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Reg# BSE203003

Subject: OOP LAB

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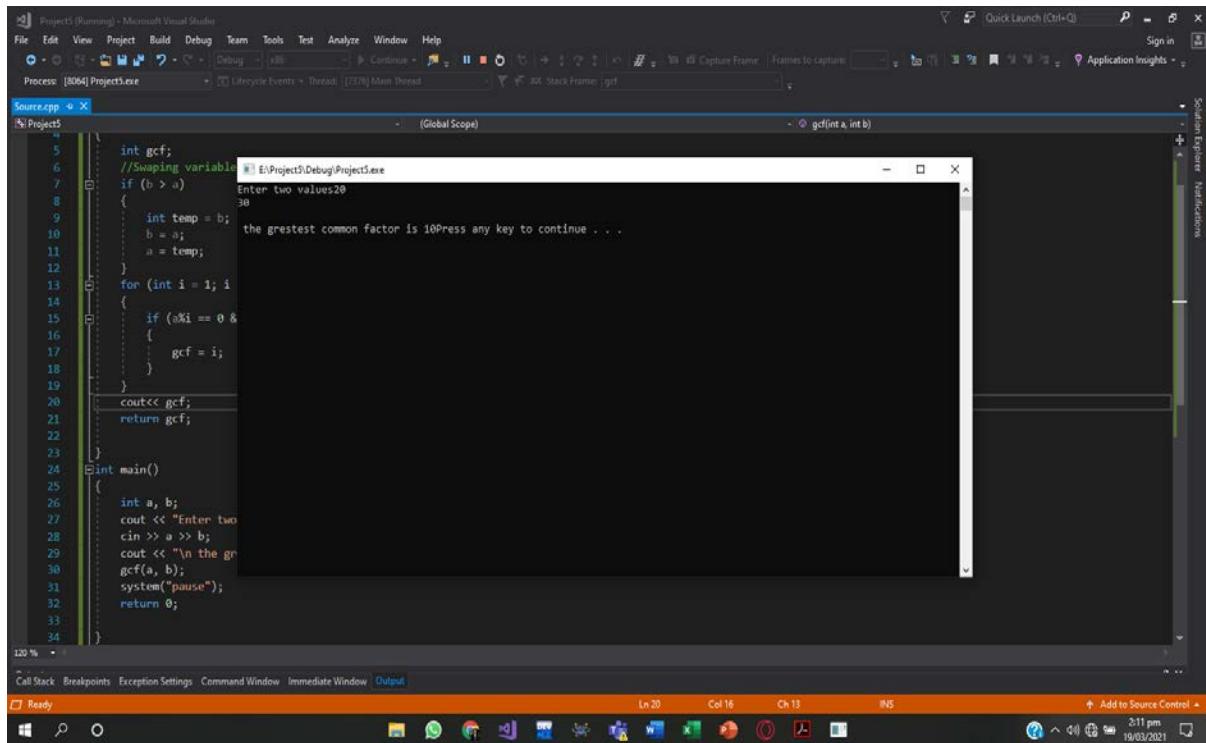
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Practice Task 1

Write a program to find the greatest common factor if the two numbers are provided in the main function. Use pass by value mechanism to compute the greatest common factor and return the result back to the main function then display the result in the main function.

Code:

```
#include<iostream>
using namespace std;
int gcf(int a, int b)
{
    int gcf;
    //Swaping variables
    if (b > a)
    {
        int temp = b;
        b = a;
        a = temp;
    }
    for (int i = 1; i <= b; ++i)
    {
        if (a%i == 0 && b%i == 0)
        {
            gcf = i;
        }
    }
    cout<< gcf;
    return gcf;
}
int main()
{
    int a, b;
    cout << "Enter two values";
    cin >> a >> b;
    cout << "\n the greatest common factor is ";
    gcf(a, b);
    system("pause");
    return 0;
}
```



Practice Task 2

Write a program to find the product of 2 power numbers if the base and the exponent of these numbers are provided in the main function, also check that the base of both the power number are the same, as the product of 2 power numbers can only be calculated if their base is the same. Use pass by reference mechanism to compute the product of these power numbers then display the result in main function.

