

```
5 (全局范围)

#include "MyClasses.h"

int main() {
    BaseClass baseObj;
    DerivedClass derivedObj;
    return 0;
}
```

```
(全局范围)

#pragma once
#pragma once
#include <iostream>

class BaseClass {
public:
    BaseClass();
    ~BaseClass();
};

class DerivedClass : public BaseClass {
public:
    DerivedClass();
    ~DerivedClass();
};
```

选项卡

- HW15
- Main.cpp
- MyCl...s.cpp
- MyCl...es.h

```
#include "MyClasses.h"

BaseClass::BaseClass() {
    std::cout << "BaseClass constructor" << std::endl;
}

BaseClass::~BaseClass() {
    std::cout << "BaseClass destructor" << std::endl;
}

void BaseClass::PrintInfo() const {
    std::cout << "BaseClass PrintInfo" << std::endl;
}

DerivedClass::DerivedClass() {
    std::cout << "DerivedClass constructor" << std::endl;
}

DerivedClass::~DerivedClass() {
    std::cout << "DerivedClass destructor" << std::endl;
}

void DerivedClass::PrintInfo() const {
    std::cout << "DerivedClass PrintInfo" << std::endl;
}
```

```
HW15 (全局范围)

#pragma once
#include <iostream>

class BaseClass {
public:
    BaseClass();

    ~BaseClass();

    virtual void PrintInfo() const;
};

class DerivedClass : public BaseClass {
public:
    DerivedClass();

    ~DerivedClass();

    virtual void PrintInfo() const;
};
```

```
HW15 (全局范围) main()
// Main.cpp
#include "MyClasses.h"

int main() {
    BaseClass baseObj;
    DerivedClass derivedObj;
    BaseClass* basePtr1 = &baseObj;
    BaseClass* basePtr2 = &derivedObj;
    DerivedClass* derivedPtr = &derivedObj;
    std::cout << "Calling PrintInfo using pointers:" << std::endl;
    basePtr1->PrintInfo();
    basePtr2->PrintInfo();
    derivedPtr->PrintInfo();

    return 0;
}
```

```
5 (全局范围) main()
// Main.cpp
#include "MyClasses.h"

int main() {
    BaseClass baseObj;
    DerivedClass derivedObj;

    BaseClass* basePtr1 = new BaseClass;
    BaseClass* basePtr2 = new DerivedClass;
    DerivedClass* derivedPtr = new DerivedClass;

    delete basePtr1;
    delete basePtr2;
    delete derivedPtr;

    return 0;
}
```

```
HW15 (全局范围) testFunctionWithDerivedPointerByValue(Deriv
// MyClasses.h
#ifndef MY_CLASSES_H
#define MY_CLASSES_H
#include <iostream>
class BaseClass {
public:
    virtual void printInfo() const {
        std::cout << "BaseClass::printInfo()" << std::endl; }
    virtual ~BaseClass() {
        std::cout << "BaseClass::~BaseClass()" << std::endl;
    };
};
class DerivedClass : public BaseClass {
public:
    virtual void printInfo() const override {
        std::cout << "DerivedClass::printInfo()" << std::endl; }
    virtual ~DerivedClass() override {
        std::cout << "DerivedClass::~DerivedClass()" << std::endl; }
};
void testFunctionByValue(BaseClass obj) {
    obj.printInfo();
}
void testFunctionByReference(const BaseClass& obj) {
    obj.printInfo();
}
void testFunctionWithBasePointerByValue(BaseClass* ptr) {
    ptr->printInfo();
}
void testFunctionWithDerivedPointerByValue(DerivedClass* ptr) {
    ptr->printInfo();
}
}

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```
HW15 (全局范围) main()
// Main.cpp
#include "MyClasses.h"

int main() {
    BaseClass baseObj;
    DerivedClass derivedObj;

    std::cout << "Testing with objects:" << std::endl;
    testFunctionByValue(baseObj);
    testFunctionByValue(derivedObj);

    testFunctionByReference(baseObj);
    testFunctionByReference(derivedObj);

    std::cout << "\nTesting with pointers:" << std::endl;
    testFunctionWithBasePointerByValue(&baseObj);
    testFunctionWithBasePointerByValue(&derivedObj);

    testFunctionWithDerivedPointerByValue(&derivedObj);

    return 0;
}
```