

## Practice Project: Introduction

## Scenario

You've been tasked by your team to create an automated Extract, Transform, Load (ETL) process to extract daily weather forecast and observed weather data and load it into a live report to be used for further analysis by the analytics team. As part of a larger prediction modelling project, the team wants to use the report to monitor and measure the historical accuracy of temperature forecasts by source and station.

As a proof-of-concept (POC), you are only required to do this for a single station and one source to begin with. For each day at noon (local time), you will gather both the actual temperature and the temperature forecasted for noon on the following day for Casablanca, Morocco.

At a later stage, the team anticipates extending the report to include lists of locations, different forecasting sources, different update frequencies, and other weather metrics such as wind speed and direction, precipitation, and visibility.

## Data source

For this practice project, you'll use the weather data package provided by the open source project [wttr.in](https://wttr.in), a web service that provides weather forecast information in a simple and text-based format. For further information, you can read more about the service on its [GitHub Repo](#).

First, you'll use the `curl` command to scrape weather data via the *wtrr.in* website. For example, to get data for Casablanca, enter:

```
curl wttr.in/casablanca
```

which prints the following to stdout:

```

theia@theia-jeffg:/home/project$ curl wttr.in/casablanca
Weather report: casablanca

  \  /      Clear
 - (  ) -   +9(7) °C
  /  \      ✓ 9 km/h
          10 km
          0.0 mm



Thu 02 Feb



| Morning                                                                                  | Noon                                                                                | Evening                                                                               | Night                                                                                      |
|------------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------|---------------------------------------------------------------------------------------|--------------------------------------------------------------------------------------------|
| \  /      Sunny<br>- (  ) -   +11(10) °C<br>/  \      ↖ 6-9 km/h<br>10 km<br>0.0 mm   0% | \  /      Sunny<br>- (  ) -   18 °C<br>/  \      ✓ 8-9 km/h<br>10 km<br>0.0 mm   0% | \  /      Sunny<br>- (  ) -   16 °C<br>/  \      ✓ 17-20 km/h<br>10 km<br>0.0 mm   0% | \  /      Clear<br>- (  ) -   +12(10) °C<br>/  \      ✓ 18-33 km/h<br>10 km<br>0.0 mm   0% |



Fri 03 Feb



| Morning                                                                                   | Noon                                                                              | Evening                                                                             | Night                                                                                |
|-------------------------------------------------------------------------------------------|-----------------------------------------------------------------------------------|-------------------------------------------------------------------------------------|--------------------------------------------------------------------------------------|
| \  /      Sunny<br>- (  ) -   +10(9) °C<br>/  \      ↖ 10-16 km/h<br>10 km<br>0.0 mm   0% | \  /      Sunny<br>- (  ) -   19 °C<br>/  \      ✓ 3 km/h<br>10 km<br>0.0 mm   0% | \  /      Sunny<br>- (  ) -   17 °C<br>/  \      ✓ 6-8 km/h<br>10 km<br>0.0 mm   0% | \  /      Clear<br>- (  ) -   13 °C<br>/  \      ↖ 5-11 km/h<br>10 km<br>0.0 mm   0% |



Sat 04 Feb



| Morning                                                                              | Noon                                                                                | Evening                                                                                      | Night                                                                                         |
|--------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------|----------------------------------------------------------------------------------------------|-----------------------------------------------------------------------------------------------|
| \  /      Sunny<br>- (  ) -   12 °C<br>/  \      ↑ 8-13 km/h<br>10 km<br>0.0 mm   0% | \  /      Sunny<br>- (  ) -   18 °C<br>/  \      ↗ 7-8 km/h<br>10 km<br>0.0 mm   0% | \  /      Overcast<br>- (  ) -   +15(14) °C<br>/  \      ✓ 8-11 km/h<br>10 km<br>0.0 mm   0% | \  /      Overcast<br>- (  ) -   +14(13) °C<br>/  \      ✓ 10-17 km/h<br>10 km<br>0.0 mm   0% |



Location: Casablanca ⵙⴰⵛⵓⵏⴰ ⵏ ⵓⵎⵓⵔ ⵏ ⵙⴰⵛⵓⵏⴰ ⵏ ⵓⵎⵓⵔ, préfecture d'arrondissements de Casablanca-Anfa ⵙⴰⵛⵓⵏⴰ ⵏ ⵓⵎⵓⵔ ⵏ ⵙⴰⵛⵓⵏⴰ ⵏ ⵓⵎⵓⵔ  

  asablanca-Settat ⵙⴰⵛⵓⵏⴰ ⵏ ⵓⵎⵓⵔ ⵏ ⵙⴰⵛⵓⵏⴰ ⵏ ⵓⵎⵓⵔ ⵏ ⵙⴰⵛⵓⵏⴰ ⵏ ⵓⵎⵓⵔ ⵏ ⵙⴰⵛⵓⵏⴰ ⵏ ⵓⵎⵓⵔ [33.5949733,-7.6188008]


```

You must extract and store the following data every day at noon, local time, for Casablanca, Morocco:

- The actual temperature (in degrees Celsius)
- The forecasted temperature (in degrees Celsius) for the following day at noon

Here is an example of what the resulting weather report should look like:

year	month	day	obs_tmp	fc_temp
2023	1	1	10	11
2023	1	2	11	12
2023	1	3	12	10
2023	1	4	13	13
2023	1	5	10	9
2023	1	6	11	10
...	...	...	...	...

**Table 1. Example of weather report**

Feel free to try completing the entire project on your own, or follow the exercises below to guide you through the process. Either way, check out the exercises, hints, and solutions.

**Tip:** At each step of the process, test your code to ensure it does what you intended. For more complicated steps, break the task down into smaller, more manageable steps that you can test individually. You can test code on the command line or by running your script as you develop it. The context will indicate the best approach.

## Authors

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## Other Contributors

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# Skills Network