EXPERIMENT NUMBER –Practical 1.5

STUDENT'S NAME –

STUDENT'S UID –

CLASS AND GROUP –

SEMESTER – 2ND

TOPIC OF EXPERIMENT

Write a program that takes information about institute staff information for

1) Teacher code, name, subject and publication

2) Officer code, name and grade

3) Typist code, name, speed and daily wages and displays it using hierarchal inheritance

AIM OF THE EXPERIMENT-

LEARN HOW TO USE CLASSES USING C++

PREREQUISITES- KNOWLEDGE OF CLASSES AND OBJECTS

LIST OF SUB PROGRAMS-

PROGRAM CODE

```
#include <iostream>
#include <conio.h>
using namespace std;
class staff
{
 protected:
     int code;
     char name[20];
 public:
     void getstaff(void)
     {
   cout<<"\n\nEnter code :-";
   cin>>code;
   cout<<"Enter name :-";
   cin>>name;
     }
     void dispstaff(void)
     {
      cout<<"\nNAME      :-"<<name;
      cout<<"\nCODE      :-"<<code;
     }
```

```
};

class teacher : public staff
{
    char sub[20];
    char pub[20];
 public:
    void create(void)
    {
   getstaff();
   cout<<"Enter Subject :-";
   cin>>sub;
   cout<<"Enter Publication :-";
   cin>>pub;
    }
     void display(void)
    {
    dispstaff();
    cout<<"\nSUBJECT   :-"<<sub;
    cout<<"\nPUBLICATION:-"<<pub;
    }
};

class officer : public staff
```

```
{
    char grade;
  public:
   void create(void)
   {
     getstaff();
     cout<<"Enter Grade :-";
     cin>>grade;
   }
   void display(void)
   {
     dispstaff();
     cout<<"\nGRADE     :-"<<grade;
   }
};

class typist : public staff
{
     float speed;
 public:
    void gettypist(void)
    {
   getstaff();
   cout<<"Enter speed (wpm):-";
```

```
    cin>>speed;
      }
      void disptypist(void)
      {
    dispstaff();
    cout<<"\nSPEED      :-"<<speed;
      }
};

class casual : public typist
{
     float dailywages;
   public:
       void create(void)
    {
      gettypist();
      cout<<"Enter Daily Wages :-";
      cin>>dailywages;
    }
    void display(void)
    {
      disptypist();
      cout<<"\nDAILY WAGES:-"<<dailywages;
    }
```

```
};

int main()
{
teacher o1t[10];
casual o1c[10];
officer o1o[10];
int choice,i;
char test;
while(1)
{
int count;
start:

  cout<<"\n=====EDUCATION INSTITUTION DATABASE=====\n\n\n";
  cout<<"Choose Category of Information\n";
  cout<<"1)  Teachers\n";
  cout<<"2)  Officer\n";
  cout<<"3)  Typist\n";
  cout<<"4)  Exit\n";
  cout<<"Enter your choice:-";
  cin>>choice;
  switch(choice)
  {
```

```
case 1 : while(1)
 {
    cout<<"\n=====TEACHERS INFORMATION=====\n\n";
 cout<<"\nChoose your choice\n";
 cout<<"1) Create\n";
 cout<<"2) Display\n";
 cout<<"3) Jump to Main Menu\n";
 cout<<"Enter your choice:-";
 cin>>choice;
 switch(choice)
 {
  case 1 : for(count=0,i=0;i<10;i++)
        {
          cout<<endl;
          o1t[i].create();
          count++;
          cout<<endl;
          cout<<"\n\nAre you Interested in entering data\n";
          cout<<"Enter y or n:-";
          cin>>test;
          if(test=='y' || test=='Y')
         continue;
          else goto out1;
          }
```

```
            out1:
            break;
    case 2 : for(i=0;i<count;i++)
          {
           cout<<endl;
            o1t[i].display();
            cout<<endl;
          }
          getch();
          break;
    case 3 : goto start;
    default: cout<<"\nEnter choice is invalid\ntry again\n\n";
    }
    }
  case 2 :  while(1)
    {
   cout<<"\n=====OFFICERS INFORMATION=====\n\n";
   cout<<"\nChoose your choice\n";
   cout<<"1) Create\n";
   cout<<"2) Display\n";
   cout<<"3) Jump to Main Menu\n";
   cout<<"Enter your choice:-";
   cin>>choice;
   switch(choice)
```

```
{
 case 1 : for(count=0,i=0;i<10;i++)
      {
       cout<<endl;
       o1o[i].create();
        count++;
        cout<<endl;
        cout<<"\n\nAre you Interested in entering data\n";
        cout<<"Enter y or n:-";
        cin>>test;
        if(test=='y' || test=='Y')
       continue;
        else goto out2;
        }
        out2:
        break;
 case 2 : for(i=0;i<count;i++)
      {
       cout<<endl;
        o1o[i].display();
        cout<<endl;
      }
      getch();
      break;
```

```
    case 3 : goto start;
    default: cout<<"\nInvalid choice\ntry again\n\n";
    }
    }
  case 3 : while(1)
   {
   cout<<"\n=====TYPIST INFORMATION=====\n\n";
   cout<<"\nChoose your choice\n";
   cout<<"1) Create\n";
   cout<<"2) Display\n";
   cout<<"3) Jump to Main Menu\n";
   cout<<"Enter your choice:-";
   cin>>choice;
   switch(choice)
   {
    case 1 : for(count=0,i=0;i<10;i++)
          {
            cout<<endl;
            o1c[i].create();
            count++;
            cout<<endl;
            cout<<"\n\nAre you Interested in entering data\n";
            cout<<"Enter y or n:-";
            cin>>test;
```

