**Parking Zone Availability Data- Epic 2**

This package contains processed datasets for integrating parking zone availability into the live Melbourne parking web application. This dataset enables the integration of predictive parking availability into the Melbourne parking application. By combining historical sensor data with geographic zone mapping, it allows the system to estimate the probability of finding a free parking bay in a specific zone at any given time of day. This provides users with forward-looking insights that can help reduce time spent searching for parking and improve overall traffic flow.

**Files Provided**

1. **IT\_zone\_availability\_long.csv**

**Columns**

* Zone\_Number- Unique parking zone identifier
* slot\_30 – 30-minute time slot index (0 to 47) for the day in Melbourne local time
* availability\_rate- Probability (in percent) the zone is unoccupied in this slot, based on historical data
* total\_obs- Number of historical observations for this zone and slot
* Latitude and Longitude – Zone centroid coordinates

**Usage**

Suitable for business intelligence dashboards, historical trend analysis, or flexible queries.

1. **IT\_zone\_availability\_wide.csv**

**Columns**

* Zone\_Number, Latitude, Longitude
* slot\_XX columns (for example slot\_0, slot\_1, …, slot\_47)- Probability (in percent) of availability for each 30-minute slot in the day

**Usage**

Optimised for fast API lookups when the Zone\_Number is known and all slot probabilities are required.

1. **IT\_bay\_to\_zone\_map.csv**

**Columns**

* KerbsideID- Unique identifier for a parking bay from the live API feed
* Zone\_Number- The mapped zone for that bay

**Usage**

Links live sensor data at the bay level to zone-level availability predictions.

**Time Slots (slot\_30)**

The day is divided into 48 half-hour slots:

slot\_0 represents 00:00 to 00:29

slot\_1 represents 00:30 to 00:59

…

slot\_47 represents 23:30 to 23:59

**Integration with Live API Data**

1. From the live API, obtain the KerbsideID for a parking bay
2. Use IT\_bay\_to\_zone\_map.csv to find the corresponding Zone\_Number
3. Retrieve the availability probability
   * Option A: Look up Zone\_Number in IT\_zone\_availability\_wide.csv and select the relevant slot\_XX column
   * Option B: Query IT\_zone\_availability\_long.csv for Zone\_Number and slot\_30
4. Display the probability as the predicted chance that a bay in this zone will be available at the selected time

**Notes**

Probabilities are based on historical sensor data and do not represent live availability

Zone coordinates represent the geographic centroid of the zone and can be used for map visualisation

Zone\_Number values are stored as strings for consistency