# **Exercise 2: Weather forecast**

Suppose that we would like to go out for a jog, and use two independent weather services to know about the expected chances of rain. The following model contains two classes, one to represent the information provided by each forecast, and another to represent the person willing to jog.

### WeatherForecast

+WFService : String +city : String +date : String +rain : UBoolean

Person

Note the use of datatype UBoolean to represent the chances of rain. This extended datatype represents Boolean values enriched with uncertainty [Bertoa et al, 2020]. For example, UBoolean(true, 0.9) means a probability of 90% of rain, and UBoolean(true, 0.1) means 10% chances of rain.

With this, the estimated weather in Málaga at four moments in time can be represented by the following object model:

#### wf1: WeatherForecast

city = "Malaga" date = "10/11/2021 17:00 CET" rain = "UBoolean(true,0.15)" WFService = "AEMET"

#### wf2: WeatherForecast

city = "Malaga" date = "10/11/2021 18:00 CET' rain = "UBoolean(true,0.51)" WFService = "AEMET"

#### wf3: WeatherForecast

city = "Malaga" date = "10/11/2021 19:00 CET" rain = "UBoolean(true,0.38)" WFService = "AEMET"

#### wf4: WeatherForecast

city = "Malaga" date = "10/11/2021 20:00 CET" rain = "UBoolean(true,0.62)" WFService = "AEMET"

#### wf5: WeatherForecast

city = "Malaga" date = "10/11/2021 17:00 CET" rain = "UBoolean(true,0.85)" WFService = "Accuweather"

#### wf6: WeatherForecast

city = "Malaga" date = "10/11/2021 18:00 CET" rain = "UBoolean(true,0.49)" WFService = "Accuweather"

#### wf7: WeatherForecast

city = "Malaga" date = "10/11/2021 19:00 CET" rain = "UBoolean(true,0.62)" WFService = "Accuweather"

### wf8: WeatherForecast

city = "Malaga" date = "10/11/2021 20:00 CET" rain = "UBoolean(true,0.38)" WFService = "Accuweather"

## Exercise 2:

- **1.** Please use the BeliefUncertainty UML profile to assign your opinions about these estimations. Please try to define one criterion and use it to assign opinions to rain estimations (10 min.)
- 2. Then, please upload your results using Questionnaire Q2 available at https://forms.gle/wD7Fy2QiG8rmYV4d9

The MagicDraw file is available at <a href="https://www.lcc.uma.es/~av/BUProfile/models/Rain.mdzip">https://www.lcc.uma.es/~av/BUProfile/models/Rain.mdzip</a>. Download the UML profile too (<a href="https://www.lcc.uma.es/~av/BUProfile/models/BeliefUncertaintyProfile.mdzip">https://www.lcc.uma.es/~av/BUProfile/models/BeliefUncertaintyProfile.mdzip</a>), and place it in the same folder.