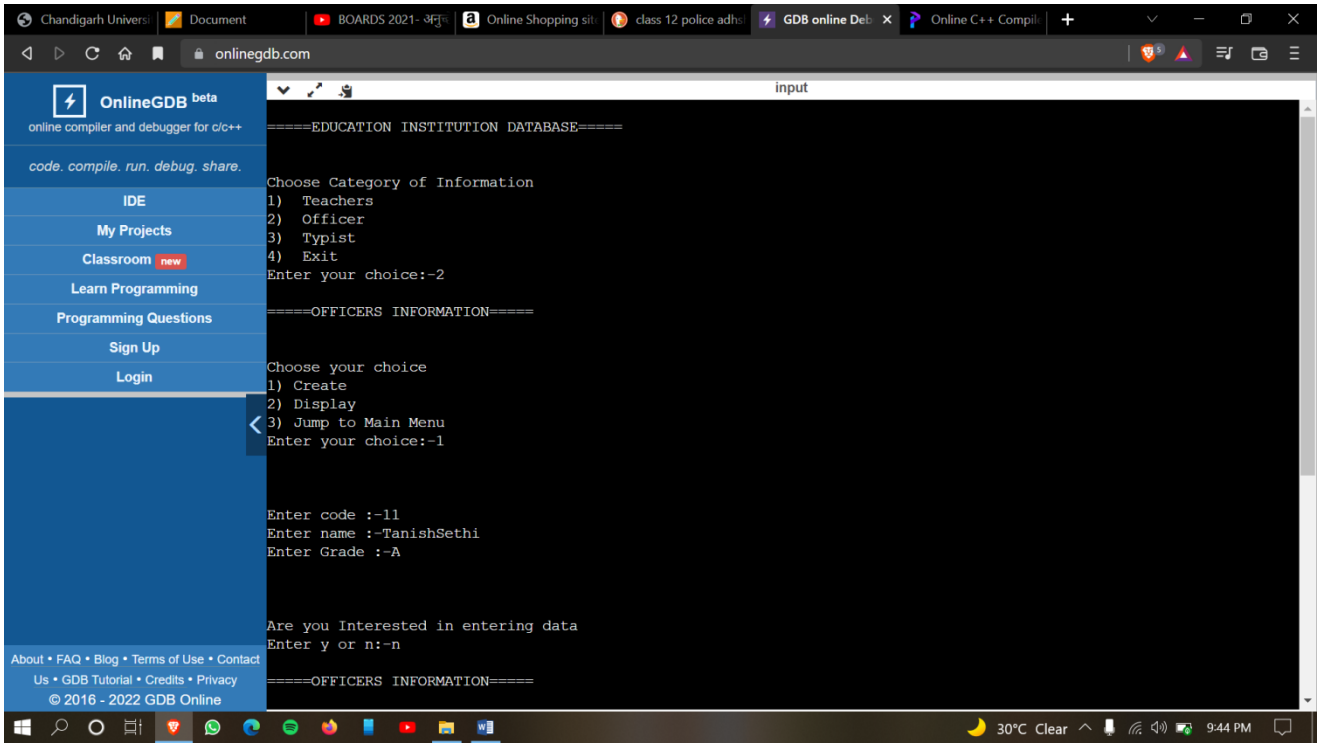
```
            if(test=='y' || test=='Y')
           continue;
            else goto out3;
            }
            out3:
            break;
      case 2 : for(i=0;i<count;i++)
           {
            cout<<endl;
            o1c[i].display();
            cout<<endl;
           }
           getch();
           break;
      case 3 : goto start;
      default: cout<<"\nInvalid choice\ntry again\n\n";
      }
      }
   case 4 : goto end;
  }
}
end:
            return 0;
}
```

