OOP with C++

Lab work - 10

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Semester - 4th

GitHub - https://github.com/rishabh-live/oop-w-cpp-4-sem/tree/main/Labs

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> 1) C++ program to illustrate function overriding concept in inheritance.

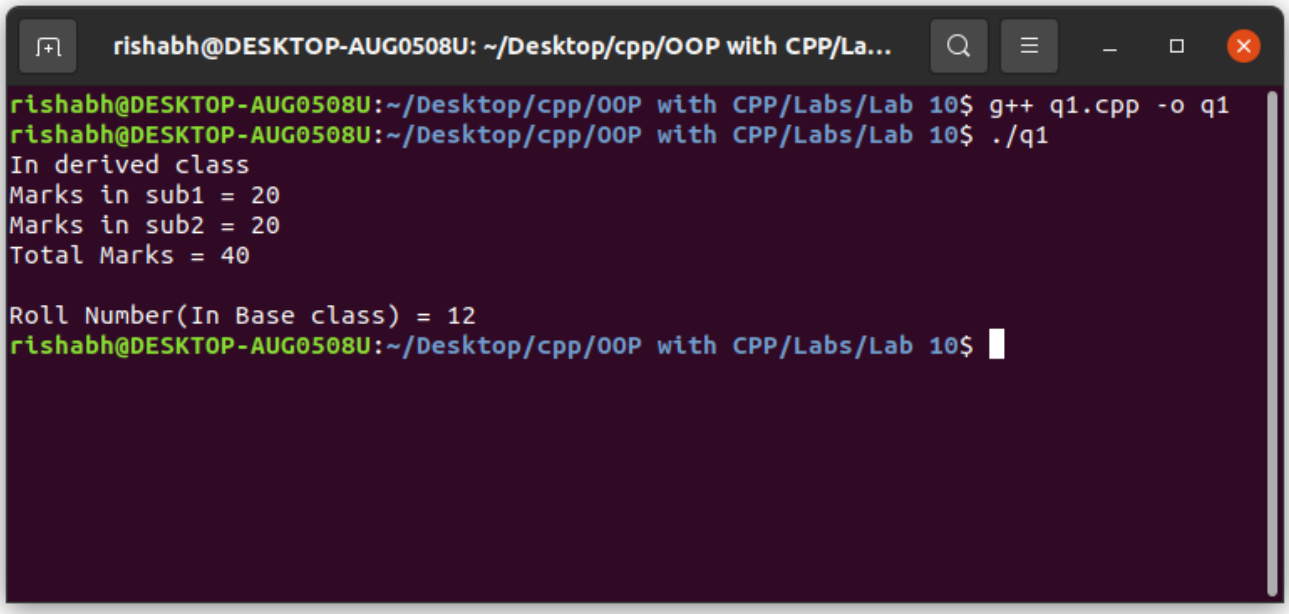
Source Code

```
#include <bits/stdc++.h>

using namespace std;
class aclass {
  private:
    int roll;
  public:
    void getroll(int a) {
      roll = a;
    }
  void show(void) {
    cout << "\nRoll Number(In Base class) = " << roll << "\n";
  }
};
class astudent: public aclass {
  int sub1, sub2;
  public:
    void getmarks(int a, int b) {
      sub1 = a;
      sub2 = b;
    }
  void show(void) {
    int total = sub1 + sub2;
    cout << "In derived class\n";
    cout << "Marks in sub1 = " << sub1 << "\n";
    cout << "Marks in sub2 = " << sub2 << "\n";
    cout << "Total Marks = " << total << "\n";
  }
};
int main() {
```

```
  astudent obj;
  obj.getroll(12);
  obj.getmarks(20, 20);
  obj.show(); // here the show in der class overrides the base class show
fun.
  obj.aclass::show(); // here using :: operator we can invoke the base
class show fun.
  return 0;
}
```

Output



> 2) C++ program to illustrate the ambiguity resolution using virtual inheritance.

