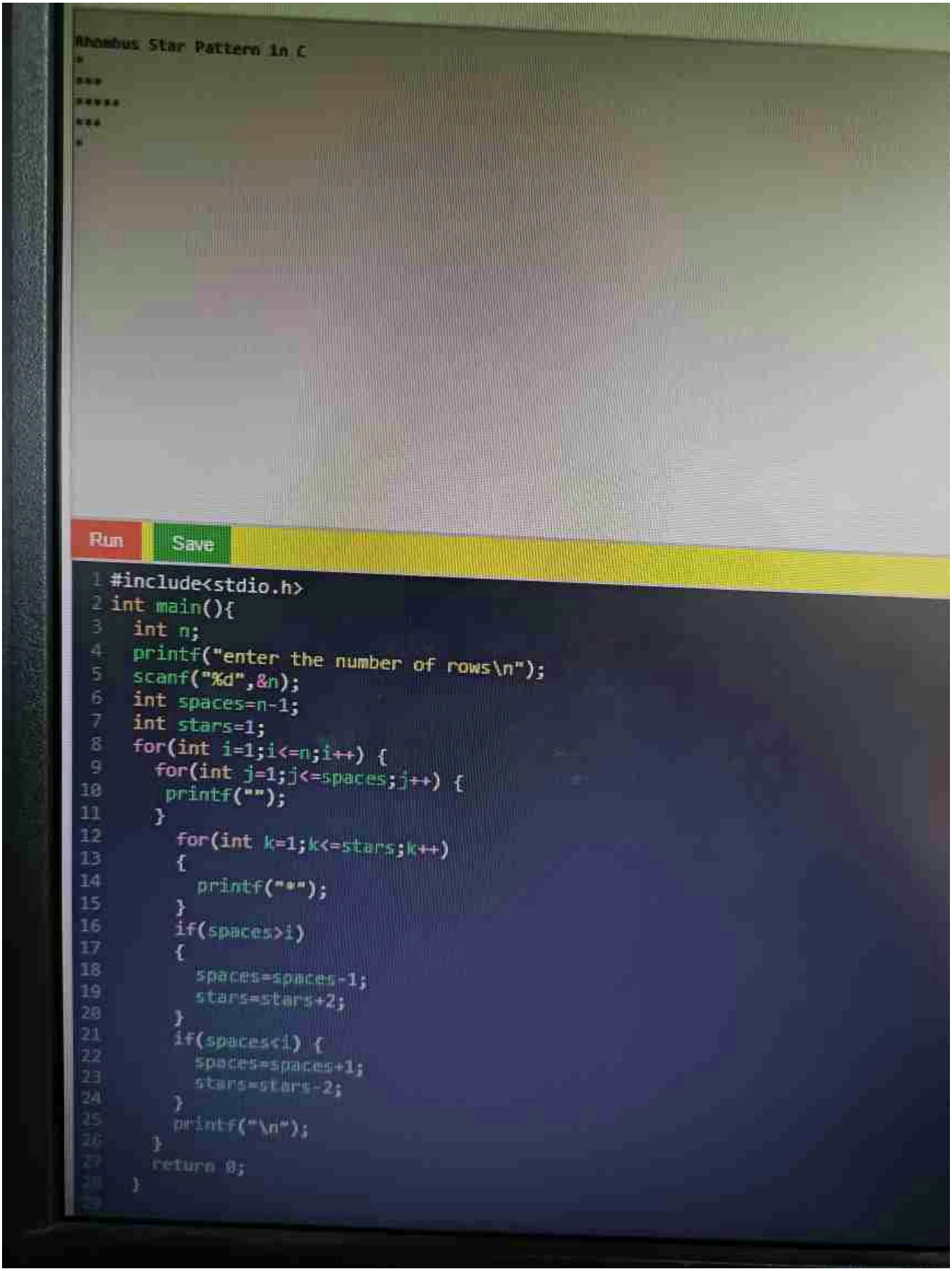
```c
#include<stdio.h>
void twosum (int arr[],int size,int target){
  for(int i=0;i<size-1;i++){
    for(int j=i+1;j<size;j++){
      if(arr[i]+arr[j]==target){
        printf("ind : %d, %d\n",i,j);
        return;
      }
    }
  }
  printf("No such pair :\n");
}
int main(){
  int arr[]={3,2,4};
  int target=6;
  int size=sizeof(arr)/sizeof(arr[0]);
  twosum(arr,size,target);
  return 0;
}
```

