CP Lab-07 Tasks

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Lab 07 Functions 1

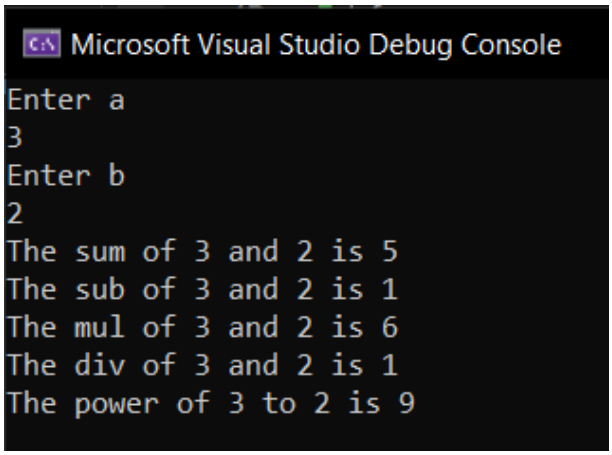
Task 01

Create a calculator that takes a number, a basic math operator (+,-,*,/,^), and a second number all from user input, and have it print the result of the mathematical operation. The mathematical operations should be wrapped inside of functions.

Code:

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


int add(int a,int b){
int c = a+b;
return c;
}
int sub(int a,int b){
int c = a-b;
return c;
}
int mul(int a,int b){
int c = a*b;
return c;
}
int divide(int a,int b){
int c = a/b;
return c;
}
int power(int a, int b) {
int c = pow(a, b);
return c;
}


int main(){
int a,b;
cout << "Enter a"<<endl;
cin >>a;
cout << "Enter b"<<endl;
cin >>b;
cout <<"The sum of " <<a<<" and "<<b<<" is "<<add(a,b)<<endl;
cout <<"The sub of " <<a<<" and "<<b<<" is "<<sub(a,b)<<endl;
cout <<"The mul of " <<a<<" and "<<b<<" is "<<mul(a,b)<<endl;
cout <<"The div of " <<a<<" and "<<b<<" is "<<divide(a,b)<<endl;
cout << "The power of " << a << " to " << b << " is " << power(a, b)
<< endl;

}
```

Output:



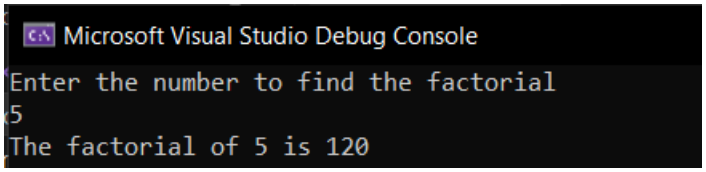
Task 02

Write a program to print the factorial of a number by defining a function named 'Factorial'. Factorial of any number n is represented by n! And is equal to 1*2*3*….*(n-1)*n

Code:

```
int f(int a){
int factorial=1;
for(int i=1;i<=a;i++){
factorial = factorial*i;
}
return factorial;
}
int main(){
int a;
cout <<"Enter the number to find the factorial"<<endl;
cin>>a;
cout <<"The factorial of "<<a<<" is "<<f(a);
}
```

Output:



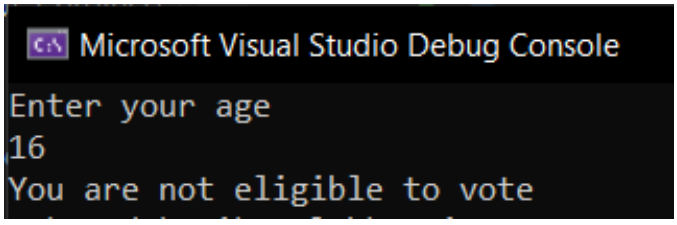
Task 03

Write a C++ program in which a person is eligible to vote if his/her age is greater than or equal to 18. Define a function to find out if he/she is eligible to vote.

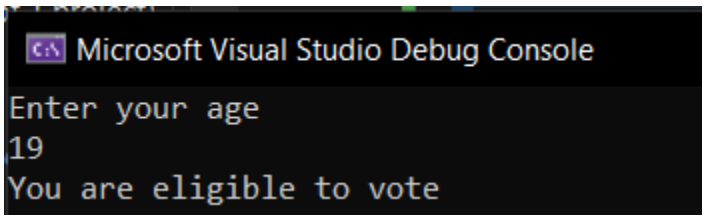
Code:

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

string print(int age) {
if (age >= 18) {
string str = "You are eligible to vote";
return str;
}
else {
string str = "You are not eligible to vote";
return str;
}
}
int main() {
int age;
cout << "Enter your age" << endl;
cin >> age;
cout << print(age);
}
```

