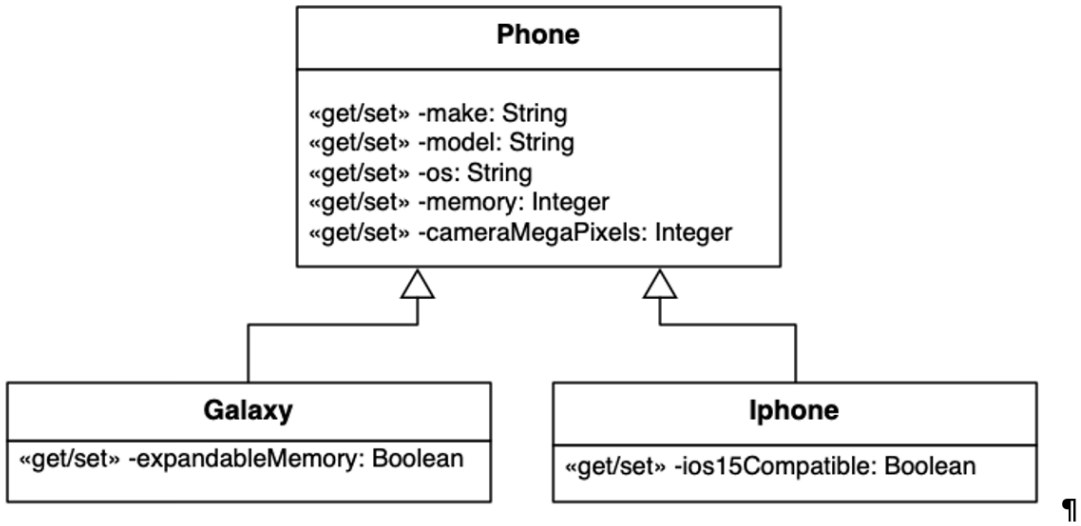
OO Programming

Lab 04

Week 4

Exercise 1 (12.15 from Book) Inheritance

Exercise - generalise to a superclass to eliminate duplications



Two·phone·classes,·illustrating·inheritance·and·generlisation.¶

AIM:

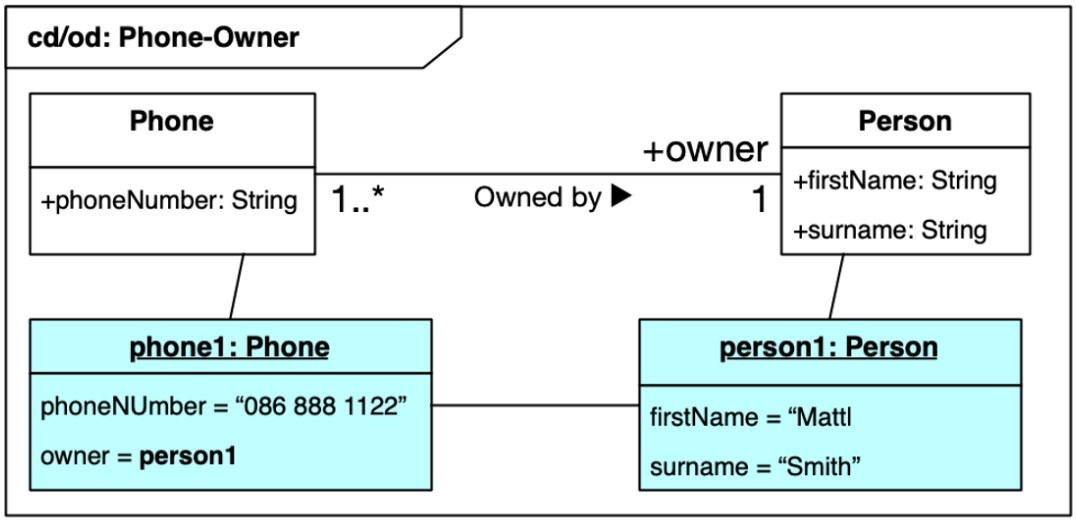
- learn to create sub-classes to reduce duplication

ACTION:

- improve your previous exercise(12.14 covered in lecture) by generalising common properties and operations from the 2 classes into a new superclass `Phone`
- then remove the common parts of the `Galaxy` and `Iphone` classes, and make these both subclasses of new class `Phone`
- refactor your `Main` class so that both `phone1Iphone11` and `phone2GalaxyNote55` are variables for `Phone` objects, but created with constructors from the subclasses
- add toString() methods to print out phone details

Exercise 2 (13.8 from Book) Composition/Association

Exercise - composition - objects with properties to other objects



Phone-Person·class-object·diagram.¶

AIM:

- to create an associated between objects of 2 different classes

ACTION:

- class `Person` (file: `Person.java`)
  - public properties String `firstName` and `surname`
- class `Phone` (file: `Phone.java`)
  - public property String `phoneNumber`
    - (a String, to allow for leading zeros and spaces such as 086 888 1122)
  - public property `owner` a reference to a `Person` object
- class `Main` (file: `Main.java`)
  - create a `Person` object `person1` for **your** name.
  - create a `Phone` object with properties:
    - `phoneNumber` of 086 888 1122 (or **your** number if you wish!)
    - `owner` a reference to a `person1
  - add `toString()` methods to print out phone details

Exercise 3

Exercise - create a solution using the keyword super

Create a superclass and a subclass of your choice

Demonstrate the use of the super key word by calling superclass method from the subclass

Refer to lecture inheritance2-overriding-super for assistance