**\*File contents and syntax:**

**Syntax in Person.h file**

//#pragma once

#ifndef PERSON\_H

#define PERSON\_H

#include <iostream>

#include <iomanip>

#include <string>

#include <cstdlib>

using namespace std;

class Person {

protected:

string name;

int age;

public:

Person(string name1, int age1) : name("Human"), age(25) {

name = name1;

age = age1;

};

void setName(string name1) {

if (name1.length() > 0) {

name = name1;

}

else {

exit(EXIT\_FAILURE);

}

};

void setAge(int age1) {

if (age1 > 0) {

age = age1;

}

else {

exit(EXIT\_FAILURE);

}

};

string getName() const { return name; };

int getAge() const { return age; };

virtual void calculateTax(double salary) const = 0;

};

#endif

**Syntax in Student.h file**

//#pragma once

//#pragma once

#ifndef STUDENT\_H

#define STUDENT\_H

#include <iostream>

#include <iomanip>

#include <string>

#include <cstdlib>

#include "Person.h"

using namespace std;

class Student: public Person {

protected:

string courseName;

public:

using Person::Person;

Student(): Person("Human",25) {

courseName = "C++";

};

Student(string name1, int age1, string courseName1) : Person(name1, age1){

courseName = courseName1;

};

void setCourseName(string courseName1) {

if (courseName1.length() > 0) {

courseName = courseName1;

}

else {

exit(EXIT\_FAILURE);

}

};

string getCourseName() const { return courseName; };

void calculateTax(double salary) const {

double tax = 0.0;

if (salary == 0) {

tax = 0.0;

cout << fixed << showpoint << setprecision(2);

cout << "Total Tax: $" << tax;

}

else {

tax = salary \* 0.25;

cout << fixed << showpoint << setprecision(2);

cout << "Total Tax: $" << tax;

}

};

};

#endif

**Syntax in Par\_Time\_Student.h**

//#pragma once

//#pragma once

#ifndef PAR\_TIME\_STUDENT\_H

#define PAR\_TIME\_STUDENT\_H

#include <iostream>

#include <iomanip>

#include <string>

#include <cstdlib>

#include "Student.h"

using namespace std;

class Par\_Time\_Student : public Student {

protected:

string job;

double salary;

public:

using Student::Student;

Par\_Time\_Student() : Student("Human", 25,"C++") {

job = "Software Engineer Intern";

salary = 35000;

};

Par\_Time\_Student(string name1, int age1, string courseName1, string job1, double salary1) :

Student(name1, age1, courseName1) {

job = job1;

salary = salary1;

};

void setJob(string job1) {

if (job1.length() > 0) {

job = job1;

}

else {

exit(EXIT\_FAILURE);

}

};

string getJob() const { return job; };

void setSalary(double salary1) {

if (salary1 > 0) {

salary = salary1;

}

else {

exit(EXIT\_FAILURE);

}

};

double getSalary() const { return salary; };

};

#endif

**Syntax in Final\_Exam\_Question\_2.cpp**

#include <iostream>

#include <iomanip>

#include <string>

#include <cstdlib>

#include <cstring>

#include <cctype>

#include <cmath>

#include "Person.h"

#include "Student.h"

#include "Par\_Time\_Student.h"

using namespace std;

int main() {

Student student1("Henry", 16, "Intro to Java Programming");

cout << "Student's name: " << student1.getName() << endl;

cout << "Student's age: " << to\_string(student1.getAge()) << endl;

cout << "Student's course name: " << student1.getCourseName() << endl;

cout << "Student's job: Full-time student" << endl;

student1.calculateTax(0);

cout << endl << endl;

Par\_Time\_Student student2("Kevin", 22, "Security+","Cybersecurity Engineer Intern", 45999.99);

cout << "Student's name: " << student2.getName() << endl;

cout << "Student's age: " << to\_string(student2.getAge()) << endl;

cout << "Student's course name: " << student2.getCourseName() << endl;

cout << "Student's job: " << student2.getJob() << endl;

cout << "Student's salary: $" << student2.getSalary() << endl;

student2.calculateTax(student2.getSalary());

cout << endl << endl;

return 0;

}

\*How to run this program

-In your Visual Studio IDE, run file **Final\_Exam\_Question\_2.cpp**

\*Output:

**A screenshot of a computer program

Description automatically generated**