Output (if age<18):



Output (if age>=18):



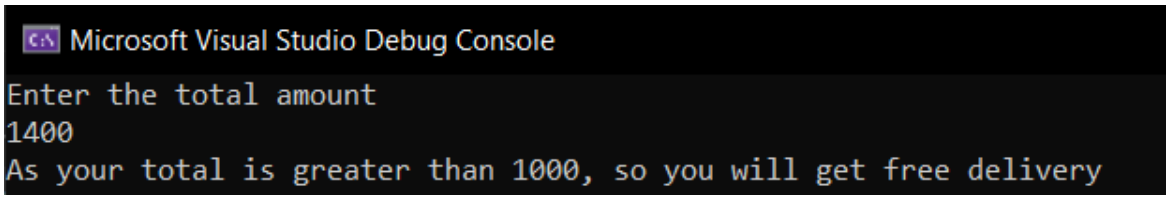
Task 04

Mr. A purchases online grocery from ABC superstore, ABC superstore offers free delivery on orders above Rs. 1000, otherwise they charge Rs. 150 as delivery charges. Write a function to calculate total delivery charges.

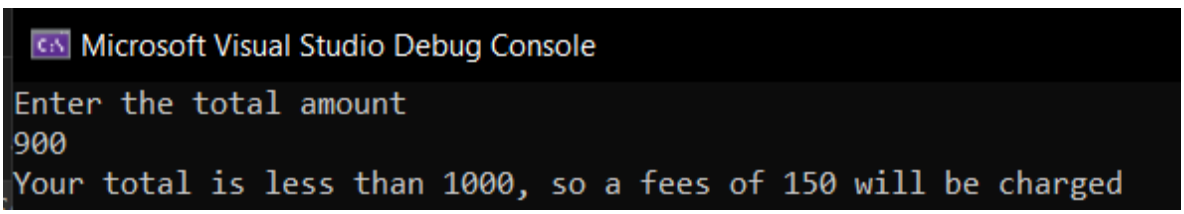
Code:

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

string output(int total) {
if (total > 1000) {
string str = "As your total is greater than 1000, so you will get free
delivery";
return str;