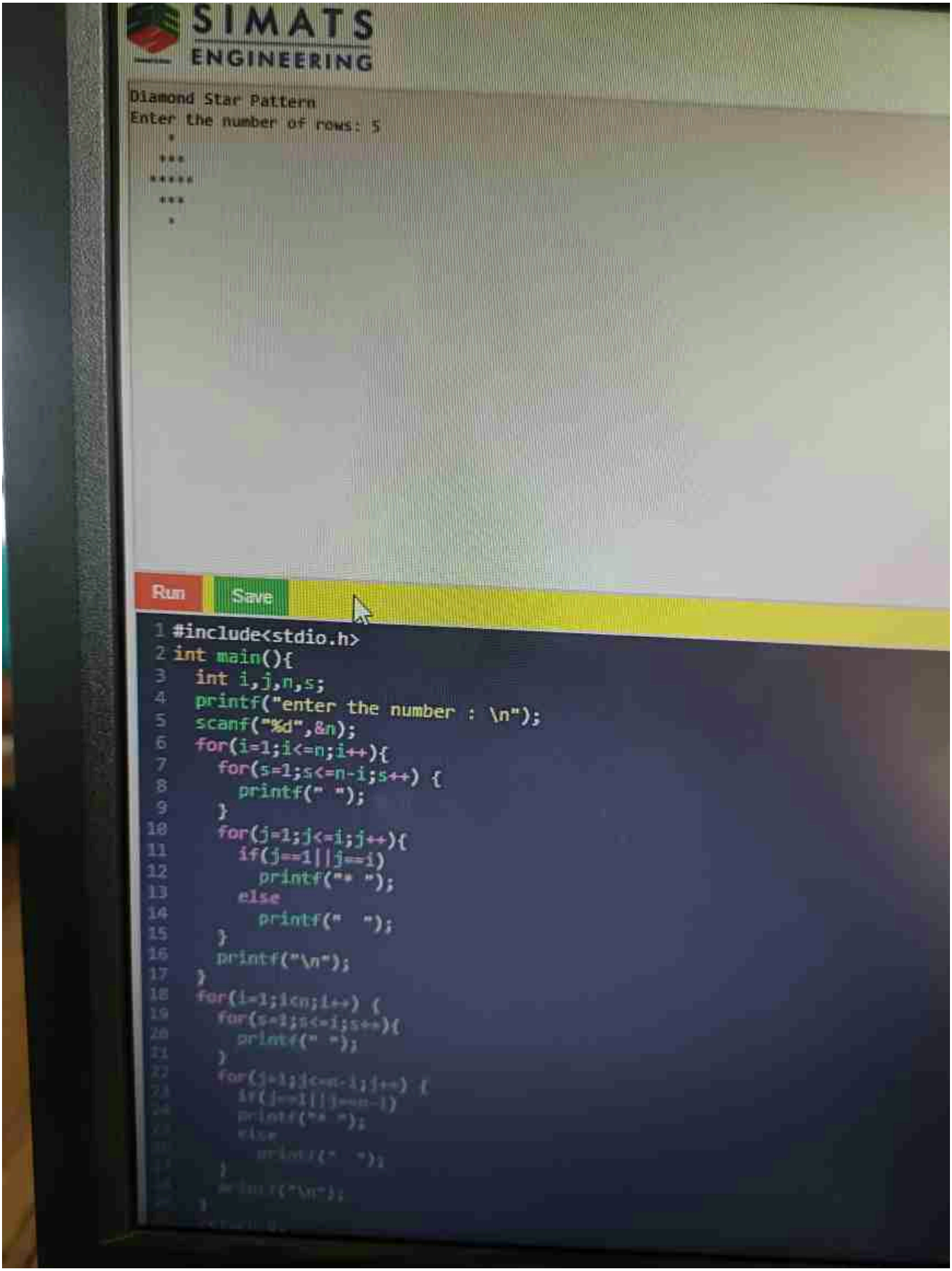
Your INPUT go's here! Give only values. do not give like a=10

```
ind : 1, 2
```


