**Sunshine v1.0**

**Functional requirements**

Application icon should be available on the phone screen after installation. I should be able to open it by tapping once. User should be displayed a home screen when the app is opened for the first time. Home screen should contain these following fields:

* Temperature of current user location (displayed in unit from user settings)
* Location (City, Country)
* Current weather details (Wind, Humidity, Pressure, Visibility, Sunrise, Sunset)
* Hourly forecast for the next 12 hours. This should scrollable on the home page if cannot fit in screen
* Next 7 day forecast option
* Hamburger menu on the top left corner to show options to user – (All locations)
* Tabs at the bottom for Home (Selected by default), My Locations, Settings, Profile

**OpenWeatherMap API Specification**

Application should use the “OpenWeatherMap API” to get current weather data by zip code/coordinates and city ID.

* Zip code/coordinates load should be used during first app load – get current location zip code or coordinates (app should have location access)
* City ID load should be done only when client tries to add a new location to ‘My Locations’ section of the app

**Apikey:** xxxxxxxxxxxxxxxxxxxxxxxxxxxx

**Home**

This is the default landing page for the application. Following details should be displayed in the home page:

- Temperature

* If app has active internet connection
  + If app has location access, display temperature of current location
  + If app has no location access
    - My Locations list is empty – Display ‘-‘
    - My Locations list is NOT empty – Display last read temp of first city from the list
  + App has location access
    - Read current user location and display temp of current location
* If app has no active internet connection – Display error banner on the top ‘Check internet connection’

- Display weather state – Clear, Rain, Snow, Clouds etc. under the temperature with proper icon.

- Add panel to display current weather properties in the selected location. Weather properties: Wind, Humidity, WindGust, Visibility, Sunrise, Sunset

- Hourly Forecast – Display hourly forecast for the next 12 hours for selected location

- 7 day forecast – Display 7 day min/max for the selected location

**My Locations**

* My Locations page should have all the locations (cities) that the user has added to the app.
* On clicking the tab ‘**My Locations**’ user should be displayed all the locations in the list. First item in the list should be user’s current location.
* Each location should contain City name, Country Code and current temperature at the particular location with proper icon.
* On clicking any location, user should be shown the home page with the clicked location as selected.
* Home page should now contain weather details about the selected city.
* ‘+’ sign for adding a new city to the list should be displayed to the user on the top right corner.
* On clicking the ‘+’ sign, the user should be presented with list of all cities from the database with the ability to search
* When a city is selected, it should be added to the My Locations list and it should become the selected location for the home screen
* Slide to delete a location. User shouldn’t be able to delete current user location from the list

**Settings**

* User settings should be displayed when Settings tab is selected
* Following configurations should be displayed to user
  + Unit of Measurement – Options (Celsius, Fahrenheit and Kelvin)
  + Hourly forecast – Enabled by default
  + 7 day forecast – Enabled by default

**Account**

* Display user profile when Account tab is selected
* If the user is NOT logged in:
  + Show two options: Sign In and Register
  + Note: Register to sync data between devices
* If the user logged in:
  + Display following user details:
    - Name
    - Email
    - Option to change password
    - Linked devices

**Data**

Cities list:

<http://bulk.openweathermap.org/sample/city.list.json.gz>

Convert json to sql query to insert into database.

Icons with codes:

<https://www.dropbox.com>

**Weather condition codes to icons mapping:**

|  |  |  |  |
| --- | --- | --- | --- |
| Group 2xx: Thunderstorm | | | |
| **ID** | **Main** | **Description** | **Icon** |
| 200 | Thunderstorm | thunderstorm with light rain | http://openweathermap.org/img/wn/11d@2x.png 11d |
| 201 | Thunderstorm | thunderstorm with rain | http://openweathermap.org/img/wn/11d@2x.png 11d |
| 202 | Thunderstorm | thunderstorm with heavy rain | http://openweathermap.org/img/wn/11d@2x.png 11d |
| 210 | Thunderstorm | light thunderstorm | http://openweathermap.org/img/wn/11d@2x.png 11d |
| 211 | Thunderstorm | thunderstorm | http://openweathermap.org/img/wn/11d@2x.png 11d |
| 212 | Thunderstorm | heavy thunderstorm | http://openweathermap.org/img/wn/11d@2x.png 11d |
| 221 | Thunderstorm | ragged thunderstorm | http://openweathermap.org/img/wn/11d@2x.png 11d |
| 230 | Thunderstorm | thunderstorm with light drizzle | http://openweathermap.org/img/wn/11d@2x.png 11d |
| 231 | Thunderstorm | thunderstorm with drizzle | http://openweathermap.org/img/wn/11d@2x.png 11d |
| 232 | Thunderstorm | thunderstorm with heavy drizzle | http://openweathermap.org/img/wn/11d@2x.png 11d |