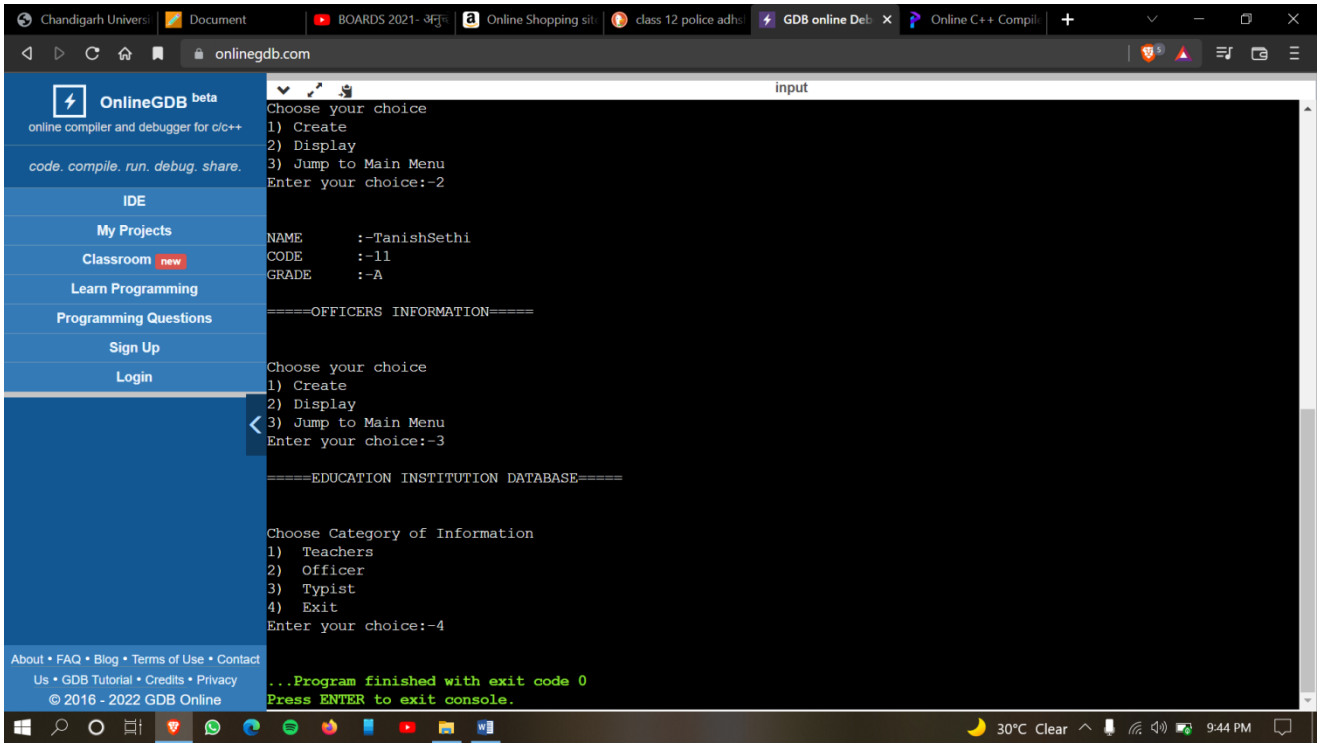
ERRORS ENCOUNTERED DURING PROGRAM'S EXECUTION