Code:

```
#include<iostream>
using namespace std;
int prod(int &b1,int &e1,int &b2,int &e2)
{
    int e3;
    if (b1 == b2)
    {
        e3 = e1 + e2;
        cout << "/nThe product of two power numbers is =" <<b1<<"^"<< e3;
    }
    else {
        cout << "/nThe base of two numbers are not same ";
    }
    return e3;
}
int main()
{
    int b1, e1;
    int b2, e2;
    cout << "Enter base and exponent of first number ";
    cin >> b1 >> e1;
    cout << "Enter base and exponent of second number";
    cin >> b2 >> e2;
    prod(b1, e1, b2, e2);
    system("pause");
}
```

```

    return 0;
}

} Microsoft Visual Studio Debug Console - (Global Scope) main()
3 Enter base and exponent of first number 5
4
5 Enter base and exponent of second number5
6
7 /The product of two power numbers is =5^5
8 C:\Users\zohail\source\repos\Project4\Debug\Project4.exe (process 7860) exited with code 0.
9 To automatically close the console when debugging stops, enable Tools->Options->Debugging->Automatically close the console when debugging stops.
10 Press any key to close this window . . .
11
12
13
14
15
16
17

Error List
Entire Solution
Code
  L471

Solution Explorer
Solution 'Project4' (1 project)
  Project4
    References
    Project Dependencies
    Header Files
    Resource Files
    Source Files
      Source.cpp

Properties

```

Practice Task 3

Create a structure course with some attributes i.e. course_ID, course title, credit etc.. Then Implement following 5 functions (Known as CRUDS operations which means CREATE, READ, UPDATE, DELETE, SEARCH operations):

Code:

```

#include<iostream>
#include<string.h>
using namespace std;
int total = 0;
struct stds {
    int course_id;
    string course_name;
    int crdt_hrs;
    string name;
    int roll_number;

};

void create(stds s[])
{
    int ch = 0;
    cout << "How many students do you want to enter ";
    cin >> ch;
    if (total == 0)
    {
        total = ch + total;
        for (int i = 0; i < ch; i++)
        {
            cout << "\nEnter the Data of student " << i + 1 << endl << endl;
            cout << "Enter name \n";
            cin >> s[i].name;
            cout << endl;
            cout << "Enter course name \n";
            cin >> s[i].course_name;
            cout << endl;
        }
    }
}

```

```

        cout << "Enter course id\n";
        cin >> s[i].course_id;
        cout << endl;
        cout << "Enter credit hours \n";
        cin >> s[i].crdt_hrs;
        cout << "Enter roll number of the student\n";
        cin >> s[i].roll_number;
        cout << endl;

    }

}

else
{

    for (int i = total; i < ch + total; i++)
    {
        cout << "\nEnter the Data of student " << i + 1 << endl << endl;
        cout << "Enter name \n";
        cin >> s[i].name;
        cout << endl;
        cout << "Enter course name \n";
        cin >> s[i].course_name;
        cout << endl;
        cout << "Enter course id\n";
        cin >> s[i].course_id;
        cout << endl;
        cout << "Enter credit hours \n";
        cin >> s[i].crdt_hrs;
        cout << "Enter roll number of the student\n";
        cin >> s[i].roll_number;
    }
    total = ch + total;
}

void show(stds s[])
{
    if (total == 0)
    {
        cout << "No data is entered" << endl;
    }
    else {
        for (int i = 0; i < total; i++)
        {
            cout << "\nData of Student " << i + 1 << endl << endl;
            cout << "Name " << s[i].name << endl;
            cout << "Roll no " << s[i].roll_number << endl;
            cout << "Course name " << s[i].course_name << endl;
            cout << "Course id " << s[i].course_id << endl;
            cout << "Credit hours " << s[i].crdt_hrs << endl;
        }
    }
}

void search(stds s[])
{
    if (total == 0)
    {
        cout << "No data is entered" << endl;
    }
    else {
        int rollno;
        cout << "Enter the roll no of student" << endl;

```

```

        cin >> rollno;
        for (int i = 0; i < total; i++)
        {
            if (rollno == s[i].roll_number)
            {
                cout << "Name " << s[i].name << endl;
                cout << "Roll no " << s[i].roll_number << endl;
                cout << "Course Name" << s[i].course_name << endl;
                cout << "Course id " << s[i].course_id << endl;
                cout << "Credit Hours " << s[i].crdt_hrs << endl;
            }
        }
    }

void update(stds s[])
{
    if (total == 0)
    {
        cout << "No data is entered" << endl;
    }
    else {
        int rollno;
        cout << "Enter the roll no of student which you want to update" << endl;
        cin >> rollno;
        for (int i = 0; i < total; i++)
        {
            if (rollno == s[i].roll_number)
            {
                cout << "\nPrevious data" << endl << endl;
                cout << "Data of Student " << i + 1 << endl;
                cout << "Name " << s[i].name << endl;
                cout << "Roll no " << s[i].roll_number << endl;
                cout << "Course Name " << s[i].course_name << endl;
                cout << "Course id " << s[i].course_id << endl;
                cout << "Credit hours " << s[i].crdt_hrs << endl;
                cout << "\nEnter new data" << endl << endl;
                cout << "Enter name ";
                cin >> s[i].name;
                cout << "Enter Roll no ";
                cin >> s[i].roll_number;
                cout << "Enter course Name ";
                cin >> s[i].course_name;
                cout << "Enter Course id ";
                cin >> s[i].course_id;
                cout << "Enter credit hours ";
                cin >> s[i].crdt_hrs;
            }
        }
    }
}

void deleterecord(stds s[])
{
    if (total == 0)
    {
        cout << "No data is entered" << endl;
    }
    else {
        int a;
        cout << "Press 1 to delete all record" << endl;
        cout << "Press 2 to delete specific record" << endl;
        cin >> a;
        if (a == 1)

