

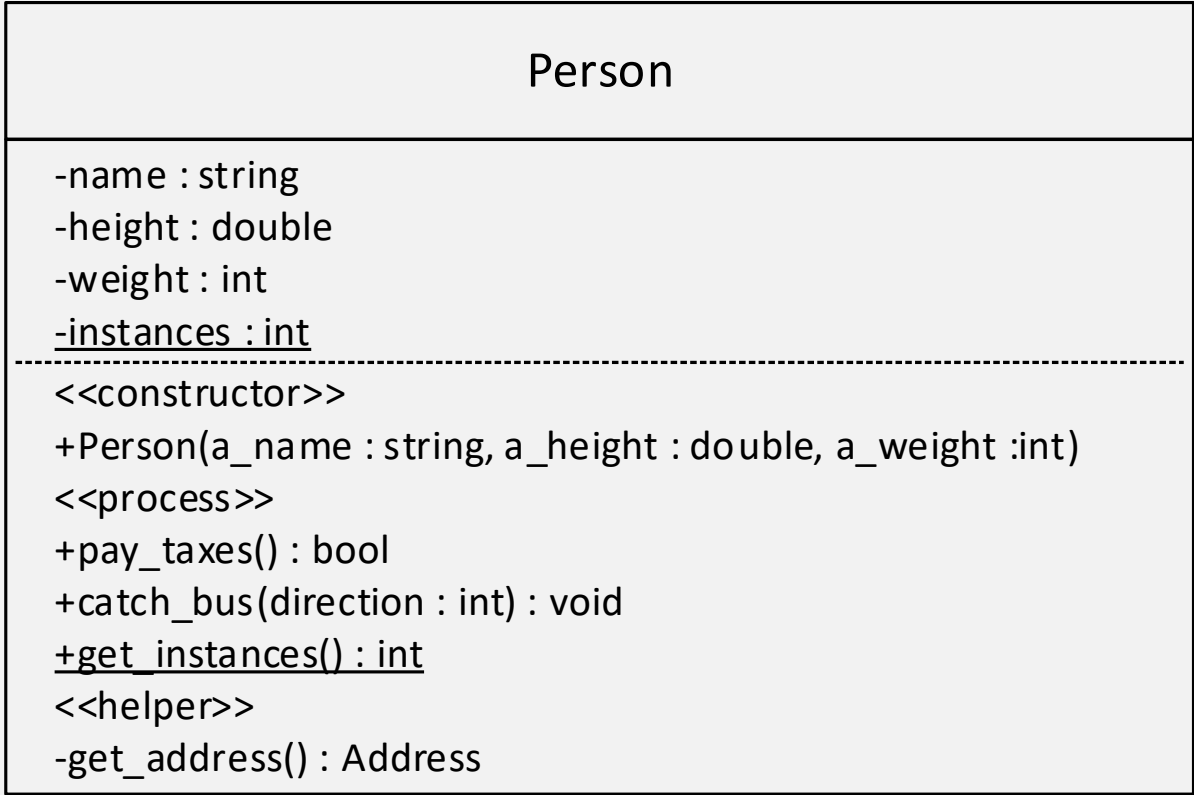


UML CLASS DIAGRAMS

"The Unified Modeling Language (UML) is a graphical language for visualizing, specifying, constructing, and documenting the artifacts of a software-intensive system" (Booch, Rumbaugh, & Jacobson, 2005, p. xiii)



