Lab 7 – Tide Prediction App: SQLite Database

CS235AM, Intermediate Mobile Application Development: Android

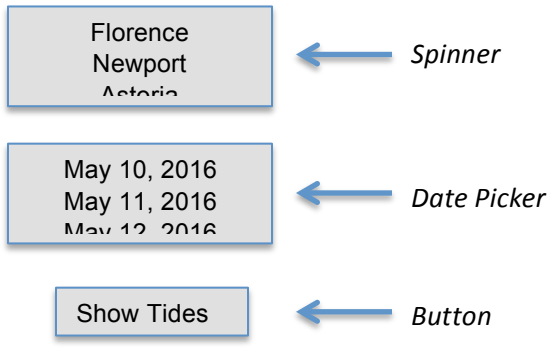
This lab will give you practice using an SQLite database and the SQLite.NET ORM,

Requirements

Modify the Tide Prediction application from lab 4 so that users can:

- Pick a location, from a list of at least three locations, for tide predictions.
- Select a date and see at least one day's high and low tides starting at midnight on the selected date.
- The tide chart will be shown on a second screen.

The annual tide predictions for each location will be pre-loaded into the application.

<table>
<tr><th>First Activity</th><th>Second Activity</th></tr>
<tr>
<td> 
</td>
<td>ListView
<table>
<tr><th>Date</th><th>Day</th><th>Time</th><th>Height</th></tr>
<tr><td>05/11</td><td>Wed</td><td>03:56 AM</td><td>7.02 H</td></tr>
<tr><td>05/11</td><td>Wed</td><td>10:52 AM</td><td>-0.73 L</td></tr>
<tr><td>05/11</td><td>Wed</td><td>05:39 PM</td><td>5.96 H</td></tr>
<tr><td>05/11</td><td>Wed</td><td>11:05 PM</td><td>2.72 L</td></tr>
<tr><td>05/12</td><td>Thu</td><td>04:53 AM</td><td>6.37 H</td></tr>
<tr><td>05/12</td><td>Thu</td><td>11:48 AM</td><td>-0.18 L</td></tr>
<tr><td>05/12</td><td>Thu</td><td>06:39 PM</td><td>5.85 H</td></tr>
</table>
(The information shown above is required, but the layout and format are optional)</td>
</tr>
</table>

Implementation

Use an SQLite database file instead of a text file to provide tide information for the ListView in your app. Your app's database will have one table containing all the annual tide prediction information for all the tide stations.

Prepare an SQLite database file by writing a console app that will pre-load the SQLite database file with tide information that you have downloaded from http://tidesandcurrents.noaa.gov/tide_predictions.html?gid=1409 Put the database file in the assets folder for your project so that it will be deployed to the device with the app (as part of the apk).

The location and date-time selected in the first activity will be sent to the second activity in intent. In the second activity, the database will be queried (via SQLite-Net) to get the tide prediction data that will be displayed in the ListView

Group A: Your console app will preload a database file from annual tide prediction files formatted as tab separated values (downloaded from NOAA using the TXT button). Each date and time will be stored in two or more separate fields in the database. Use strings and/or numbers, as you deem appropriate. Hint: Use the DateTime Structure to parse and reformat the date and time, https://msdn.microsoft.com/en-us/library/system.datetime(v=vs.110).aspx.

Group B: Your console app will preload a database file from an xml annual tide prediction file. Each date and time will be stored in the database in one field as a long integer. Hint: Use the DateTime.Ticks property, https://msdn.microsoft.com/en-us/library/system.datetime.ticks(v=vs.110).aspx.

Review and Submission

Zip the beta version of the solution (after removing the bin and obj folders) and e-mail it to your code-review partner. After getting a code review, revise your code and upload it to Moodle.

Written by Brian Bird, Lane Community College, Summer 2014, updated Spring 2016