SIMATS
ENGINEERING
C Programming
Questions
238
C Program to Find the Area of a Circle
Area of circle is defined as pi*r*r where pi is a constant whose value is (22/7 or 3.142) and r is the radius of a circle.
Formula to calculate the area of circle is: Area = pi*r*r
Enter Radius of Circle:
10
The area of Circle with radius 10 is: 314.16
Run
Save
#include<stdio.h>
int main()
{
float radius,area;
printf("enter the radius of the circle:\n");
scanf("%f",&radius);
area=3.142*radius*radius;
printf("the area of the circle with radius %2f is %2f\n",radius,area);
return 0;
}
Lenovo


SIMATS
ENGINEERING
C Programming
Questions
239
C Program to Find the Area of a Triangle
The area of a triangle is defined as the total area bounded by the three sides of a given triangle.
Area of a Triangle Formula:
If the base and height are given, the area of the triangle is determined using the formula
A = 1/2×b×h
Enter Base and Height: 10 5
Area of Triangle is 25.00
Run
Save
#include<stdio.h>
int main()
{
float base,height,area;
printf("enter the base of triangle:");
scanf("%f",&base);
printf("enter the height of the triangle:");
scanf("%f",&height);
area=0.5*base*height;
printf("the area of the triangle with base %2f and height %2f is %2f\n",base,height,area);
return 0;
}
Lenovo


Rhombus Star Pattern in C
*
***
*****
***
*
Run
Save
#include<stdio.h>
int main(){
int n;
printf("enter the number of rows\n");
scanf("%d",&n);
int spaces=n-1;
int stars=1;
for(int i=1;i<=n;i++) {
for(int j=1;j<=spaces;j++) {
printf(" ");
}
for(int k=1;k<=stars;k++)
{
printf("*");
}
if(spaces>i)
{
spaces=spaces-1;
stars=stars+2;
}
if(spaces<i) {
spaces=spaces+1;
stars=stars-2;
}
printf("\n");
}
return 0;
}


SIMATS
ENGINEERING
Diamond Star Pattern
Enter the number of rows: 5
*
***
*****
***
*
Run
Save
#include<stdio.h>
int main(){
int i,j,n,s;
printf("enter the number : \n");
scanf("%d",&n);
for(i=1;i<=n;i++){
for(s=1;s<=n-i;s++) {
printf(" ");
}
for(j=1;j<=i;j++){
if(j==1||j==i)
printf("* ");
else
printf(" ");
}
printf("\n");
}
for(i=1;i<n;i++) {
for(s=1;s<=i;s++){
printf(" ");
}
for(j=1;j<=n-i;j++) {
if(j==1||j==n-i)
printf("* ");
else
printf(" ");
}
printf("\n");
}

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ENGINEERING

Questions
246.

C Program to Calculate the Power of a Number

For example: In the case of 2 3
2 is the base number
3 is the exponent
And, the power is equal to 2*2*2

Sample input
Base number: 2
Exponent number: 3
Output:
8

Run Save

```c
#include<stdio.h>
int main()
{
  int a,b;
  int result=1;
  printf("enter the base and exponent numbers");
  scanf("%d %d", &a,&b);
  for(b;b>0;b--)
  {
    result=result*a;
  }
  printf(":%d",result);
  return 0;
}
```

