



Visibility

Bachelor of Science - École polytechnique

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Key concepts

- Two keywords for the visibility
 - `private`: the members are hidden from outside the class
 - `public`: the members are visible from outside the class

- Two keywords to declare a class
 - `struct`: default visibility is `public`
 - `class`: default visibility is `private`

External interface

- The user of an object is interested by what an object does
 - Not by how the object is implemented
- A class can thus define an external interface for an object
 - The methods that a user can call from the outside
 - The fields that a user can directly access from the outside
- And an object can have an internal interface
 - Methods hidden from the outside
 - Fields hidden from the outside

public versus private

- Two new keywords to define the interfaces
 - `private`: the private interface (internal interface)
 - `public`: the public interface (external interface)

```
struct monster_t {  
private:  
    std::string name;  
    int health;  
  
    void internal_method();  
  
public:  
    monster_t(std::string name, int health);  
  
    void print();  
};
```

private interface:
hidden except from
the methods of
`monster_t`

public interface:
outside the
scope, we can only
use these methods

struct versus class

- C++ uses two keywords to define a class
 - `struct`: default visibility is `public`
 - `class`: default visibility is `private`

```
class monster_t {  
    std::string name;  
    int health;  
  
    void internal_method();  
  
public:  
    monster_t(std::string name, int health);  
  
    void print();  
};
```

With the `class` keyword, these members have the `private` visibility

struct versus class

- Which one is best?
 - Mostly a question of habit
 - `class` is probably more common than `struct`

Notes: in the slides, we mostly use `struct` in order to avoid adding superfluous `public` for the examples, not because `struct` is better than `class`

The `friend` keyword

- A friend class or method can access private members

```
class all_private_t {  
    int x;  
    friend void f(all_private_t* p);  
};  
  
void f(all_private_t* p) {  
    p->x = 42;  
}
```

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