# INITIAL API Requirement Overview

A significant part of our development will incorporate the use of API’s. These APIs will call to a variety of services that we are able to use to provide the most accurate and up to date data that we are able to collect as an entity. These will be both paid and free.

Our API focus’ will collect and/or process the following data,

* Weather Telemetry
* Maps/Companies
* Booking
* Payment
* Authentication
* Public Transport

## What are our restrictions/concerns?

### Budget:

Budget is a concern for us as we are not a business with large investment funding. All funding provided by our team members or UTS (if provided) will have to be utilised efficiently and effectively. This limitation leads into our other concern of Manageability.

### Manageability:

While integrating a dozen API’s into one system could be effective in retrieving all forms of data, initially it is not feasible. This is due to both costs and API management. To deal with this, we could create a simple API methods file to which each page could utilise to make requests in a standard format.

## What API’s/Services are available?

* Weather Telemetry
  + <https://openweathermap.org/api> (Free with request limitations): Openweather API provides a substantial amount of data that we can use including the following:
    - Current Weather Data
    - Hourly Forecast for the next 4 days
    - Climate Forecast for the next 16 and 30 days.
* Maps/Companies
  + <https://console.cloud.google.com/google/maps-apis> (Limited credit provided on register) Google provides an exceptional method for map integration as well as relevant company data such as opening hours.
* Booking
  + This will be acquired in Phase 2 of our development.
* Payment
  + This will be acquired in Phase 2 of our development.
* Authentication
  + <https://firebase.google.com/docs/auth> (Free for the first 10k Authentication requests per month) Firebase provides the ability for users to create accounts alongside other services such as Google and Facebook.
* Public Transport
  + <https://opendata.transport.nsw.gov.au/> (Free) TfNSW Open Data Hub provides an extensive amount of data from Transport for NSW. We will be mainly focusing on retrieving accurate public transport data.
* Additional APIs
  + <https://www.tripit.com/developer> Tripit. Further details by David.

## SOAP or REST?

For our system we will focus on REST API’s. The base reason for this is due to the vast majority of API’s now being under a REST architecture. If we require the integration of a SOAP service, we have team members with relevant experience to handle it.

## Test Environment?

For our test environment we will be using Postman. Postman provides extensive functionality for REST API testing. Once we understand an API and integrate the various services into our backend, we will perform further testing to ensure we utilise the data correctly within our program.

## Additional Notes

This document will be continuously be updated as the projects continues. Furthermore, Technical API documentation will be released as we begin to integrate the APIs.