**Business Requirements Document (BRD)**

**Project Title:** Forecasting Minimum Temperatures for Planting Decisions  
**Prepared For:** Gardeners, Urban Farmers, City Planners  
**Prepared By:** James Bell  
**Date:** April 2025

**1. Business Objective**

Enable safer, better-informed planting decisions by forecasting minimum daily temperatures for a specific location. The objective is to determine whether freezing temperatures are expected in the near future and to evaluate if weather conditions are suitable for starting or protecting plants.

**2. Problem Statement**

Gardeners and planners often make planting decisions based on historical intuition or basic weather apps. These tools:

* Don’t clearly show the likelihood of freezing temperatures
* Don’t forecast with uncertainty intervals
* Don’t provide a data-driven way to plan ahead for plant health

There is a need for a simple, interpretable forecasting model that helps evaluate temperature safety windows.

**3. Project Scope**

* **Input:** Historical daily minimum temperature data for Melbourne, Australia
* **Forecasting Method:** Facebook Prophet (time-series model)
* **Forecast Horizon:** 30 days
* **Granularity:** Daily
* **Output:**
  + Plot of forecasted minimum temperatures
  + Uncertainty intervals to reflect confidence
  + Summary of insights

**4. Modeling Approach**

This project uses **Facebook Prophet**, an open-source forecasting library designed to handle seasonality and uncertainty. It was chosen for:

* Simplicity and interpretability
* Built-in support for trend and seasonal components
* Clear representation of uncertainty (e.g., 80%, 95% confidence intervals)

**5. Success Criteria**

* Temperature never drops below 0°C in forecasted period
* Forecast provides clear insight into freezing risk
* Stakeholders feel confident using forecast to make planting decisions

**6. Stakeholders**

* **Gardeners / Urban Farmers**: Make safe planting decisions
* **City Planners / Landscape Designers**: Schedule planting windows for community projects
* **Environmental Educators**: Use forecast in teaching seasonal climate patterns

**7. Deliverables**

* Forecast visualization (with uncertainty shading)
* Annotated Jupyter Notebook with code and commentary
* GitHub repository with documentation and structure