# Introduction

This team project is an introduction to Project Management, DevOps and Software Development using Scrum and The Agile Methodology. It is important to note that each of these phrases have very specific meanings and that those terms are underpinned by easily accessible, self-guided formal training through LinkedIn Learning or Percipio. Note that the terms must be underpinned by specific knowledge that requires effort to gain. It is important to understand the underpinning knowledge before the team asks questions that depend on it.

## Sample Problem

Build a data pipeline with Python that converts JSON to XML but also stores the data in a SQLite database. Once the data is accumulated, publish some of the data series in a chart using a Django based web server.

The source data is in the Bureau of Meteorology (BoM). Sample source locations will be provided.

The expected outcomes are to:

1. Store and chart the meteorological data over time – for example temperature, wind speed and direction (wind direction must be charted); plus
2. Serve the stored data in response to queries in a web page.

Supplemental to the successful storage and display of the requested data, and if there is time, OPTIONALLY extend the solution to implement these features:

1. Make the external requests concurrent using threads
2. Gather more of the same data from other sources such as Weather Underground; and/or
3. Display a clickable map so that the user can click on a geographic point to view the table of results for that location.

## Problem Description - Technical Aspects

A detailed project summary appears below:

The project is an example of a data pipeline to an aggregating platform. The data is to be browsed in a single user web interface.

The data source is a weather observation derived from Bureau of Meteorology which includes wind direction as words not degrees. Examples:

http://www.bom.gov.au/catalogue/data-feeds.shtml

<http://www.bom.gov.au/fwo/IDQ60801/IDQ60801.99435.json>

<http://www.bom.gov.au/climate/dwo/IDCJDW2801.latest.shtml>

[https://reg.bom.gov.au/products/IDN60903/IDN60903.94926.shtml**#other\_formats**](https://reg.bom.gov.au/products/IDN60903/IDN60903.94926.shtml#other_formats)

<https://reg.bom.gov.au/fwo/IDN60903/IDN60903.94926.json>

Each meteorological data will be collected and stored in a SQL table row, to be viewed later.

Unit and system test cases are expected to be written and executed. Unit tests are expected to pass prior to code being checked in to source control.

The technologies selected are:

* Access to the public internet
* A Kanban board such as Trello
* A source control solution (to be determined – Gitlab or Github)
* Django, SQLite, Chart.js (or another charting framework)
* Python 3.6 programming language; and
* A web browser

Scrum will be used to initiate and deliver the project. Some technical guidance may be available, so please ask. A backlog of features and sprint planning will occur, as will all scrum events.

Everything else team members need to know will be provided in a timely manner or be the subject of self-guided research.