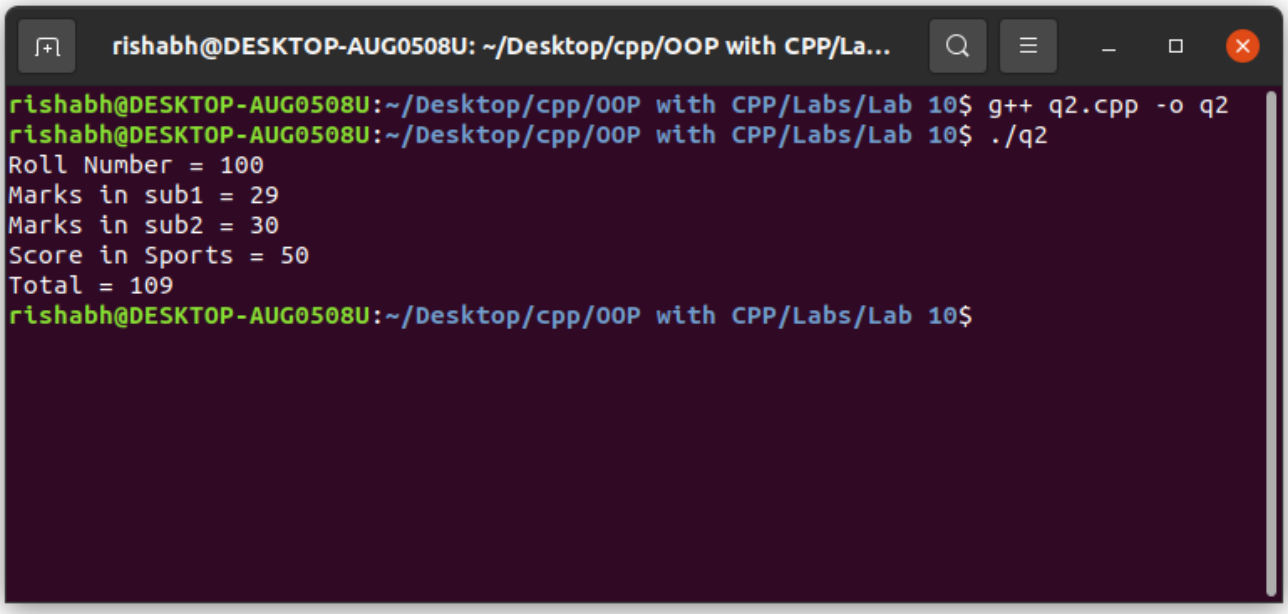
Source Code

```
#include <bits/stdc++.h> // use of virtual classes so that no duplicate
members are inherited

using namespace std;
class student {
  protected:
    int roll;
  public:
    void getno(int a) {
      roll = a;
    }
  void putno(void) {
    cout << "Roll Number = " << roll << "\n";
  }
};
class test: virtual public student {
```

```
    protected: float sub1,
    sub2;
    public: void getmarks(float f1, float f2) {
      sub1 = f1;
      sub2 = f2;
    }
    void putmarks(void) {
      cout << "Marks in sub1 = " << sub1 << "\n";
      cout << "Marks in sub2 = " << sub2 << "\n";
    }
  };
  class sports: virtual public student {
    protected: float score;
    public: void getscore(float f) {
      score = f;
    }
    void putscore(void) {
      cout << "Score in Sports = " << score << "\n";
    }
  };
  class result: public test, public sports {
    float total;
    public:
      void display(void) {
        total = sub1 + sub2 + score;
        putno();
        putmarks();
        putscore();
        cout << "Total = " << total << "\n";
      }
  };
  int main() {
    result r1;
    r1.getno(100);
    r1.getmarks(29, 30);
    r1.getscore(50);
    r1.display();
    return 0;
  }
```

Output


rishabh@DESKTOP-AUG0508U: ~/Desktop/cpp/OOP with CPP/La...
rishabh@DESKTOP-AUG0508U:~/Desktop/cpp/OOP with CPP/Labs/Lab 10$ g++ q2.cpp -o q2
rishabh@DESKTOP-AUG0508U:~/Desktop/cpp/OOP with CPP/Labs/Lab 10$ ./q2
Roll Number = 100
Marks in sub1 = 29
Marks in sub2 = 30
Score in Sports = 50
Total = 109
rishabh@DESKTOP-AUG0508U:~/Desktop/cpp/OOP with CPP/Labs/Lab 10$