# Lab 8 – Tide Prediction App with a Web Service

CS235AM, Intermediate Mobile Application Development: Android

## Overview

This lab will give you practice using a Web Service in conjunction with SQLite and the SQLite.NET ORM.

## Tide Prediction App with a Web Service

### Requirements

This app is an enhancement of the previous version of the Tide Prediction App. It will display a list of all locations for which there are tide predictions for our state (or another state if you prefer). The user will be able to select a location and date, then the app will display the tide predictions for that location and day.

The predictions will be downloaded form the NOAA web service unless they are already stored in the app's database. When new predictions are downloaded, the predictions for the selected location, for the rest of the current year, will be added to the database.

### Implementation

Implementation details:

- Tide station information will be preloaded. You can hard-code the tide stations or, better yet, put them in a table in your SQLite database (this will make updating easier).
    - Include the following information for each station:
        - Location name
        - Station ID
        - Latitude and longitude (so you can add a geo-location feature to this app later)
    - Only the "Harmonic" stations have predictions available via the web service. You can get the list of NOAA Tide Prediction Stations for Oregon here:
      http://www.tidesandcurrents.noaa.gov/tide_predictions.html?gid=1409#listing
- Tide predictions will be downloaded from a NOAA CO-OPS Web Service. There are both a SOAP web service and a quasi-REST web service. For this project you will use the Rest-like service, which is described here: https://tidesandcurrents.noaa.gov/api/
    - Before calling the web service, the app will check to see the requested data is in the database.
        - If it is, then the predictions from the database should be displayed.
        - Otherwise the predictions for the rest of the year, for that location, should be downloaded from the web service, stored in the database, and the requested predictions displayed.
    - The REST web service can return tide predictions in a variety of formats (XML, JSON, or CSV). Use the REST web service and request data in any of the three formats that you prefer.

<u>Submission</u>

*Beta Version*

Post the following to the Beta + Code Review Forum:

1) A zip file containing your app's Visual Studio solution folder. (Make your solution smaller by deleting the *obj* and *bin* folders.)
   Or, optionally, a link to a repository containing your solution source code.

*Production Version*

1. Item 1 above, but revised as needed.
2. The code review of your work (the one done by your lab partner) with the second column ("Release") completed by you.