

Lesson 2:

Java checker

Test your java knowledge..

- Can you instantiate a static class? Explain
- I have three classes, Employee, Book and Student. I need each of them to be able to generate a unique ID for each of their objects. The ID is not linked in any way across the three classes. How should I guarantee that they all implement this behaviour?
- Draw the UML for a class hierarchy of vehicles: Vehicle is the superclass, with two subclass: car and bicycle. Car has two subclasses : Sports cars and ElectricCar
- The vehicle class can't be instantiated as there is not such thing as a vehicle object – but it is still the superclass. What java feature should be used to implement this?
- I want to include a constant NCT code that is the same for all my car (and subclass) objects. How should I do this?
- If my car class implements an interface (e.g. a Driveable interface, with a method move()) – what difference does it make if I implement this interface in the Sports and ElectricCar classes too (or not?). Will they be able to move?
- I have an method in my Vehicle class called “registerOwner()” – and I do not want any subclass to override it, as it has suitable functionality needed in all vehicle classes and subclasses. How do I ensure that the method can't be overridden?
- SportCar and ElectricCar will be the last subclasses.. they should not be extended. How do I prevent this?
- What's the difference between an abstract class and an Interface in Java?

1. Does java support multiple inheritance?
2. What is encapsulation and why is it important?
What examples are in your lab code?
3. What is overloading in OO (and why is it important?).
4. What is overriding in OO (and why is it important?). Put an example in your “Bread” class.
5. What is polymorphism and how does it relate to overriding?

8. What does “static” mean against a method or attribute in a class? Give an example..
9. What does “final” mean against an attribute in a class. Give an example
10. What is the purpose of **interfaces** in Java? How are they implemented? Put an example in your code of an “Edible “ interface – which has behaviour `passedFoodInspection()`.
11. What is Casting?
12. What is the `java.lang.Object`?

11. What are abstract classes? What are they used for?
12. What is the UML diagram for the class hierarchy just used (Food / Bread)
13. Why is the Object class special in java?
14. What happens if you print a class that doesn't have a toString() method.