|  |  |  |  |
| --- | --- | --- | --- |
| Group 3xx: Drizzle | | | |
| **ID** | **Main** | **Description** | **Icon** |
| 300 | Drizzle | light intensity drizzle | http://openweathermap.org/img/wn/09d@2x.png 09d |
| 301 | Drizzle | drizzle | http://openweathermap.org/img/wn/09d@2x.png 09d |
| 302 | Drizzle | heavy intensity drizzle | http://openweathermap.org/img/wn/09d@2x.png 09d |
| 310 | Drizzle | light intensity drizzle rain | http://openweathermap.org/img/wn/09d@2x.png 09d |
| 311 | Drizzle | drizzle rain | http://openweathermap.org/img/wn/09d@2x.png 09d |
| 312 | Drizzle | heavy intensity drizzle rain | http://openweathermap.org/img/wn/09d@2x.png 09d |
| 313 | Drizzle | shower rain and drizzle | http://openweathermap.org/img/wn/09d@2x.png 09d |
| 314 | Drizzle | heavy shower rain and drizzle | http://openweathermap.org/img/wn/09d@2x.png 09d |
| 321 | Drizzle | shower drizzle | http://openweathermap.org/img/wn/09d@2x.png 09d |

|  |  |  |  |
| --- | --- | --- | --- |
| Group 5xx: Rain | | | |
| **ID** | **Main** | Description | **Icon** |
| 500 | Rain | light rain | http://openweathermap.org/img/wn/10d@2x.png 10d |
| 501 | Rain | moderate rain | http://openweathermap.org/img/wn/10d@2x.png 10d |
| 502 | Rain | heavy intensity rain | http://openweathermap.org/img/wn/10d@2x.png 10d |
| 503 | Rain | very heavy rain | http://openweathermap.org/img/wn/10d@2x.png 10d |
| 504 | Rain | extreme rain | http://openweathermap.org/img/wn/10d@2x.png 10d |
| 511 | Rain | freezing rain | http://openweathermap.org/img/wn/13d@2x.png 13d |
| 520 | Rain | light intensity shower rain | http://openweathermap.org/img/wn/09d@2x.png 09d |
| 521 | Rain | shower rain | http://openweathermap.org/img/wn/09d@2x.png 09d |
| 522 | Rain | heavy intensity shower rain | http://openweathermap.org/img/wn/09d@2x.png 09d |
| 531 | Rain | ragged shower rain | http://openweathermap.org/img/wn/09d@2x.png 09d |

|  |  |  |  |
| --- | --- | --- | --- |
| Group 6xx: Snow | | | |
| **ID** | **Main** | Description | **Icon** |
| 600 | Snow | light snow | http://openweathermap.org/img/wn/13d@2x.png 13d |
| 601 | Snow | Snow | http://openweathermap.org/img/wn/13d@2x.png 13d |
| 602 | Snow | Heavy snow | http://openweathermap.org/img/wn/13d@2x.png 13d |
| 611 | Snow | Sleet | http://openweathermap.org/img/wn/13d@2x.png 13d |
| 612 | Snow | Light shower sleet | http://openweathermap.org/img/wn/13d@2x.png 13d |
| 613 | Snow | Shower sleet | http://openweathermap.org/img/wn/13d@2x.png 13d |
| 615 | Snow | Light rain and snow | http://openweathermap.org/img/wn/13d@2x.png 13d |
| 616 | Snow | Rain and snow | http://openweathermap.org/img/wn/13d@2x.png 13d |
| 620 | Snow | Light shower snow | http://openweathermap.org/img/wn/13d@2x.png 13d |
| 621 | Snow | Shower snow | http://openweathermap.org/img/wn/13d@2x.png 13d |
| 622 | Snow | Heavy shower snow | http://openweathermap.org/img/wn/13d@2x.png 13d |

