**Name: \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_**

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|  |
| --- |
| **public class Frodo extends Bilbo** |
| **{** |
| **public void method1()** |
| **{** |
| **System.out.println("Frodo 1");** |
| **super.method1();** |
| **}** |
|  |
| **public void method3()** |
| **{** |
| **System.out.println("Frodo 3");** |
| **}** |
| **}** |
| **public class Gandalf** |
| **{** |
| **public void method1()** |
| **{** |
| **System.out.println("Gandalf 1");** |
| **}** |
|  |
| **public void method2()** |
| **{** |
| **System.out.println("Gandalf 2");** |
| **method1();** |
| **}** |
| **}** |
| **public class Bilbo extends Gandalf** |
| **{** |
| **public void method1()** |
| **{** |
| **System.out.println("Bilbo 1");** |
| **}** |
| **}** |
| **public class Gollum extends Gandalf** |
| **{** |
| **public void method3()** |
| **{** |
| **System.out.println("Gollum 3");** |
| **}** |
| **}** |

**And assuming the following variables have been defined:**

**Gandalf var1 = new Frodo();**

**Gandalf var2 = new Bilbo();**

**Gandalf var3 = new Gandalf();**

**Object var4 = new Bilbo();**

**Bilbo var5 = new Frodo();**

**Object var6 = new Gollum();**

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 "a/b/c" to indicate

three lines of output with "a" followed by "b" followed by "c". If the

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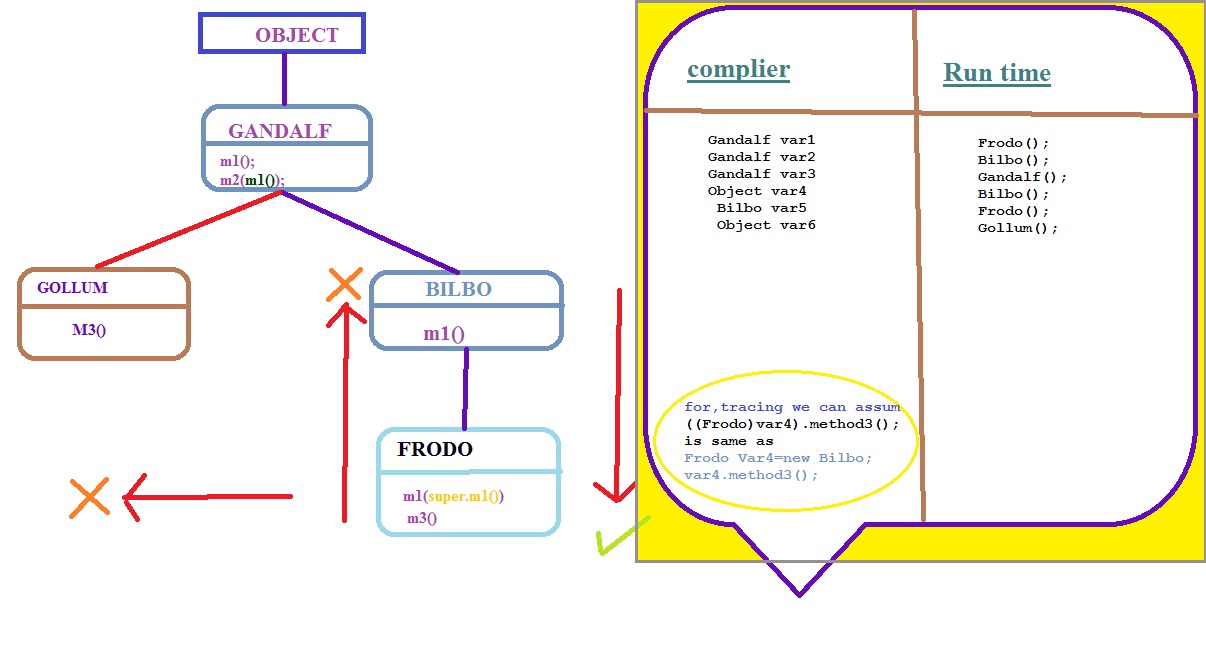
statement causes an error, fill in the right-hand column with either the phrase

"compiler error" or "runtime error" to indicate when the error would be

detected.

**Statement Output**

|  |  |
| --- | --- |
| **var1.method1();** | **Frodo 1/Bilbo 1** |
| **var2.method1();** | **Bilbo 1** |
| **var4.method1();** | compiler error(Inside the object class there is no method1()) |
| **var6.method1();** | compiler error |
| **var1.method2();** | **Gandalf 2/Frodo 1/Bilbo 1** |
| **var3.method2();** | **Gandalf 2/Gandalf 1** |
| **var4.method2();** | compiler error |
| **var5.method2();** | **Gandalf 2/Frodo 1/Bilbo 1** (why printed Gandalf2 (cause Frodo don’t have m2() so its printed the previous class) |
| **var6.method2();** | compiler error |
| **((Frodo)var4).method3();**  **/\*Frodo f=(Frodo)var4;**  **f.method3();**  **or,Frodo var4=new Frodo();**  **Frodo=var4.Bilbo; \*/** | runtime error(Bilbo cannot be cast to Frodo) |
| **((Frodo)var6).method2();** | runtime error**(Gollum cannot be cast to Frodo)** |
| **((Gollum)var1).method3();** | runtime error(Frodo cannot be cast to Gollum) |
| **((Gollum)var4).method1();** | runtime error(Bilbo cannot be cast to Gollum) |
| **((Gandalf)var1).method2();** | Gandalf 2/Frodo 1/Bilbo 1 |
| **((Frodo)var4).method1();** | runtime error(Bilbo cannot be cast to Frodo) |
| **((Gollum)var6).method2();** | **Gandalf 2/Gandalf 1** |
| **((Gandalf)var2).method1();** | **Bilbo 1** |
| **((Bilbo)var6).method2();** | runtime error(Gollum cannot be cast to Bilbo) |
| **((Frodo)var1).method3();** | **Frodo 3** |
| **((Gandalf)var5).method3();** | compiler error |

****