(Kindly jot down the compile time errors encountered)

No error encountered

OUTPUT




onlinegdb.com
OnlineGDB beta
online compiler and debugger for c/c++
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input
Choose your choice
1) Create
2) Display
3) Jump to Main Menu
Enter your choice:-2
NAME :-TanishSethi
CODE :-11
GRADE :-A
=====OFFICERS INFORMATION=====
Choose your choice
1) Create
2) Display
3) Jump to Main Menu
Enter your choice:-3
=====EDUCATION INSTITUTION DATABASE=====
Choose Category of Information
1) Teachers
2) Officer
3) Typist
4) Exit
Enter your choice:-4
...Program finished with exit code 0
Press ENTER to exit console.
30°C Clear
9:44 PM

EXPERIMENT NUMBER –Practical 5.2

STUDENT'S NAME – YASH RAJ

STUDENT'S UID – 21BCS11765

CLASS AND GROUP – 509B

SEMESTER – 2nd

TOPIC OF

EXPERIMENT –

Create a class student having student uid and getnumber(),putnumber() as member functions to get the values and display it. Derive a class test having marks in different subjects and getmarks() and putmarks() as member functions to get and display the values. Derive another class sports from student class having sports score and getscore(), putscore() as member functions to get and display the values. Derive a class result from test

and sports class and define a function display() to calculate total marks. Implement it with the object of result class. If it gives any error, resolve it by adding the required functionality.

AIM OF THE

EXPERIMENT

LEARN HOW TO USE CLASSES USING C++

PREREQUISITES- KNOWLEDGE OF CLASSES AND OBJECTS

LIST OF SUB PROGRAMS-

PROGRAM CODE

```
#include<iostream>

#include<conio.h>

using namespace std;


class student
{


int rno;


public:

void getnumber ()
  {


cout << "Enter Roll No:";


cin >> rno;


}

void putnumber ()
  {


cout << "\n\n\tRoll No:" << rno << "\n";


}

};
```

```
class test:virtual public student
{

public:

int part1, part2;

void getmarks ()
  {

cout << "Enter Marks\n";

cout << "Part1:";

cin >> part1;

cout << "Part2:";

cin >> part2;

}

void putmarks ()
  {

cout << "\tMarks Obtained\n";

cout << "\n\tPart1:" << part1;

cout << "\n\tPart2:" << part2;
```

```
}

};


class sports:public virtual student
{

public:

int score;


void getscore ()
  {

cout << "Enter Sports Score:";


cin >> score;


}

void putscore ()
  {


cout << "\n\tSports Score is:" << score;


}

};


class result:public test, public sports
{
```

```
int total;

public:

void display ()
  {

total = part1 + part2 + score;

putnumber ();

putmarks ();

putscore ();

cout << "\n\tTotal Score:" << total;

}

};


int
main ()
{

result obj;

obj.getnumber ();
```