```

```

    {
        total = 0;
        cout << "All record is deleted..!!" << endl;
    }
    else if (a == 2)
    {
        int rollno;
        cout << "Enter the roll no of student which you wanted to delete"
<< endl;
        cin >> rollno;
        for (int i = 0; i < total; i++)
        {
            if (rollno == s[i].roll_number)
            {
                for (int j = i; j < total; j++)
                {
                    s[j].course_id = s[j + 1].course_id;
                    s[j].course_name = s[j + 1].course_name;
                    s[j].crdt_hrs = s[j + 1].crdt_hrs;
                    s[j].name = s[j + 1].name;
                    s[j].roll_number = s[j + 1].roll_number;
                }
                total--;
                cout << "Your required record is deleted" << endl;
            }
        }
    }
    else
    {
        cout << "Invalid input";
    }
}
int main()
{
    stds s[10];
    int value;
    while (true)
    {

        cout << "Press 1 to Enter data " << endl;
        cout << "Press 2 to Show data" << endl;
        cout << "Press 3 to Search data" << endl;
        cout << "Press 4 to Update data" << endl;
        cout << "Press 5 to Delete data" << endl;
        cout << "Press 6 to Exit" << endl;

        cin >> value;
        switch (value)
        {
        case 1:
            create(s);
            break;
        case 2:
            show(s);
            break;
        case 3:
            search(s);
            break;
        case 4:
    }
}

```

```

        update(s);
        break;
    case 5:
        deleterecord(s);
        break;
    case 6:
        exit(0);
        break;
    default:
        cout << "Invalid input" << endl;
        break;
    }
}
}

```

The screenshot shows the Dev-C++ IDE interface. The top menu bar includes File, Edit, Search, View, Project, Execute, Tools, ASyntax, Window, Help, and TDM-GCC 4.9.2 64-bit Release. The main window displays a C++ code editor with management.cpp and Untitled1.cpp tabs. The code implements a menu system for managing student data. A terminal window shows the execution of the program, prompting for user input and displaying entered data. Below the terminal is a 'Compiler' tab showing compilation results with 0 errors and 0 warnings, outputting Untitled1.exe. The status bar at the bottom shows the current line (214), column (16), and other details.

```

C:\Users\sohai\OneDrive\Desktop\Untitled1.cpp - [Executing] - Dev-C++ 5.11
File Edit Search View Project Execute Tools ASyntax Window Help TDM-GCC 4.9.2 64-bit Release
Project Classes Debug management.cpp Untitled1.cpp
201
202
203
204 Press 1 to Enter data
205 Press 2 to Show data
206 Press 3 to Search data
207 Press 4 to Update data
208 Press 5 to Delete data
209 Press 6 to Exit
210
211 How many students do you want to enter 1
212
213 Enter the Data of student 1
214 Enter name
215 ZOHAI
216 Enter course name
217 linear
218 Enter course id
219 1122
220 Enter credit hours
221 12
222 Enter roll number of the student
223 203003
224
C:\Users\sohai\OneDrive\Desktop\Untitled1.exe
Press 1 to Enter data
Press 2 to Show data
Press 3 to Search data
Press 4 to Update data
Press 5 to Delete data
Press 6 to Exit
1
How many students do you want to enter 1
Enter the Data of student 1
Enter name
ZOHAI
Enter course name
linear
Enter course id
1122
Enter credit hours
12
Enter roll number of the student
203003
Press 1 to Enter data
Press 2 to Show data
Press 3 to Search data
Press 4 to Update data
Press 5 to Delete data
203003
Compilation results...
=====
- Errors: 0
- Warnings: 0
- Output Filename: C:\Users\sohai\OneDrive\Desktop\Untitled1.exe
- Output Size: 1.03054253023242 MB
- Compilation time: 1.478

```

