

University of Sahiwal, Sahiwal

Department of Computer Science

Assignment No. 1

Program: BSCS (Morning)

Semester: 4th

Session: 2018-2022

Course Name: Design and Analysis of Algorithms

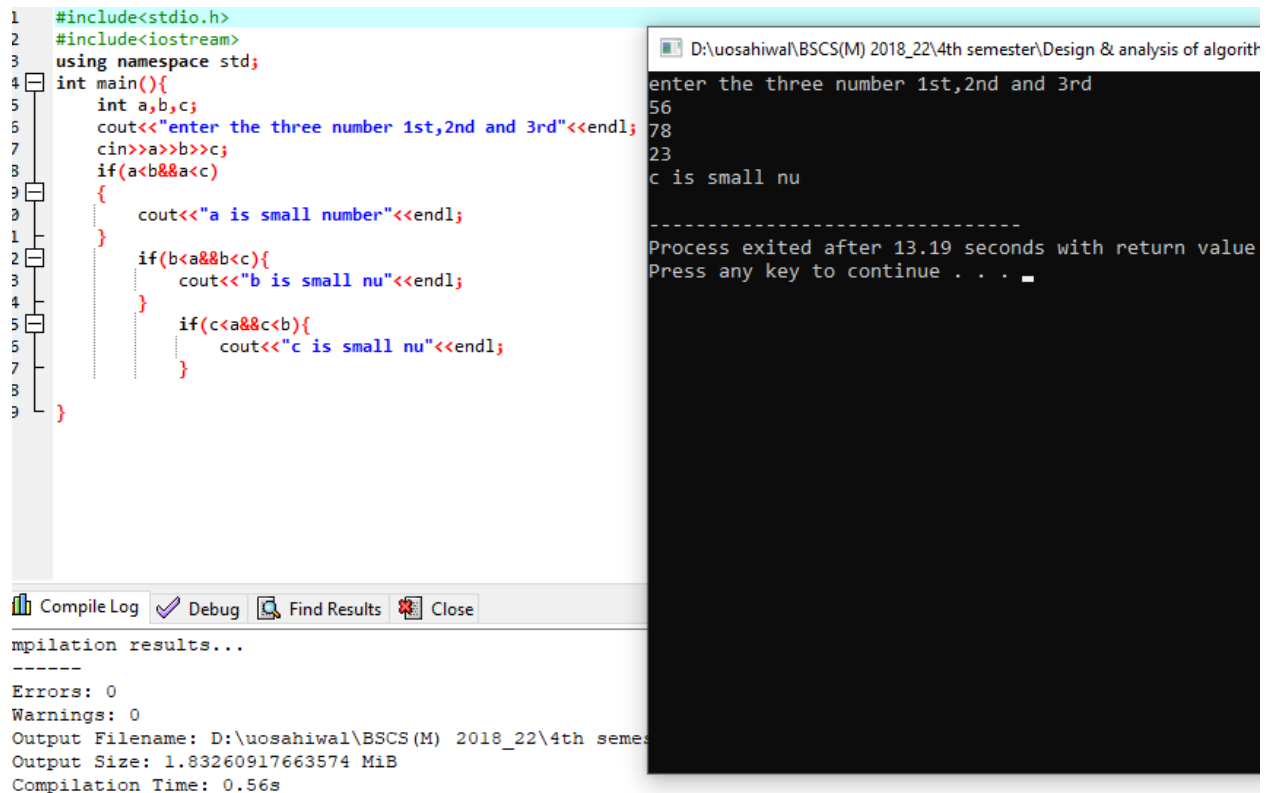
Course Code: CS-204

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Roll no. BSCS-18-18

Q. No. 1: Compose an algorithm which read three numbers and print the smallest number. Also write a C++ language program.



The image shows a screenshot of a C++ program in a code editor and its execution output in a terminal window. The code is a C++ program that reads three numbers and prints the smallest one. The terminal output shows the program running successfully with the input values 56, 78, and 23, resulting in the output "c is small nu".

```
1 #include<stdio.h>
2 #include<iostream>
3 using namespace std;
4 int main(){
5     int a,b,c;
6     cout<<"enter the three number 1st,2nd and 3rd"<<endl;
7     cin>>a>>b>>c;
8     if(a<b&&a<c)
9     {
10         cout<<"a is small number"<<endl;
11     }
12     if(b<a&&b<c){
13         cout<<"b is small nu"<<endl;
14     }
15     if(c<a&&c<b){
16         cout<<"c is small nu"<<endl;
17     }
18 }
19 }
```

Output:

```
D:\uosahiwal\BSCS(M) 2018_22\4th semester\Design & analysis of algorithm
enter the three number 1st,2nd and 3rd
56
78
23
c is small nu

-----
Process exited after 13.19 seconds with return value
Press any key to continue . . .
```

Compilation results...