Group 7xx: Atmosphere

|  |  |  |  |
| --- | --- | --- | --- |
| **ID** | **Main** | Description | **Icon** |
| 701 | Mist | mist | http://openweathermap.org/img/wn/50d@2x.png 50d |
| 711 | Smoke | Smoke | http://openweathermap.org/img/wn/50d@2x.png 50d |
| 721 | Haze | Haze | http://openweathermap.org/img/wn/50d@2x.png 50d |
| 731 | Dust | sand/ dust whirls | http://openweathermap.org/img/wn/50d@2x.png 50d |
| 741 | Fog | fog | http://openweathermap.org/img/wn/50d@2x.png 50d |
| 751 | Sand | sand | http://openweathermap.org/img/wn/50d@2x.png 50d |
| 761 | Dust | dust | http://openweathermap.org/img/wn/50d@2x.png 50d |
| 762 | Ash | volcanic ash | http://openweathermap.org/img/wn/50d@2x.png 50d |
| 771 | Squall | squalls | http://openweathermap.org/img/wn/50d@2x.png 50d |
| 781 | Tornado | tornado | http://openweathermap.org/img/wn/50d@2x.png 50d |

Group 800: Clear

|  |  |  |  |
| --- | --- | --- | --- |
| **ID** | **Main** | **Description** | **Icon** |
| 800 | Clear | clear sky | http://openweathermap.org/img/wn/01d@2x.png 01d http://openweathermap.org/img/w/01n.png 01n |

Group 80x: Clouds

|  |  |  |  |
| --- | --- | --- | --- |
| **ID** | **Main** | **Description** | **Icon** |
| 801 | Clouds | few clouds: 11-25% | http://openweathermap.org/img/wn/02d@2x.png 02d http://openweathermap.org/img/wn/02n@2x.png 02n |
| 802 | Clouds | scattered clouds: 25-50% | http://openweathermap.org/img/wn/03d@2x.png 03d http://openweathermap.org/img/wn/03n@2x.png 03n |
| 803 | Clouds | broken clouds: 51-84% | http://openweathermap.org/img/wn/04d@2x.png 04d http://openweathermap.org/img/wn/04n@2x.png 04n |
| 804 | Clouds | overcast clouds: 85-100% | http://openweathermap.org/img/wn/04d@2x.png 04d http://openweathermap.org/img/wn/04n@2x.png 04n |

**OpenWeatherMap API Api Key storage specifications:**

Api Key is considered sensitive and private information and it should never be stored in the database or configuration in plain text. Api Key should be run through a hashing algorithm before storing it anywhere.

**Database**

**Configuration**

Api Key – Hashed apikey should be stored in the database

Endpoint – Endpoint where the api calls should go to. Ex: api.openweathermap.org/data/2.5/

Full URL example: api.openweathermap.org/data/2.5/weather?q={city name}&appid=[{API key}](https://home.openweathermap.org/api_keys)

**User**

ID (pk), First name, Last name, email, password (hashed)

**Device**

ID (pk), UserID (fk or NULL), Model, Manufacturer, Name, Platform, Idiom, Device Type, UnitOfMeasurement, EnableHourlyForecast, Enable7DayForecast