SIMATS ENGINEERING

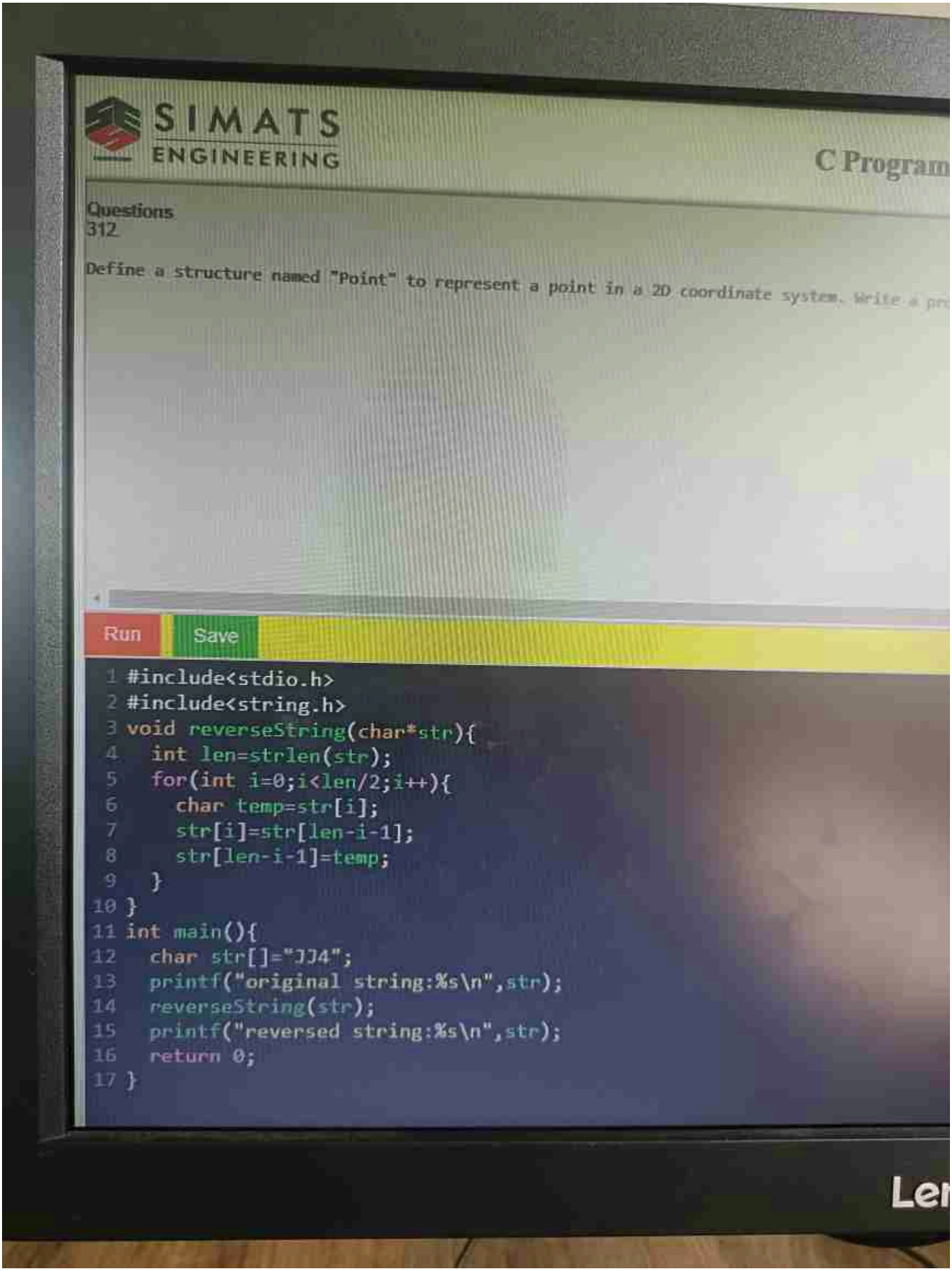
C Progra

Questions
307

Write a function named "reverseString" that takes a string as a parameter and returns th

Run Save

```c
#include<stdio.h>
#include<string.h>
int main(){
   char str[100];
   printf("enter the word or number: \n");
   scanf("%s",&str);
   int len=strlen(str);
   for( int i=len;i>=0;i--){
printf("%c",str[i]);
}
   printf("\n");
   return 0;
}
```