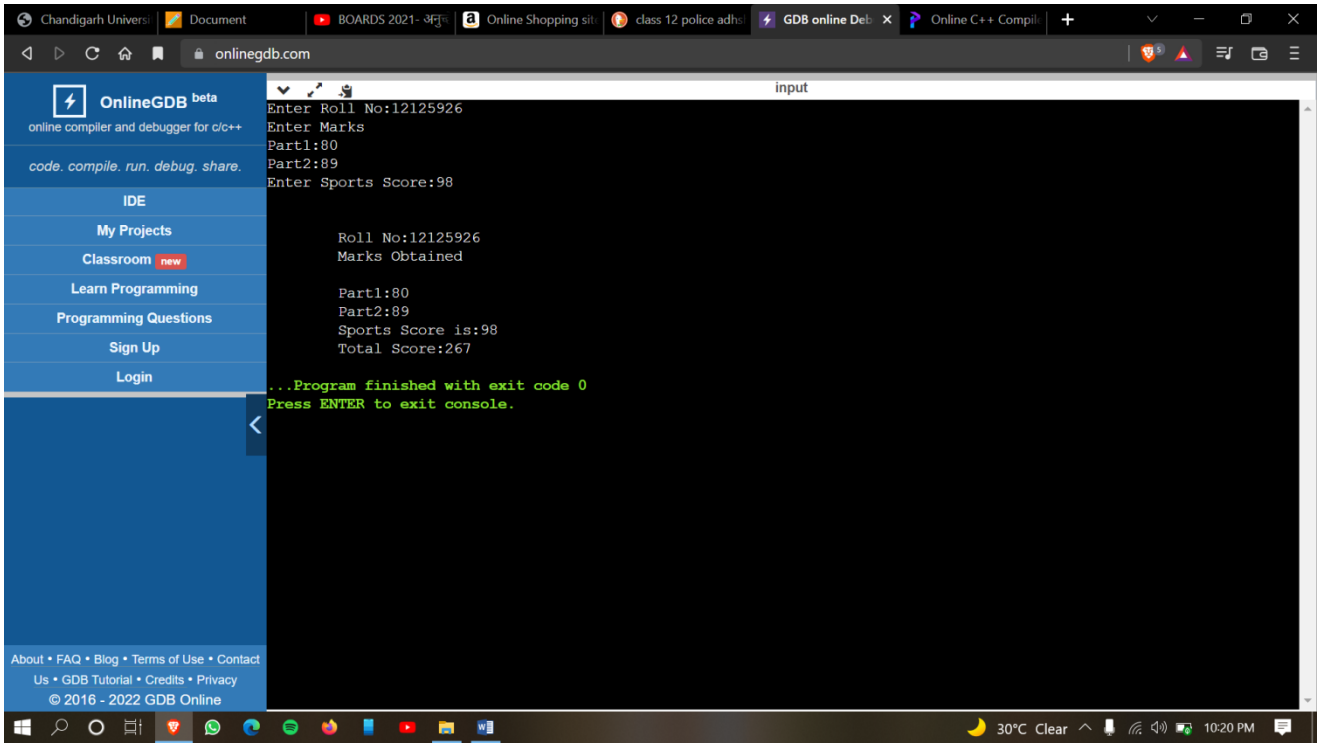
```
obj.getmarks ();

obj.getscore ();

obj.display ();

return 0;

}
```

ERRORS ENCOUNTERED DURING PROGRAM'S EXECUTION

(Kindly jot down the compile time errors encountered)

No error encountered

OUTPUT



EXPERIMENT NUMBER –Practical 5.3

STUDENT'S NAME – YASH RAJ

STUDENT'S UID – 21BCS11765

CLASS AND GROUP – 509B

SEMESTER – 2nd

TOPIC OF EXPERIMENT –

WAP to illustrate how the constructors are implemented and the order in which they are called when the classes are inherited. Use three classes named alpha, beta, gamma such that alpha, beta are base class and gamma is derived class inheriting alpha &beta. Pass four variable to gamma

class object which will further send one integer variable to alpha(),one float type variable to beta().Show the order of execution by invoking

AIM OF THE EXPERIMENT

LEARN HOW TO USE CLASSES USING C++

PREREQUISITES- KNOWLEDGE OF CLASSES AND OBJECTS

LIST OF SUB PROGRAMS-

PROGRAM CODE

```
#include<iostream>

#include<conio.h>

using namespace std;


class alpha

{


int x;


public:

alpha (int i)

  {


x = i;


cout << "alpha initialized\n";


}

void show_x ()

  {


cout << "x=" << x << "\n";


}
```

```
};

class beta
{
float y;
public:
beta (float j)
  {
y = j;
cout << "beta initialized\n";
}
void show_y ()
  {
cout << "y=" << y << "\n";
}
};

class gamma:public beta, public alpha
```

```
{

int m, n;

public:

gamma (int a, float b, int c, int d):alpha (a), beta (b)

  {

m = c, n = d;

cout << "gamma initialized\n";

}

void show_mn ()

  {

cout << "m=" << m << "\n";

cout << "n=" << n << "\n";

}

};


int
main ()

{
```