**Cities**

ID, CityCode, Name, State, Country, Longitude, Latitude

Data found at <http://bulk.openweathermap.org/sample/city.list.json.gz>

**WeatherConditionCode to Icon mapping**

**(Code, State, DayOrNight, Description, Icon)**

200 Thunderstorm Day thunderstorm with light rain 11d

201 Thunderstorm Day thunderstorm with rain 11d

202 Thunderstorm Day thunderstorm with heavy rain 11d

210 Thunderstorm Day light thunderstorm 11d

211 Thunderstorm Day thunderstorm 11d

212 Thunderstorm Day heavy thunderstorm 11d

221 Thunderstorm Day ragged thunderstorm 11d

230 Thunderstorm Day thunderstorm with light drizzle 11d

231 Thunderstorm Day thunderstorm with drizzle 11d

232 Thunderstorm Day thunderstorm with heavy drizzle 11d

200 Thunderstorm Night thunderstorm with light rain 11n

201 Thunderstorm Night thunderstorm with rain 11n

202 Thunderstorm Night thunderstorm with heavy rain 11n

210 Thunderstorm Night light thunderstorm 11n

211 Thunderstorm Night thunderstorm 11n

212 Thunderstorm Night heavy thunderstorm 11n

221 Thunderstorm Night ragged thunderstorm 11n

230 Thunderstorm Night thunderstorm with light drizzle 11n

231 Thunderstorm Night thunderstorm with drizzle 11n

232 Thunderstorm Night thunderstorm with heavy drizzle 11n

300 Drizzle Day light intensity drizzle 09d

301 Drizzle Day drizzle 09d

302 Drizzle Day heavy intensity drizzle 09d

310 Drizzle Day light intensity drizzle rain 09d

311 Drizzle Day drizzle rain 09d

312 Drizzle Day heavy intensity drizzle rain 09d

313 Drizzle Day shower rain and drizzle 09d

314 Drizzle Day heavy shower rain and drizzle 09d

321 Drizzle Day shower drizzle 09d

300 Drizzle Night light intensity drizzle 09n

301 Drizzle Night drizzle 09n

302 Drizzle Night heavy intensity drizzle 09n

310 Drizzle Night light intensity drizzle rain 09n

311 Drizzle Night drizzle rain 09n

312 Drizzle Night heavy intensity drizzle rain 09n

313 Drizzle Night shower rain and drizzle 09n

314 Drizzle Night heavy shower rain and drizzle 09n

321 Drizzle Night shower drizzle 09n

500 Rain Day light rain 10d

501 Rain Day moderate rain 10d

502 Rain Day heavy intensity rain 10d

503 Rain Day very heavy rain 10d

504 Rain Day extreme rain 10d

511 Rain Day freezing rain 13d

520 Rain Day light intensity shower rain 09d

521 Rain Day shower rain 09d

522 Rain Day heavy intensity shower rain 09d

531 Rain Day ragged shower rain 09d

500 Rain Night light rain 10n

501 Rain Night moderate rain 10n

502 Rain Night heavy intensity rain 10n

503 Rain Night very heavy rain 10n

504 Rain Night extreme rain 10n

511 Rain Night freezing rain 13n

520 Rain Night light intensity shower rain 09n

521 Rain Night shower rain 09n

522 Rain Night heavy intensity shower rain 09n

531 Rain Night tragged shower rain 09n

600 Snow Day light snow 13d

601 Snow Day Snow 13d

602 Snow Day Heavy snow 13d

611 Snow Day Sleet 13d

612 Snow Day Light shower sleet 13d

613 Snow Day Shower sleet 13d

615 Snow Day Light rain and snow 13d

616 Snow Day Rain and snow 13d

620 Snow Day Light shower snow 13d

621 Snow Day Shower snow 13d

622 Snow Day Heavy shower snow 13d

600 Snow Night light snow 13n

601 Snow Night Snow 13n

602 Snow Night Heavy snow 13n

611 Snow Night Sleet 13n

612 Snow Night Light shower sleet 13n

613 Snow Night Shower sleet 13n

615 Snow Night Light rain and snow 13n

616 Snow Night Rain and snow 13n

620 Snow Night Light shower snow 13n

621 Snow Night Shower snow 13n

622 Snow Night Heavy shower snow 13n

701 Mist Day mist 50d

711 Smoke Day Smoke 50d

721 Haze Day Haze 50d

731 Dust Day sand/ dust whirls 50d

741 Fog Day fog 50d

751 Sand Day sand 50d

761 Dust Day dust 50d

762 Ash Day volcanic ash 50d

771 Squall Day squalls 50d

781 Tornado Day tornado 50d

701 Mist Night mist 50n

711 Smoke Night Smoke 50n

721 Haze Night Haze 50n

731 Dust Night sand/ dust whirls 50n

741 Fog Night fog 50n

751 Sand Night sand 50n

761 Dust Night dust 50n

762 Ash Night volcanic ash 50n

771 Squall Night squalls 50n

781 Tornado Night tornado 50n

800 Clear Day clear sky 01d

800 Clear Night clear sky 01n

801 Clouds Day few clouds: 11-25% 02d

802 Clouds Day scattered clouds: 25-50% 03d

803 Clouds Day broken clouds: 51-84% 04d

804 Clouds Day overcast clouds: 85-100% 04d

801 Clouds Night few clouds: 11-25% 02n

802 Clouds Night scattered clouds: 25-50% 03n

803 Clouds Night broken clouds: 51-84% 04n

804 Clouds Night overcast clouds: 85-100% 04n

**API Response structure in JSON:**

<https://openweathermap.org/current#parameter>

**Audit and Logs:**