SIMATS
ENGINEERING
C Program
Questions
312
Define a structure named "Point" to represent a point in a 2D coordinate system. Write a pr
Run
Save
#include<stdio.h>
#include<string.h>
void reverseString(char*str){
int len=strlen(str);
for(int i=0;i<len/2;i++){
char temp=str[i];
str[i]=str[len-i-1];
str[len-i-1]=temp;
}
}
int main(){
char str[]="JJ4";
printf("original string:%s\n",str);
reverseString(str);
printf("reversed string:%s\n",str);
return 0;
}

SIMATS ENGINEERING

Questions
282

Write a program to find the factorial of a number using pointers.

Run Save

```c
#include<stdio.h>
void fact(int n,int *result){
  *result=1;
  for(int i=1;i<=n;i++){
    *result*=i
  }
}
int main(){
  int n,result;
  printf("enter the positive:");
  scanf("%d",&n);
  fact(n,&result);
  printf("fact of %d is %d\n",n,result);
  return 0;
}
```

SIMATS ENGINEERING

C Program

Questions
276.

Write a program to swap the values of two variables using pointers.

Run Save

```c
#include<stdio.h>
int main(){
   int x,y,*a,*b,temp;
   printf("enter the a and b values:");
   scanf("%d%d",&x,&y);
   printf("before swapping\nx=%d\ny=%d\n",x,y);
   a=&x;
   b=&y;
  temp=*b;
   *b=*a;
   *a=temp;
   printf("after swapping\nx=%d\ny=%d\n",x,y);
   return 0;
}
```

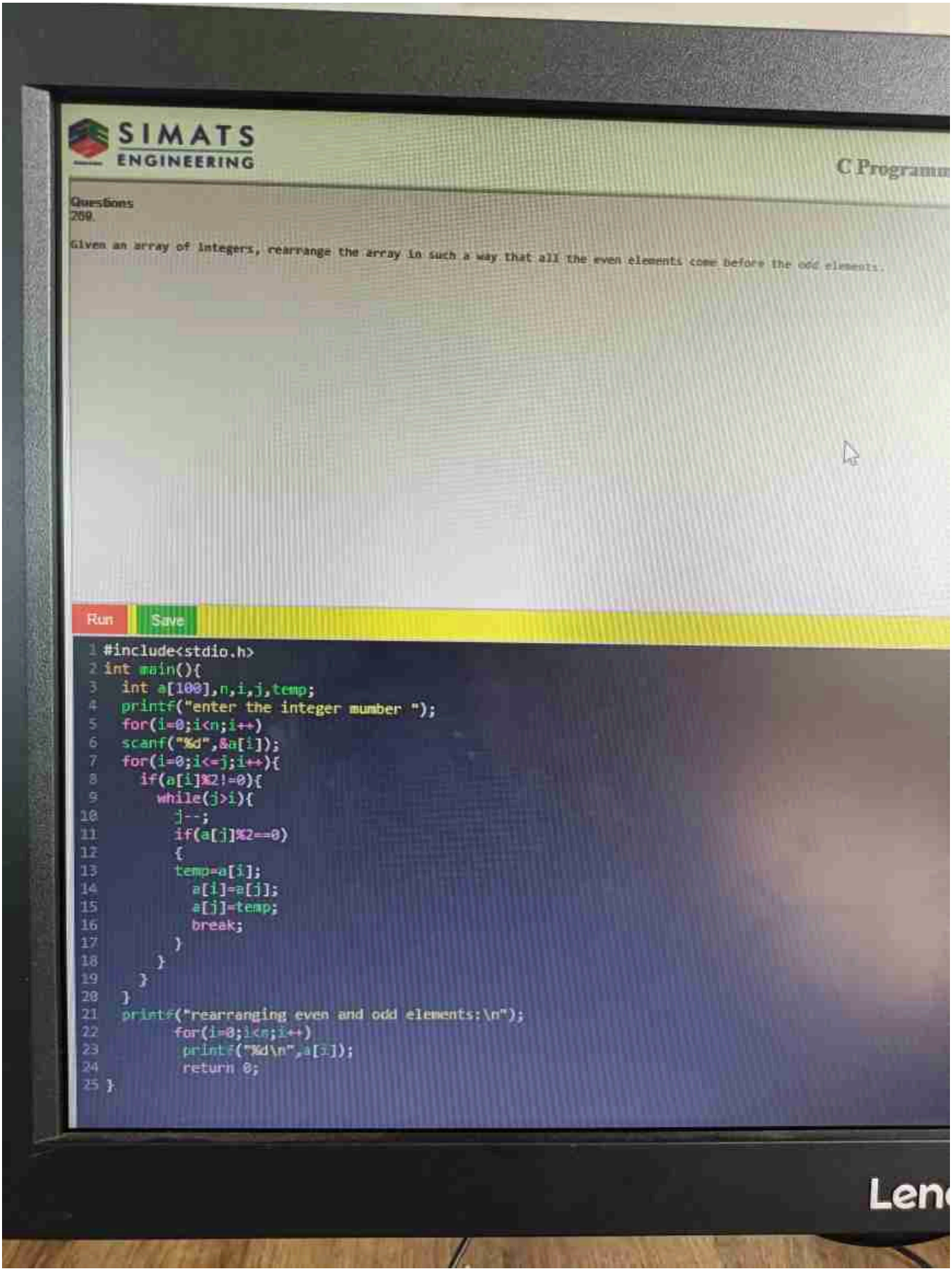
SIMATS
ENGINEERING

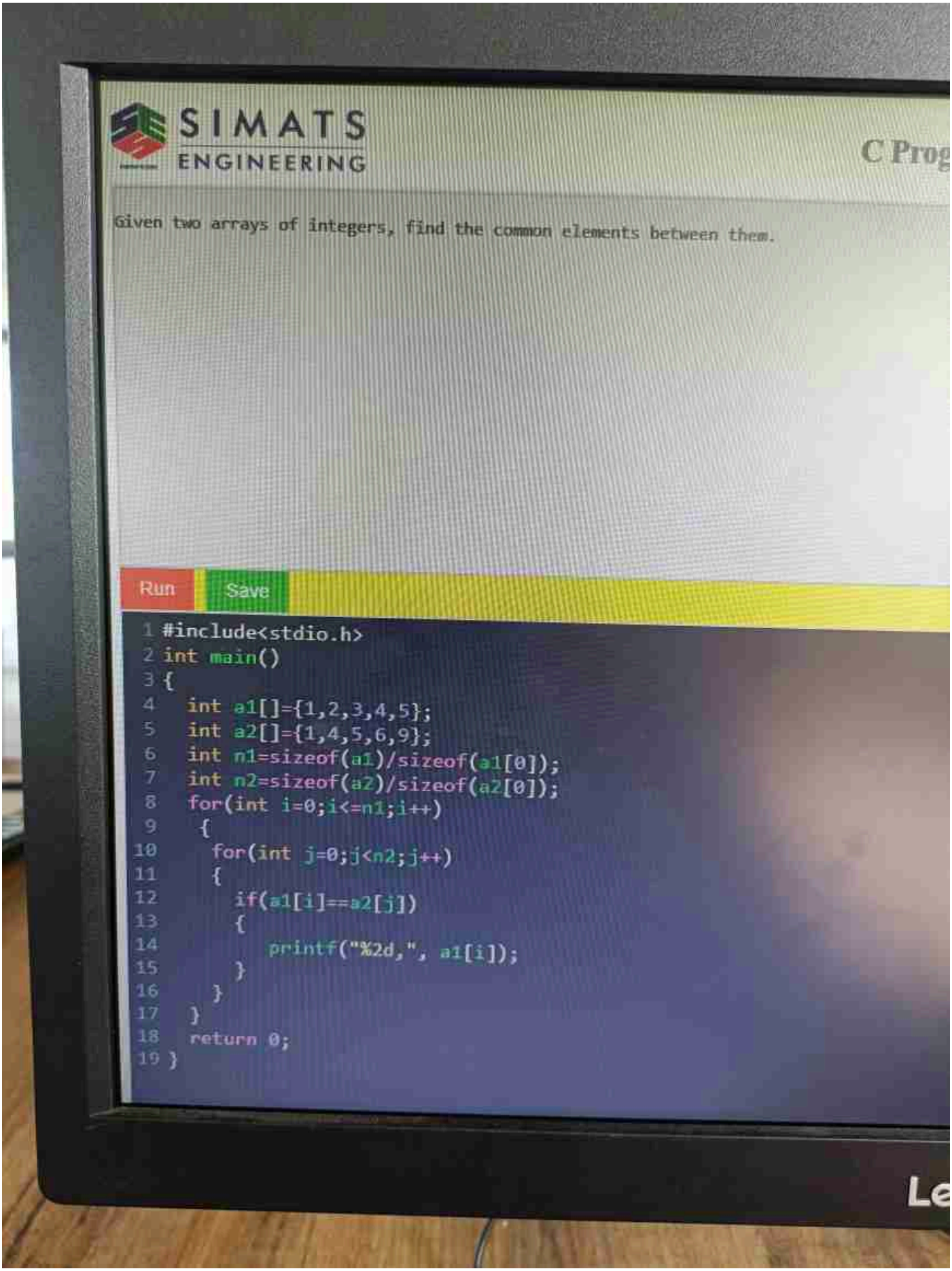
287

