QUESTION 1

#include <iostream>

#include <string>

class Person {

public:

Person(std::string name, int year) : name(name), yearOfBirth(year) {}

std::string getName() const { return name; }

int getYearOfBirth() const { return yearOfBirth; }

virtual std::string toString() const {

return "Name: " + name + ", Year of Birth: " + std::to\_string(yearOfBirth);

}

bool equals(const Person &p) const {

return name == p.name && yearOfBirth == p.yearOfBirth;

}

private:

std::string name;

int yearOfBirth;

};

class Student : public Person {

public:

Student(std::string name, int year, std::string major)

: Person(name, year), major(major) {}

std::string getMajor() const { return major; }

std::string toString() const override {

return Person::toString() + ", Major: " + major;

}

bool equals(const Student &s) const {

return Person::equals(s) && major == s.major;

}

private:

std::string major;

};

class Instructor : public Person {

public:

Instructor(std::string name, int year, int salary)

: Person(name, year), salary(salary) {}

int getSalary() const { return salary; }

std::string toString() const override {

return Person::toString() + ", Salary: " + std::to\_string(salary);

}

bool equals(const Instructor &i) const {

return Person::equals(i) && salary == i.salary;

}

private:

int salary;

};

int main() {

Person p("John Doe", 1990);

Student s("Jane Doe", 1995, "Computer Science");

Instructor i("Bob Smith", 1980, 100000);

std::cout << p.toString() << std::endl;

std::cout << s.toString() << std::endl;

std::cout << i.toString() << std::endl;

std::cout << "p and s are equal: " << (p.equals(s) ? "True" : "False") << std::endl;

std::cout << "s and s are equal: " << (s.equals(s) ? "True" : "False") << std::endl;

std::cout << "i and i are equal: " << (i.equals(i) ? "True" : "False") << std::endl;

return 0;

}