}
else {
string str = "Your total is less than 1000, so a fees of 150 will be
charged";
return str;
}
}
int main() {
int total;
cout << "Enter the total amount" << endl;
cin >> total;
cout << output(total);
}
```

Output (if total>1000):



Output (if total<1000):



Task 05

Solve the following problems using function In C++.

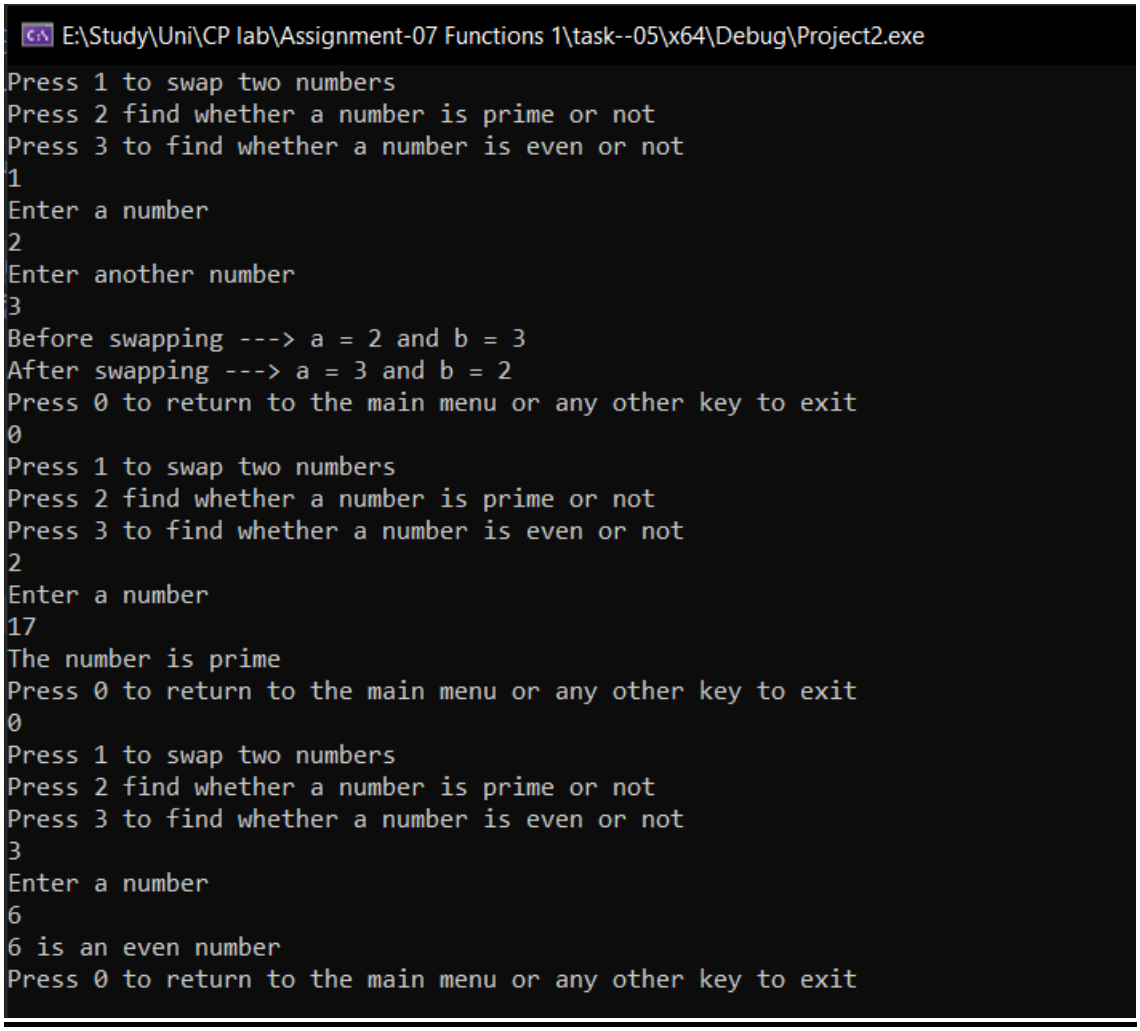
a) Write a program in which swap two numbers.
b) Find weather the number is prime or not.
c) Find weather the number is even or odd.

Code:

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

int main() {
char choice, option;

do
{
cout << "Press 1 to swap two numbers" << endl
<< "Press 2 find whether a number is prime or not" << endl
<< "Press 3 to find whether a number is even or not" << endl;
cin >> choice;

if (choice == '1') {
int a, b;
cout << "Enter a number" << endl;
cin >> a;
cout << "Enter another number" << endl;
cin >> b;
cout << "Before swapping ---> a = " << a << " and b = " << b <<
endl;
int temp = 0;
temp = b;
b = a;
a = temp;
cout << "After swapping ---> a = " << a << " and b = " << b <<
endl;
}
else if (choice == '2') {
int num3;
bool flag = true;
cout << "Enter a number" << endl;
cin >> num3;
for (int i = 2; i < num3; i++) {
if (num3 % i == 0) {
flag = false;
cout << "The number is not prime" << endl;
break;
}
```

```
}
if (flag == true) {
cout << "The number is prime" << endl;
}
}
else if (choice == '3') {
int x;
cout << "Enter a number" << endl;
cin >> x;
if (x % 2 == 0) {
cout << x << " is an even number" << endl;

}
else {
cout << x << " is an odd number" << endl;

}
}
else {
cout << "Invalid choice" << endl;

}
cout << "Press 0 to return to the main menu or any other key to
exit" << endl;
cin >> option;
} while (option == '0');

return 0;
}
```

Output:


E:\Study\Uni\CP lab\Assignment-07 Functions 1\task--05\x64\Debug\Project2.exe
Press 1 to swap two numbers
Press 2 find whether a number is prime or not
Press 3 to find whether a number is even or not
1
Enter a number
2
Enter another number
3
Before swapping ---> a = 2 and b = 3
After swapping ---> a = 3 and b = 2
Press 0 to return to the main menu or any other key to exit
0
Press 1 to swap two numbers
Press 2 find whether a number is prime or not
Press 3 to find whether a number is even or not
2
Enter a number
17
The number is prime
Press 0 to return to the main menu or any other key to exit
0
Press 1 to swap two numbers
Press 2 find whether a number is prime or not
Press 3 to find whether a number is even or not
3
Enter a number
6
6 is an even number
Press 0 to return to the main menu or any other key to exit