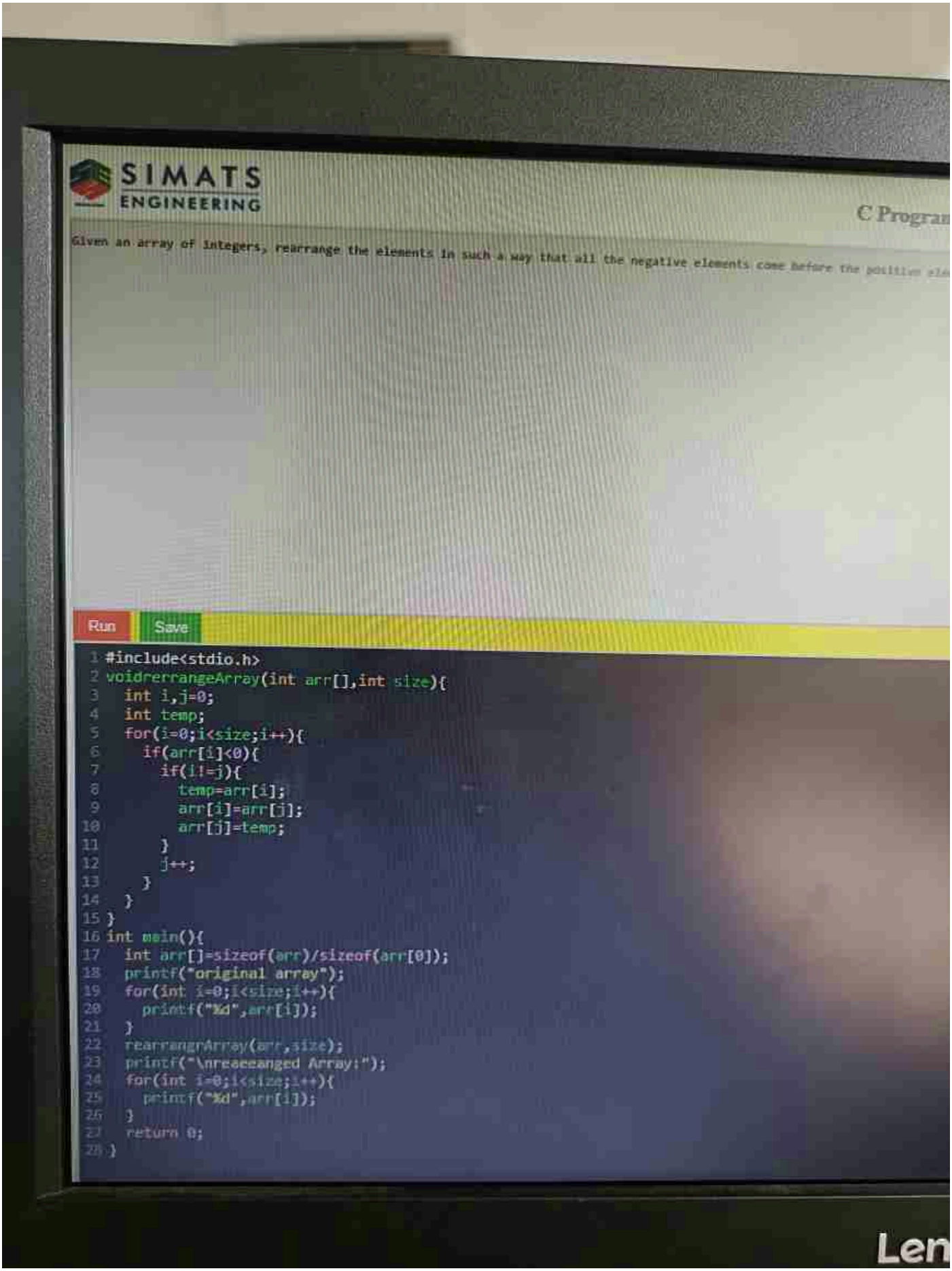
Given an array of integers, find the subarray with the largest sum.