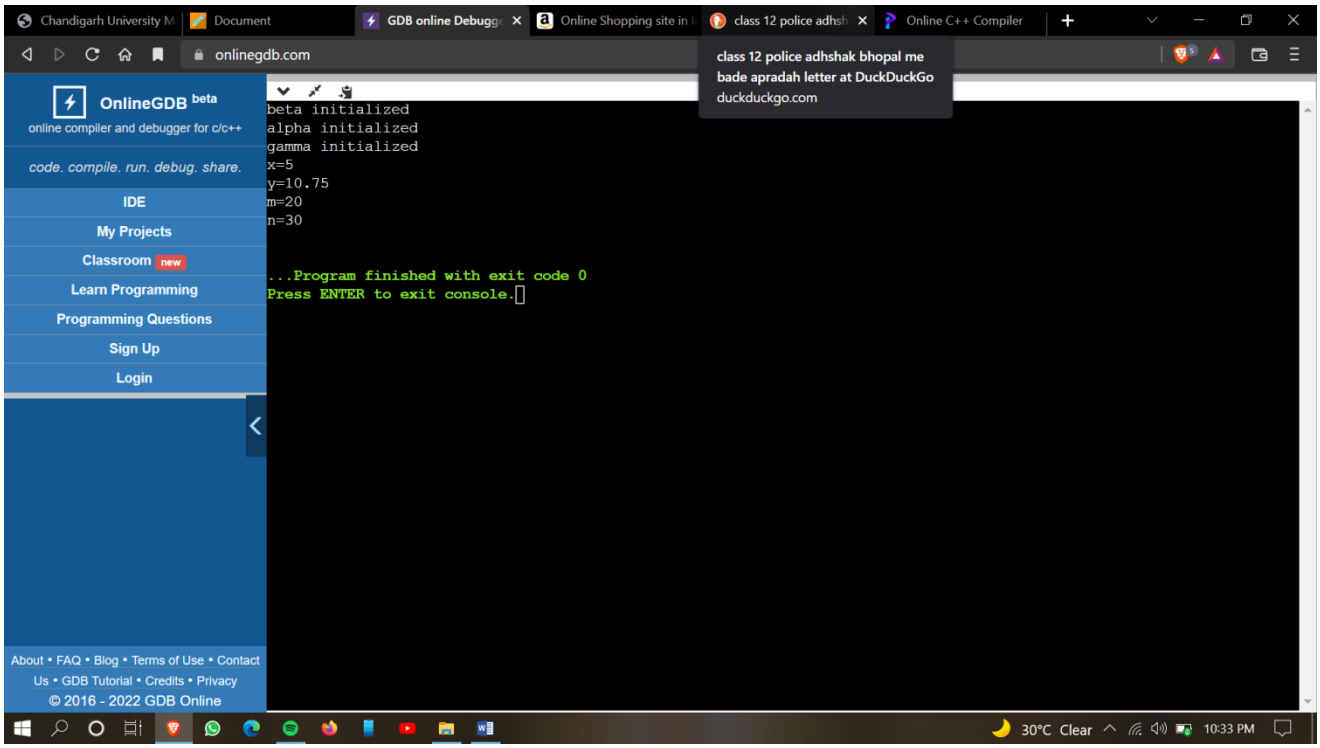
```
gamma g (5, 10.75, 20, 30);

g.show_x ();

g.show_y ();

g.show_mn ();

return 0;

}
```

ERRORS ENCOUNTERED DURING PROGRAM'S EXECUTION

(Kindly jot down the compile time errors encountered)

No error encountered

OUTPUT



LEARNING OUTCOMES

- Identify situations where computational methods would be useful.
- Approach the programming tasks using techniques learnt and write pseudo-code.
- Choose the right data representation formats based on the requirements of the problem.
- Use the comparisons and limitations of the various programming constructs and choose the right one for the task.

EVALUATION COLUMN (To be filled by concerned faculty only)

Sr. No.	Parameters	Maximum Marks	Marks Obtained
1.	Worksheet Completion including writing learning objective/ Outcome	10	
2.	Post Lab Quiz Result	5	
3.	Student engagement in Simulation/ Performance/ Pre Lab Questions	5	
4.	Total Marks	20	