Errors: 0
Warnings: 0
Output Filename: D:\uosahiwal\BSCS(M) 2018_22\4th semester\Output File
Output Size: 1.83260917663574 MiB
Compilation Time: 0.56s

1: make a algorithm small number three input

step1: one statement input

step2: if (a<b&& a<c)

 a small

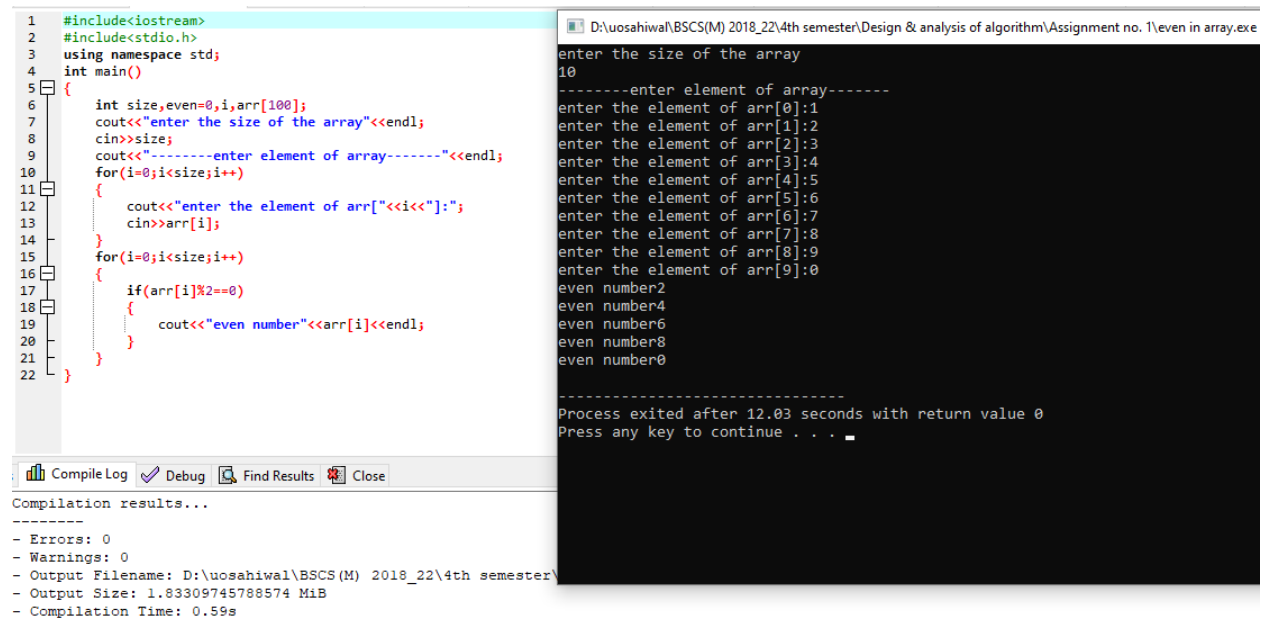
step3: if (b<a&& b<c)

 b small

step4: if(c<a&&c<b)

 c small

Q. No. 2: Describe an algorithm which read an array of 10 integers and count the even numbers. Also write a C++ language program.



```
1 #include<iostream>
2 #include<stdio.h>
3 using namespace std;
4 int main()
5 {
6     int size,even=0,i,arr[100];
7     cout<<"enter the size of the array"<<endl;
8     cin>>size;
9     cout<<"-----enter element of array-----"<<endl;
10    for(i=0;i<size;i++)
11    {
12        cout<<"enter the element of arr["<<i<<"]:";
13        cin>>arr[i];
14    }
15    for(i=0;i<size;i++)
16    {
17        if(arr[i]%2==0)
18        {
19            cout<<"even number"<<arr[i]<<endl;
20        }
21    }
22 }
```

D:\uosahiwal\BSCS(M) 2018_22\4th semester\Design & analysis of algorithm\Assignment no. 1\even in array.exe

enter the size of the array
10
-----enter element of array-----
enter the element of arr[0]:1
enter the element of arr[1]:2
enter the element of arr[2]:3
enter the element of arr[3]:4
enter the element of arr[4]:5
enter the element of arr[5]:6
enter the element of arr[6]:7
enter the element of arr[7]:8
enter the element of arr[8]:9
enter the element of arr[9]:0
even number2
even number4
even number6
even number8
even number0

Process exited after 12.03 seconds with return value 0
Press any key to continue . . .

