







< polymorphismMystery10

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You are working on problem set: Project 5 (Pause)



8

polymorphismMysteryHamburger

Language/Type: C++ <u>inheritance</u> <u>polymorphism</u>

Consider the following classes; assume that each is defined in its own file.

```
class Hamburger : public Bacon {
public:
    virtual void m2() {
        cout << "H 2" << endl;
        Bacon::m2();
    }
    virtual void m4() {
        cout << "H 4" << endl;</pre>
    }
};
class Mayo : public Hamburger {
public:
    virtual void m3() {
        cout << "M 3" << endl;
        m1();
    }
    virtual void m4() {
        cout << "M 4" << endl;
    }
}:
class Lettuce {
public:
    virtual void m1() {
        cout << "L 1" << endl;
```

```
m2();
    }
    virtual void m2() {
        cout << "L 2" << endl:
    }
};
class Bacon : public Lettuce {
public:
    virtual void m1() {
        Lettuce::m1();
        cout << "B 1" << endl;
    }
    virtual void m3() {
        cout << "B 3" << endl;
    }
};
```

Now assume that the following variables are defined:

```
Lettuce* var1 = new Bacon();
Bacon* var2 = new Mayo();
Lettuce* var3 = new Hamburger();
Bacon* var4 = new Hamburger();
Lettuce* var5 = new Lettuce();
```

In the table below, indicate in the right-hand column the output produced by the statement in the left-hand column. If the statement produces more than one line of output, indicate the line breaks with slashes as in "x / y / z" to indicate three lines of output with "x" followed by "y" followed by "z". If the statement does not compile, write "COMPILER ERROR". If a statement would crash at runtime or cause unpredictable behavior, write "CRASH".

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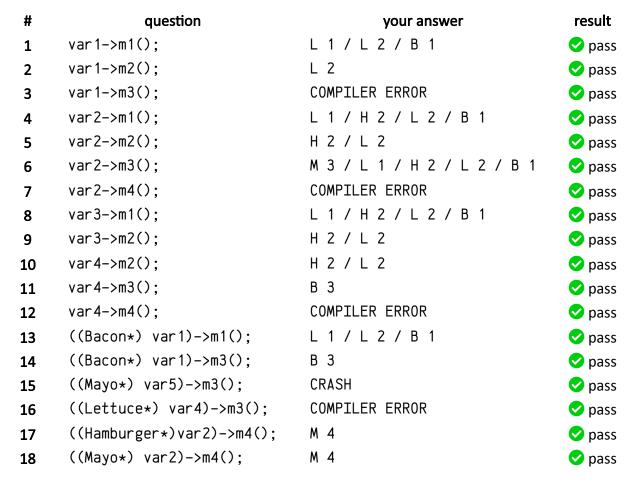
| var2->m3(); | M 3 / L 1 / H 2 / L 2 / B |
|---|---------------------------|
| <pre>var2->m4();</pre> | COMPILER ERROR |
| var3->m1(); | L 1 / H 2 / L 2 / B 1 |
| var3->m2(); | H 2 / L 2 |
| var4->m2(); | H 2 / L 2 |
| var4->m3(); | B 3 |
| var4->m4(); | COMPILER ERROR |
| ((Bacon*) var1)->m1(); | L 1 / L 2 / B 1 |
| ((Bacon*) var1)->m3(); | B 3 |
| ((Mayo*) var5)->m3(); | CRASH |
| ((Lettuce*) var4)->m3(); | COMPILER ERROR |
| <pre>((Hamburger*)var2)->m4();</pre> | M 4 |
| ((Mayo*) var2)->m4(); | M 4 |



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X

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