F27SB Software Development 2

Lab sheet 3: Networks

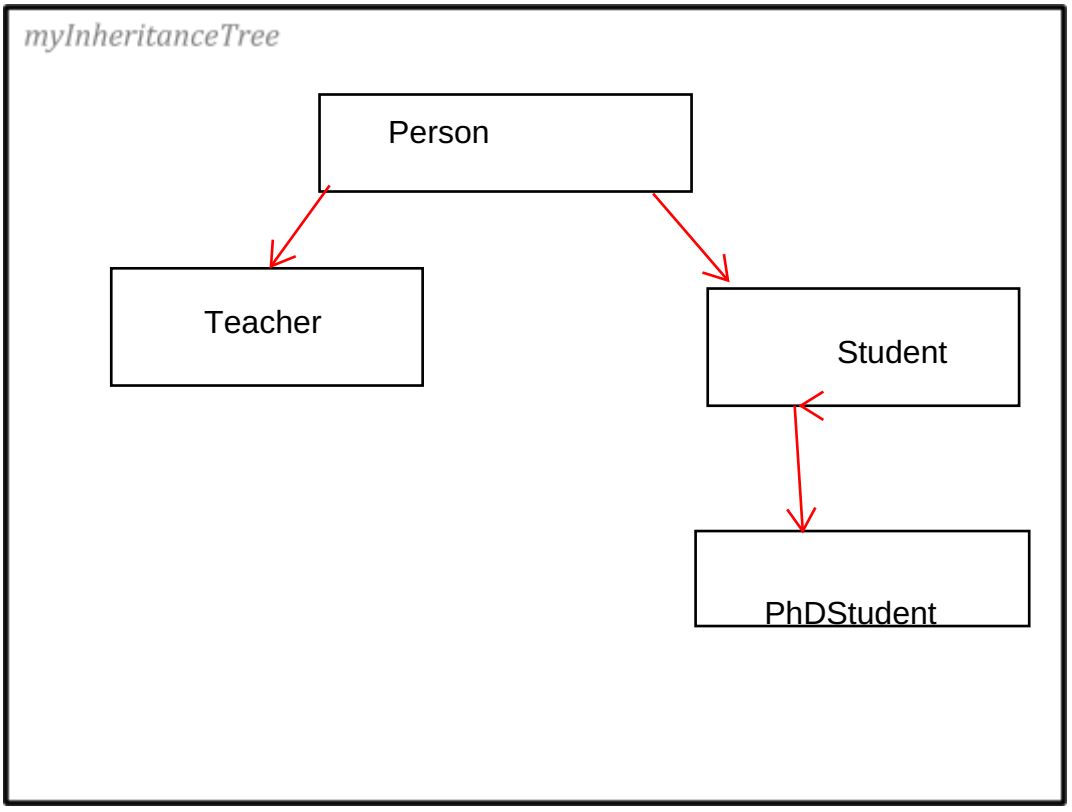
Upcasting and Downcasting

Assume we have 4 classes:

1. **Person**
2. **Teacher**
3. **Student**
4. **PhDStudent**

Teacher and **Student** are both subclasses of **Person**. **PhDStudent** is a subclass of **Student**.

1. Draw a class inheritance tree.



(1M)

2. Which of the following assignments are legal, and why or why not?

   a) `Person p1 = new Student();`

Explanation: This assignment is legal, student is a subclass of Person

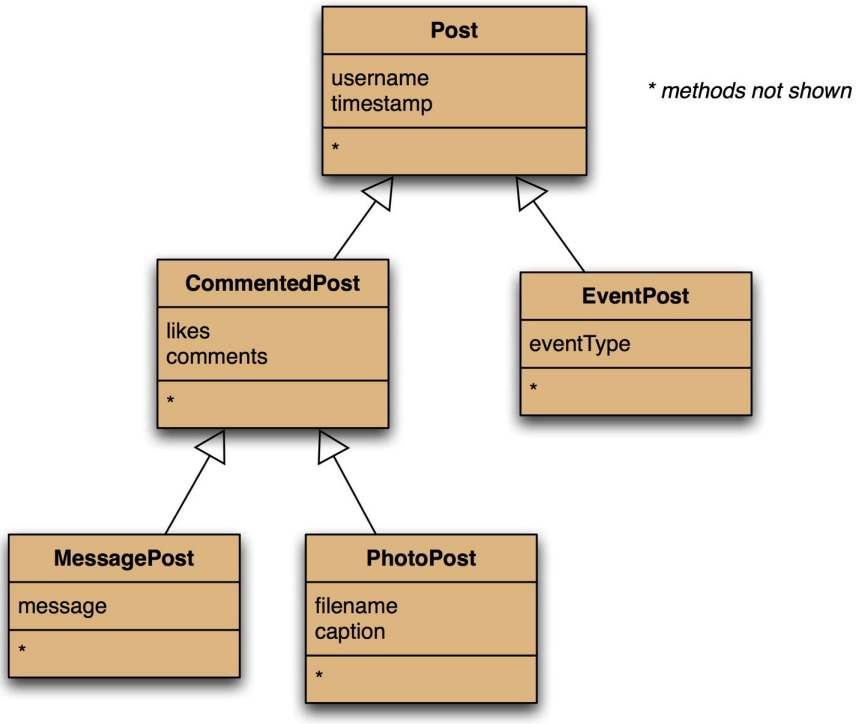
   b) `PhDStudent phd1 = new Student();`

Explanation: This assignment is illegal because Student is not a subclass of PhDStudent, they should be the other way around.

(1M)

Introducing Deeper Hierarchies

Using the source code provided, implement two new classes: **`EventPost`** and **`CommentedPost`,** and refactor the code to reflect the following inheritance hierarchy.
Think: which methods should go where?



(2M)