Compile Log Debug Find Results Close

Compilation results...

- Errors: 0
- Warnings: 0
- Output Filename: D:\uosahiwal\BSCS(M) 2018_22\4th semester
- Output Size: 1.83309745788574 MiB
- Compilation Time: 0.59s

2: make an array algorithm

step1: for $\rightarrow (i)$ to (size) first loop

step2: one statement input

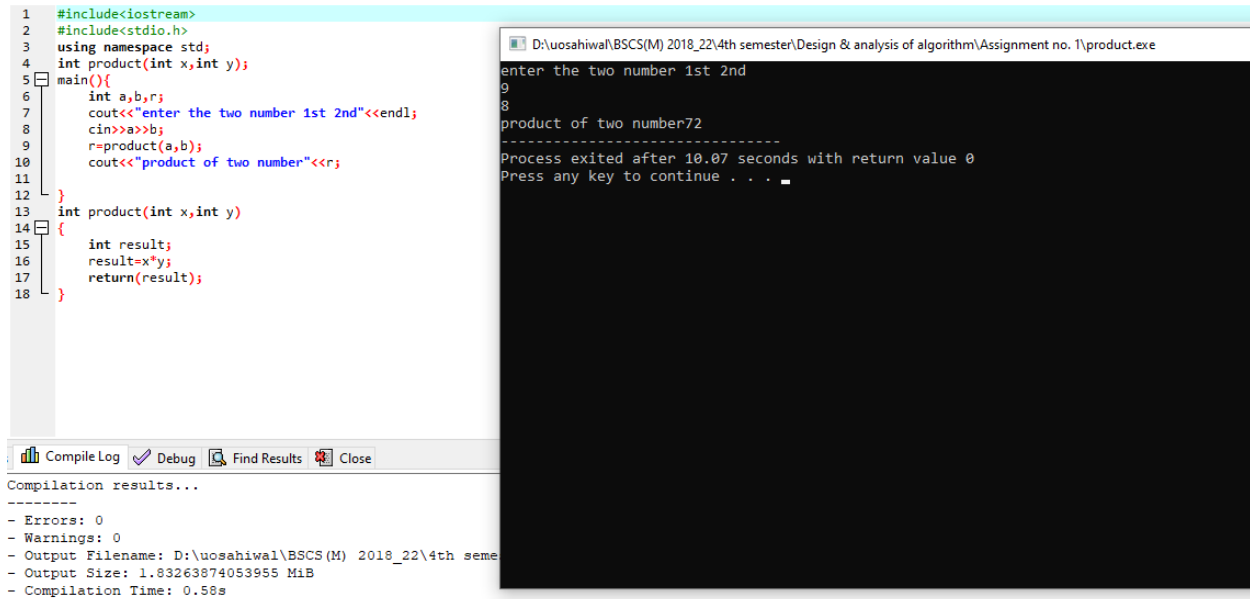
step3: for $\rightarrow (i)$ to (size) second loop

step4: $\text{if}(\text{arr}[i]\%2==0)$ condition

step5: even number

step6: exit

Q. No. 3: Define an algorithm which read two values and find its product using a sub algorithm. Also write a C++ language program.



```
1 #include<iostream>
2 #include<stdio.h>
3 using namespace std;
4 int product(int x,int y);
5 main(){
6     int a,b,r;
7     cout<<"enter the two number 1st 2nd"<<endl;
8     cin>>a>>b;
9     r=product(a,b);
10    cout<<"product of two number"<<r;
11 }
12
13 int product(int x,int y)
14 {
15     int result;
16     result=x*y;
17     return(result);
18 }
```

Compilation results...

- Errors: 0
- Warnings: 0
- Output Filename: D:\uosahiwal\BSCS(M) 2018_22\4th semester\Design & analysis of algorithm\Assignment no. 1\product.exe
- Output Size: 1.83263874053955 MiB
- Compilation Time: 0.58s

enter the two number 1st 2nd
9
8
product of two number72

Process exited after 10.07 seconds with return value 0
Press any key to continue . . .

3: algorithm of product

- step1: create a function
product(int x,int y)
- step2: input one statement
- step3: out put
- step4: call the function
- step5: display the result
- step6: exit