# Workshop 6:

# Data Warehouse Design Documentation

# For Singapore Dengue Insights

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# Data Warehouse Objectives

## 1.1 Introduction

The objectives of the dengue data warehouse are to provide data insights into the possible factors that can affect the spread of dengue outbreak within Singapore. They include time sensitive data such as weather data, dengue clusters data and health data (More details can be found in later part of this document).

# Data Warehouse Design

## 2.1 Design Architecture



The above diagram depicts the overall hardware and software architecture of the data warehouse. The dengue data, weather data and health data are all extracted externally from websites such as data.gov, weather.gov using web scraping scripts and form into their own respective data groupings. They are subsequently subjected to the ETL process at the Data Acquisition Later for further extraction and transformation before loading into the data warehouse proper.

Inside the data warehouse, the ETL process will generate the enterprise data warehouse (depicted as raw data in the above diagram) and subsequently data marts (depicted as summary data) get created from the larger data warehouse. It is in this data mart (summary data) where data gets broken into smaller units to cater for different business user group needs.

## 2.2 Data Dictionary (Metadata) Design

The excel file attached in this document documents the data dictionary design. Click this [link](Data%20Dictionary.xlsx) for the details.

(Note if the link could not be opened, please open the <Data Dictionary.xls> file to view the data dictionary design).

Below is a summary description of the data dictionary which forms part of the metadata management. As the data warehouse is not complex, we did not went ahead to develop the full metadata that includes other aspect of the data warehouse such as names of stored procedure associated with the each of the databases etc.

## 2.1 Data Entity Model

The excel file attached in this document documents the data dictionary design. Click this [link](Data%20Dictionary.xlsx) for the details.



NOTE:

1. The data is daily based, so ETL should do some calculation accordingly.
2. For some data like UV index, need to calculate the max/mean/min Index based on current hourly raw data during ETL;
3. Make very table a file since all the data will be stored in csv files;
4. The region table should include all the regions in Singapore, and also one record is the overall Singapore without specified region, for those table who doesn’t have region information, which means the general Singapore area.

## 2.1 Logical Schema

The excel file attached in this document documents the data dictionary design. Click this [link](Data%20Dictionary.xlsx) for the details.

