

In this exercise we study inheritance.

Excercise A (Inheritance, 4p)

In this exercise we define a Person class that simply holds a person's name and prints it when needed. We derive a Spy class from Person and add member function that can be used to set an alias for the spy. Use the following definition for Person class.

```
class Person {  
public:  
    Person(const char *name = "nobody");  
    virtual ~Person() = default;  
    virtual void identity() const;  
    virtual void interrogate();  
private:  
    std::string name;  
};
```

Identity() prints the name of the person.

Interrogate() does nothing (empty body) in class Person.

Derive Spy from Person and the following function:

```
void set_identity(const char *alias);
```

Spy constructor must take three parameters: name of the spy, alias of the spy, and resistance. Resistance is an integer that represents spy's resistance to interrogation. Every time interrogate() is called resistance is decremented by one. When resistance is greater than zero identity() prints alias of the spy instead of the real name. When resistance is less than one identity() prints both real name and alias of the spy.

Set_identity sets the spy's alias.

Note that you must override indentity() and interrogate() in class Spy.

You can use the following program to test your classes.

```
int main(int argc, char** argv) {
    Person agent("James Bond");
    Spy spy("Emilio Largo", "William Johnson", 3);
    Spy spy2("Ernst Blofield", "John Keats", 5);

    std::cout << std::endl << "Nice to meet you. ";
    agent.identity();

    for (int i = 0; i < 6; ++i) {
        std::cout << "Who are you?" << std::endl;
        spy.interrogate();
        spy.identity();
    }
    spy.set_identity("Bill Munny");
    spy.identity();

    std::cout << std::endl << "Nice to meet you. ";
    agent.identity();

    for (int i = 0; i < 6; ++i) {
        std::cout << "Who are you?" << std::endl;
        spy2.interrogate();
        spy2.identity();
    }

    return 0;
}
```

Example output:

```
Nice to meet you. My name is: James Bond
Who are you?
My name is: William Johnson
Who are you?
My name is: William Johnson
Who are you?
My name is: Emilio Largo
My alias is: William Johnson
Who are you?
My name is: Emilio Largo
My alias is: William Johnson
Who are you?
My name is: Emilio Largo
My alias is: William Johnson
Who are you?
My name is: Emilio Largo
My alias is: Bill Munny

Nice to meet you. My name is: James Bond
Who are you?
My name is: John Keats
Who are you?
My name is: John Keats
Who are you?
My name is: John Keats
Who are you?
My name is: John Keats
Who are you?
My name is: Ernst Blofield
My alias is: John Keats
Who are you?
My name is: Ernst Blofield
My alias is: John Keats
```