CS 162
Intro to CS II

“Has a” vs. “Is a” Relationship
What is inheritance?

• Webster Definition?
  – the reception of genetic qualities by transmission from parent to offspring
  – the acquisition of a possession, condition, or trait from past generations

• CS Definition?
  – Base class (Parent) and Derived class (Child)
  – Ancestor class and Descendant class (generations)
Inheritance Interface

class parent {
    public:
        parent(); // Have a constructor
        void print_mssg();
        int get_shared_var();
    private:
        int shared_var;
};

class child : public parent {
    public:
        child(); // This constructor needs to call parent() constructor
        void print_mssg(); // Redefine or Override inherited function
    private:
        int unique_var;
};
Inheritance Implementation

```cpp
parent::parent() {
    shared_var = 0;
}
int parent::get_shared_var() {
    return shared_var;
}
void parent::print_mssg() {
    cout << "I’m parent!" << endl;
}

// child class implementation
child::child() : parent() { // Need to call inherited constructor first
    unique_var = 0;
}
void child::print_mssg() {
    cout << "I’m child!" << endl; // This will take precedence over parent
}
```
What is not inherited?

• Constructors
• Destructors
• Friends
• Assignment Op Overload

• Inherited, but not accessible: Private Members