Run Save

```c
#include<stdio.h>
int main()
{
  int arr[]={1,3,5,2,4};
  int temp,i,j;
  printf("before sorting:");
  for(i=0;i<5;i++){
    printf("%d");
  }
  for(i=0;i<5;i++){
    for(j=i+1;j<5;j++){
      if(arr[i]>arr[j]){
        temp=arr[i];
        arr[i]=arr[j];
        arr[j]=temp;
      }
    }
  }
  printf("\n after sorting:");
  for(i=0;i<5;i++)
  {
    printf("%d",a[i]);
  }
  return 0;
}
```


SIMATS
ENGINEERING
C Programm
Questions
269.
Given an array of integers, rearrange the array in such a way that all the even elements come before the odd elements.
Run
Save
#include<stdio.h>
int main(){
int a[100],n,i,j,temp;
printf("enter the integer number ");
for(i=0;i<n;i++)
scanf("%d",&a[i]);
for(i=0;i<=j;i++){
if(a[i]%2!=0){
while(j>i){
j--;
if(a[j]%2==0)
{
temp=a[i];
a[i]=a[j];
a[j]=temp;
break;
}
}
}
}
printf("rearranging even and odd elements:\n");
for(i=0;i<n;i++)
printf("%d\n",a[i]);
return 0;
}


SIMATS
ENGINEERING
C Prog
Given two arrays of integers, find the common elements between them.
Run
Save
#include<stdio.h>
int main()
{
int a1[]={1,2,3,4,5};
int a2[]={1,4,5,6,9};
int n1=sizeof(a1)/sizeof(a1[0]);
int n2=sizeof(a2)/sizeof(a2[0]);
for(int i=0;i<=n1;i++)
{
for(int j=0;j<n2;j++)
{
if(a1[i]==a2[j])
{
printf("%2d,", a1[i]);
}
}
}
return 0;
}


SIMATS
ENGINEERING
C Program
Given an array of integers, rearrange the elements in such a way that all the negative elements come before the positive ele
Run
Save
#include<stdio.h>
voidrerrangeArray(int arr[],int size){
int i,j=0;
int temp;
for(i=0;i<size;i++){
if(arr[i]<0){
if(i!=j){
temp=arr[i];
arr[i]=arr[j];
arr[j]=temp;
}
j++;
}
}
}
int main(){
int arr[]=sizeof(arr)/sizeof(arr[0]);
printf("original array");
for(int i=0;i<size;i++){
printf("%d",arr[i]);
}
rearrangrArray(arr,size);
printf("\nreeeeanged Array:");
for(int i=0;i<size;i++){
printf("%d",arr[i]);
}
return 0;
}
Len