CP Lab-09 Tasks

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Lab 09 Overloading

Tasks: 01

Write a C++ that contains following functions:

int main():

- prompt user to enter numbers for comparison.
- Minimum numbers user can enter are 2 and maximum upto 4.
- call comparison() method with two, three and four parameters.

int comparison():

- this function determine the smallest and largest number
- print the smallest and largest number
- this function(s) must be overloaded

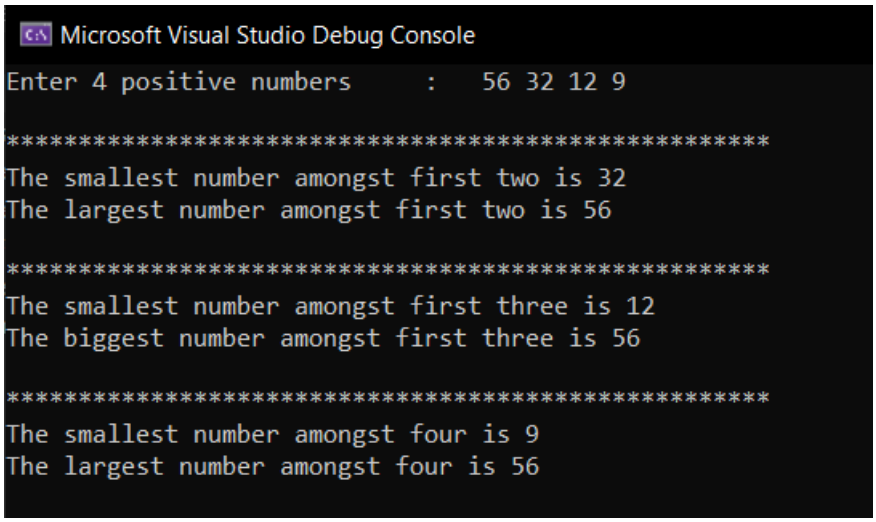
Code:

```
#include <iOStream>
#include <string>
using namespace std;


void comparison(int a, int b) {
if (a < b) {
cout << "The smallest number amongst first two is " << a<<endl
<< "The largest number amongst first two is " << b<<endl;
}
else {
cout << "The smallest number amongst first two is " << b<<endl
<< "The largest number amongst first two is " << a<<endl;
}
}
void comparison(int a, int b, int c) {
if (a < b && a < c) {
cout << "The smallest number amongst first three is " << a << endl;
}
if (b < a && b < c) {
cout << "The smallest number amongst first three is " << b << endl;
}
```

```
if (c < a && c < b) {
cout << "The smallest number amongst first three is " << c << endl;
}
if (a > b && a > c) {
cout << "The biggest number amongst first three is " << a << endl;

}
if (b > a && b > c) {
cout << "The biggest number amongst first three is " << b << endl;
}
if (c > a && c > b) {
cout << "The biggest number amongst first three is " << c << endl;
}
}

void comparison(int a, int b, int c, int d) {
if (a < b && a < c && a < d) {
cout << "The smallest number amongst four is " << a << endl;
}
if (b < a && b < c && b < d) {
cout << "The smallest number amongst four is " << b << endl;

}
if (c < a && c < b && c < d) {
cout << "The smallest number amongst four is " << c << endl;
}
if (d < a && d < b && d < c) {
cout << "The smallest number amongst four is " << d << endl;
}
if (a > b && a > c && a > d) {
cout << "The largest number amongst four is " << a << endl;
}
if (b > a && b > c && b > d) {
cout << "The largest number amongst four is " << b << endl;

}
if (c > a && c > b && c > d) {
cout << "The largest number amongst four is " << c << endl;
}
if (d > a && d > b && d > c) {
cout << "The largest number amongst four is " << d << endl;
}
```

```
}

int main() {
int num1, num2, num3, num4;
cout << "Enter 4 positive numbers     : " ;
cin >> num1>> num2>> num3>> num4;
cout << endl <<
"*****************************************************" << endl;
comparison(num1, num2);
cout << endl <<
"*****************************************************" << endl;
comparison(num1, num2, num3);
cout << endl <<
"*****************************************************" << endl;
comparison(num1, num2, num3, num4);

return 0;
}
```

Output:



Tasks: 02

Write a C++ program that perform following task:

int main():

- Ask user to enter a positive number, store it in variable N.
- You have to calculate Fibonacci number with function *int fab().*
- *Pri*

nt the result. int

fab():

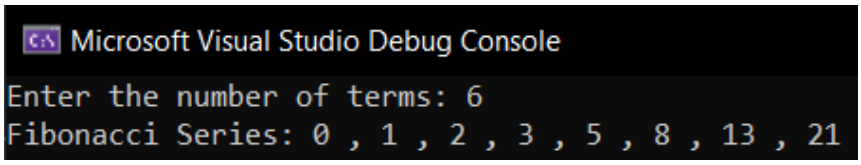
- This function calculates the Fibonacci number.
  - 0, 1, 1, 2, 3, 5, 8, 13, 21, 34,..
  - fab(0) = 0, fab(1) = 1
  - fab(n) = fab(n-1) + fab(n-2) where n>1
- This function must be recursive function.

Code:

```
#include <iOStream>
using namespace std;


void fibonacci(int n ,int i, int a, int b,int nextTerm) {
if (i == 0) {
cout << 0 << " , ";
}

if (i <= n) {
nextTerm = a + b;
a = b;
b = nextTerm;
cout << nextTerm<<" , ";
fibonacci(n,i=i+1,a,b,nextTerm);
}

}
int main() {
int i = 0;
int a = 0;
int b = 1;
int nextTerm = 0;
int n;

cout << "Enter the number of terms: ";
cin >> n;

cout << "Fibonacci Series: ";
fibonacci(n, i,a,b,nextTerm);
```

```
return 0;
}
```

Output:



Tasks: 03

Write a C++ program that performs following task:

int main():

- ask user to enter a positive number, store it in variable N.
- You have to calculate 1+2+3+4+……+N with function *int sum().*
- *Pri*

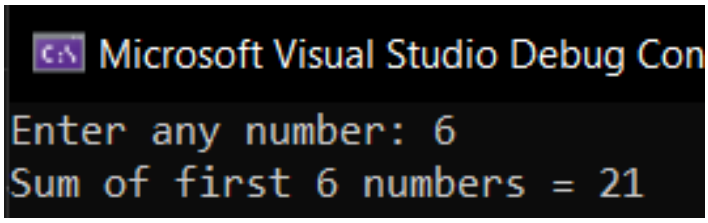
nt the result. int sum():

- this function calculate the sum of series from 1 to N.
- this function must be recursion function.

Code:

```
#include <iostream>
using namespace std;
int Sum(int N) {
int S = 0;
if (N == 1)
{
	return 1;
}
else {
	return N + Sum(N - 1);
}
}
void main(){
	int N;
	cout << "Enter any number: ";
	cin >> N;
	cout << "Sum of first "<<N<<" numbers = "
	<< Sum(N);
}
```

Output:


Microsoft Visual Studio Debug Con
Enter any number: 6
Sum of first 6 numbers = 21