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/* virtual.cpp
Simple program to demonstrate virtual member functions -
1. funtions with pass by reference/pointer, the class type of the argument determines which instance to call (dynamic binding)
2. funtions with pass by value, the class type of the parameter determines which instance to call (static binding)

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*/

#include <iostream>

class One{
public:
    virtual void Print(){std::cout <<"Print from One\n";}
};

class Two:public One{
public:
    void Print(){std::cout <<"Print from Two\n";}
};

void Print0(One one)
{
    one.Print();
}

void Print1(One& one)
{
    one.Print();
}

void Print2(One* onePtr)
{
    onePtr->Print();
}

void Print3(One one, One &oneRef, One *onePtr)
{
    one.Print();
    oneRef.Print();
    onePtr->Print();
}

int main()
{
    One one;
    Two two;

    Print0(one); // One::Print is called
    Print0(two); // One::Print is called

    Print1(one); // One::Print is called
    Print1(two); // Two::Print is called
    one = two;
    Print1(one); // One::Print is called

    Print3(one, one, &one); // One::Print, One::Print, One::Print
    Print3(two, two, &two); // One::Print, Two::Print, Two::Print

    One *onePtr;
    onePtr = new One;
    Print2(onePtr); // One::Print is called
}
```

```
onePtr = new Two;
Print2(onePtr); // Two::Print is called
Two *twoPtr;
twoPtr = new Two;
Print2(twoPtr); // Two::Print is called

return 0;
}
```