UML CLASS SYMBOL



Class Name

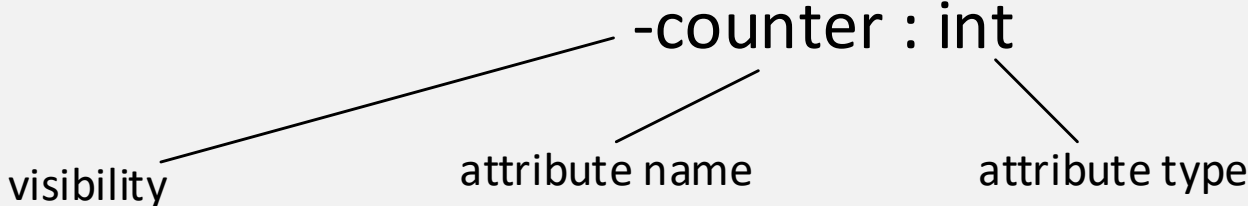
Attributes

Operations



UML ATTRIBUTES

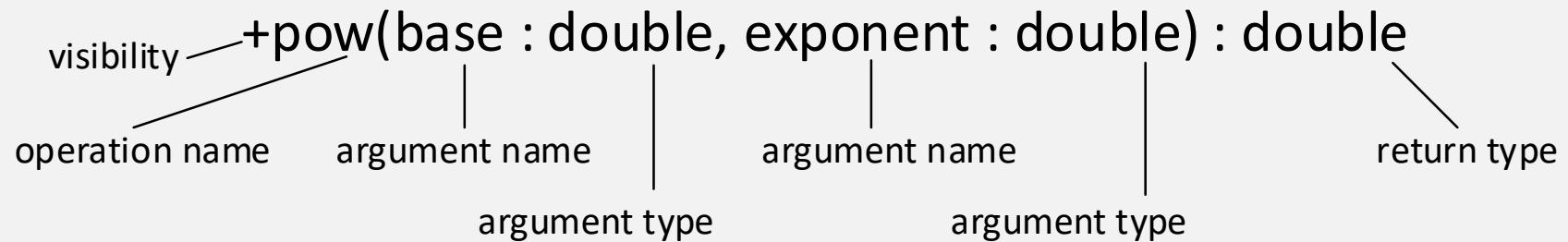
- - private
- # protected
- + public
- : type





UML OPERATIONS

- - private
- # protected
- + public
- : return type at end
- Arguments follow the same pattern as attributes





UML ATTRIBUTES TO C++MEMBER VARIABLES

- `-name : string`

- `private:`

```
string name;
```

- `-instances : int`

- `private:`

```
static int instances;
```



CONSTRUCTORS: UML AND C++

- Constructors build new objects
- Have the same name as the class
- Do not have a return type

```
+Person(a_name : string, a_height : double, a_weight : int)
```

```
public:
```

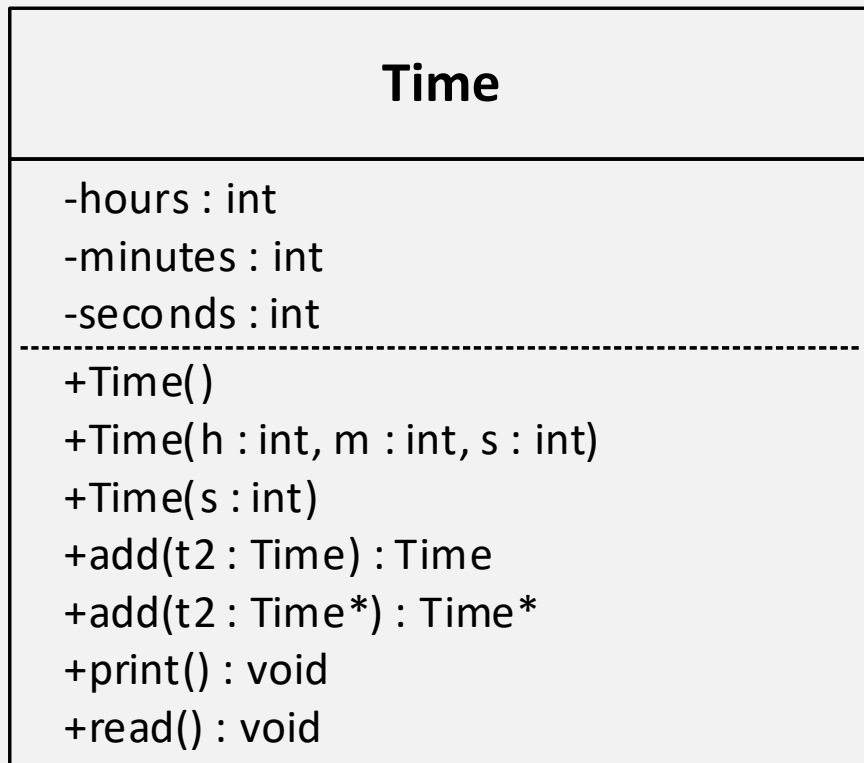
```
    Person(string a_name, double a_height, int a_weight);
```



UML OPERATIONS TO C++ MEMBER FUNCTIONS

- `+pay_taxes() : bool`
- `+catch_bus(direction : int) : void`
- `-get_address() : Address`
- `public:`
`bool pay_taxes();`
- `public:`
`void catch_bus(int direction);`
- `private:`
`static Address get_address();`

EXAMPLE: TRANSLATING UML TO C++



```
class Time
{
    private:
        int hours;
        int minutes;
        int seconds;
    public:
        Time();
        Time(int h, int m, int s);
        Time(int s);
        Time add(Time t2);
        Time* add(Time* t2);
        void print();
        void read();
};
```