

DSD Lab 6: Spring dependency injection (wiring) (max: 15p)

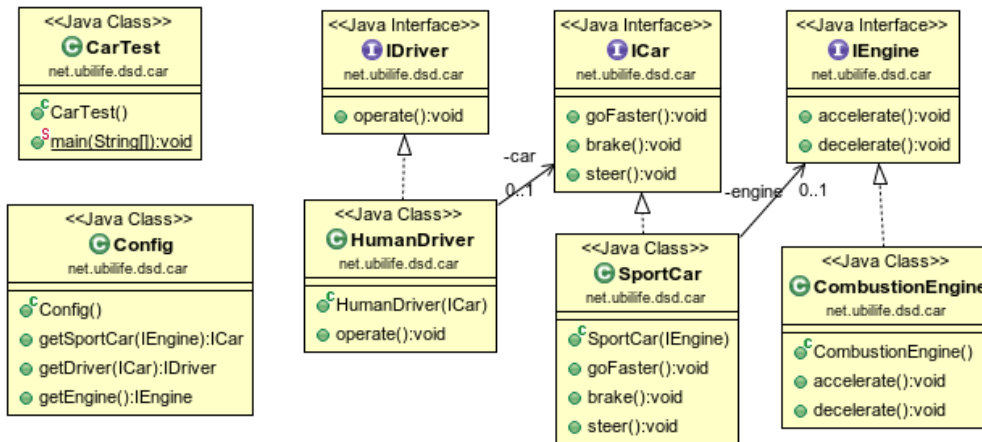
From this lab onward, use **Spring Tool Suite**: <https://spring.io/tools/sts/all> (should be already in lab computers)

In TASKS 1 and 2, create projects with the Simple Spring Maven project template: **New Project > Spring Legacy Project > Simple Spring Maven**

TIP: See Knight and HelloWorld projects in Spring Essentials lecture notes in e-class.

TASK 1: Car beans (5p)

Create a Spring application with the following structure:



Make the following dependency injections:

- SportsCar depends on IEngine
- HumanDriver depends on ICar

In CarTest app, test the driver with two kinds of configuration files:

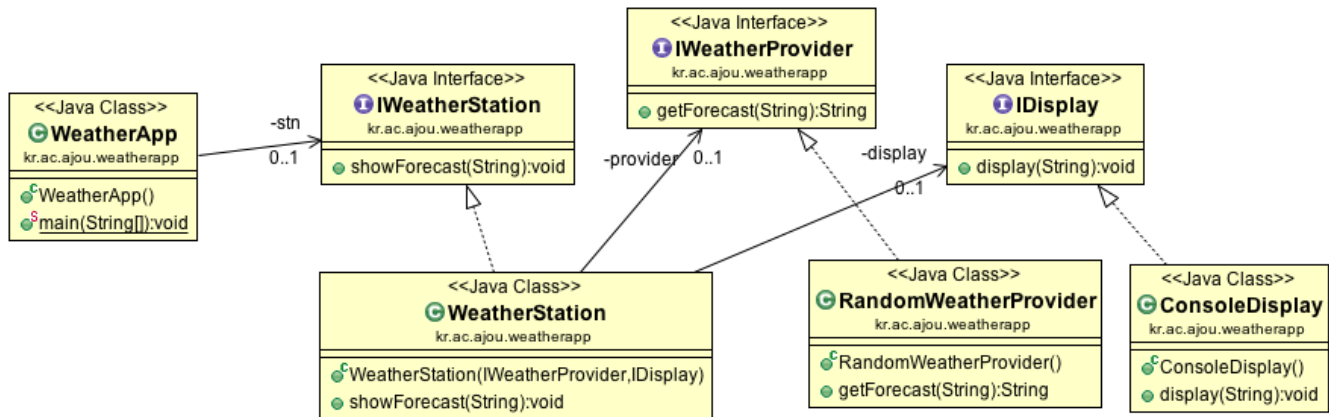
- Java-based manual wiring with `@Bean` annotation (Config class)
- XML-based manual wiring with `<bean>` and `<constructor-arg>` tags

Example printout (call HumanDriver's operate(), see how beans call each other):

```
[HumanDriver] operate the car by calling its methods...
[SportsCar] Acceleration pedal engaged.
[CombustionEngine] Burn more fuel to accelerate.
[SportsCar] Steering wheel turned.
[SportsCar] Brake pedal engaged.
[CombustionEngine] Burn less fuel to decelerate.
```

TASK 2: Weather App (5p)

In this task you will create a weather forecast application with the following classes and interfaces:



Beans

1. **RandomWeatherProvider**: returns a random weather forecast for a city, for example: "Raining at Suwon" or "Sunny at Suwon".
2. **ConsoleDisplay**: shows given string in console (System.out.println)
3. **WeatherStation**: uses IWeatherProvider and IDisplay to get and show a forecast for a city.
 - Do NOT create bean instances directly. Use *dependency injection* in configuration files!

Main app

1. **WeatherApp**: loads a configuration file, gets a WeatherStation bean, and calls its method.
 - Test the app with different configuration files (see next instruction).

Create and test two different configuration files:

1. Java-based manual wiring with @Bean annotation
2. XML-based manual wiring with <bean> and <constructor-arg> tags (see the Knight project in lecture notes)