VIT - Vellore

Name: RONIT MEXSON .
Email: ronit.mexson2024@vitstudent.ac.in
Roll no: 24BAI0036
Phone: 9999999999
Branch: ARUMUGA ARUN R_OOPS
Department: admin
Batch: VL2024250502365
Degree: admin

Scan to verify results

BCSE102P_Structured and Object Oriented Programming Lab_VL2024250502365

VIT V_Structured and OOP_Lab 6_COD_Hard_Multipath Inheritance

Attempt : 1
Total Mark : 10
Marks Obtained : 10

Section 1 : Coding

1. Problem Statement

Helen wants to create a program for student record management with a class hierarchy.

Help her write a program that utilizes hybrid inheritance using the below information.

A base class: Person holds attributes name and ID. Another base class: Score contains the student's score. Two derived classes: UndergraduateStudent and PostgraduateStudent, inherit from both Person and Score classes, calculate and display the grade and results respectively.

For Undergraduate Students, Grade is calculated as:

If the score is 90 or above, the grade is 'A'.If the score is 80 to 89, the grade

is 'B'.If the score is 70 to 79, the grade is 'C'.If the score is 60 to 69, the grade is 'D'.If the score is below 60, the grade is 'F'.

For Postgraduate Students, Result is calculated as:

If the score is 60 or above, the result is 'Pass'.If the score is below 60, the result is 'Fail'.

Answer

```
#include <iostream>
#include <iomanip>
#include <cmath>
using namespace std;

class Person {
public:
    string name, id;
};

class Score {
public:
    double ug_score;
};

class UndergraduateStudent : public Person, public Score {
public:
    char grade;

    void set(string a, string b, double c) {
        name = a;
        id = b;
        ug_score = c;
    }

    void disp() {
        if (ug_score >= 90) {
            grade = 'A';
        } else if (ug_score >= 80) {
            grade = 'B';
        } else if (ug_score >= 70) {
            grade = 'C';
        } else if (ug_score >= 60) {
            grade = 'D';
```

```
        } else {
            grade = 'F';
        }

        cout << "Student " << name << " with ID " << id << " received grade " << grade
<< "." << endl;
    }
};

class PostgraduateStudent : public Person, public Score {
public:
    void set(string a, string b, double c) {
        name = a;
        id = b;
        ug_score = c;
    }

    void disp() {
        if (ug_score >= 60) {
            cout << "Student " << name << " with ID " << id << " Pass the course." <<
endl;
        } else {
            cout << "Student " << name << " with ID " << id << " Fail the course." << endl;
        }
    }
};

int main() {
    string ug_name, ug_id;
    double ug_score;
    string pg_name, pg_id;
    double pg_score;

    cin >> ug_name >> ug_id >> ug_score;
    cin >> pg_name >> pg_id >> pg_score;

    UndergraduateStudent under;
    under.set(ug_name, ug_id, ug_score);

    PostgraduateStudent post;
    post.set(pg_name, pg_id, pg_score);
```

```
    under.disp();
    post.disp();

    return 0;
}
```

Status : Correct ***Marks : 10/10***