

CP Lab-09 Tasks

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Course: CP Lab

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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);

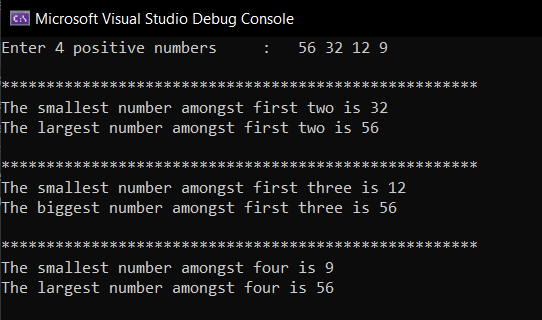
cout << endl << "\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*" << endl;

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().*
  + *Print the result. int fab():*
  + This function calculates the Fibonacci number.

o 0, 1, 1, 2, 3, 5, 8, 13, 21, 34,..

o 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;

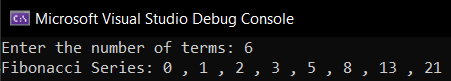
cout << "Fibonacci Series: ";

fibonacci(n, i,a,b,nextTerm);

return 0;

}

Output:

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**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().*
  + *Print 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:

