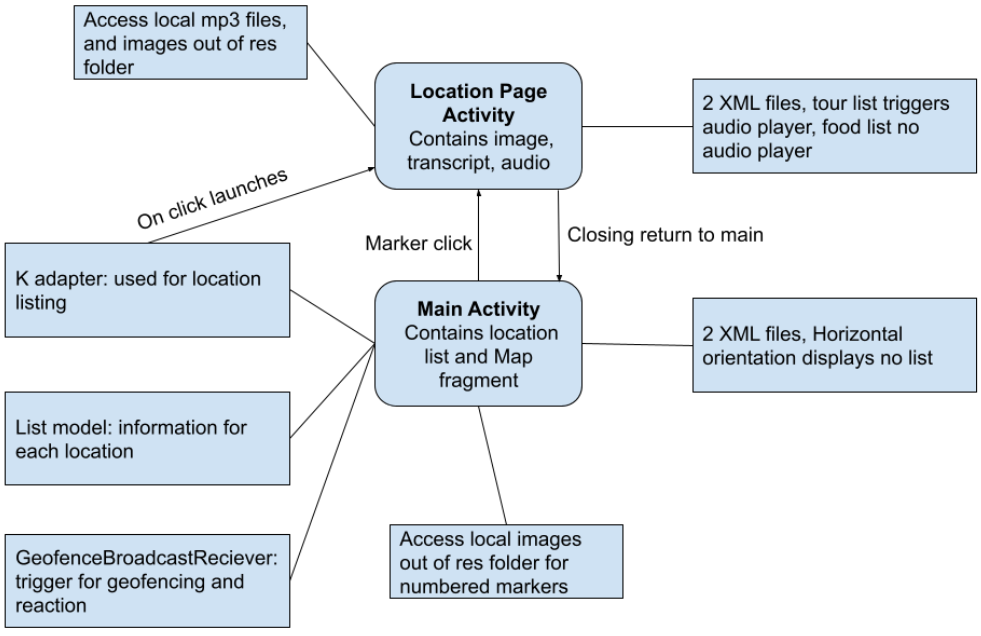
BSU Tour App Architecture Design

When designing our app we decided to use the 2nd homework as a starting point. The Main Activity has two XML files that it will use depending on the orientation of the phone screen. A list is displayed at the bottom of the screen when the phone is in portrait mode, else just the map is used for the horizontal orientation of the main activity. This also included an Adapter class that we used for generating a scrollable list of locations on campus.

Using the on click feature of this class allowed us to launch a second Activity when an item on the list was clicked. The Second activity that get launched is the location information page. This activity used two different XML files depending on which list we have selected on the app. If Campus Tour is selected then an XML with an audio player is used, otherwise an XML without an audio player is used. Rather than having the second activity use an intent to relaunch the main activity we chose to simply end the second activity when the user was done and that returned us to the main activity.

The second way we can access the second activity is using the map. The majority of the main Activity page is used by a google map fragment that is generated in the main Activity class. The map contained markers generated using the list model class and getting exact location information from the data class objects of each location. Instead of directly opening the second activity the marker click will create an alert dialog that prompts the user to choose between going to the second activity or staying on the main activity with the map and list.

While we don't end up using a lot of different classes we do have many functions that are being used in the main activity to handle a majority of the program. Things such as marker generation and click listeners, Location checking and instance saving. Below is a



Class functions

Main Activity

- On Create
  - Use xml depending on phone orientation, load intent, generate location list, start adapter and recyclerview to create and display scrolling list of locations. Support spinner and reload if selected list changes. Generate map fragment and map.
- onMapReady
  - Enable map controls and marker Listener, display fence parameter, Add markers to map from listmodel. Orient map by previous location.
- setUpMap
  - Check if user is on campus using location and reorient map occurdenly
- enableUserLocation
  - Checks if the program has permission to use user location data, if not it requests permission.
- onMarkerClick
  - Creates intent to open Location page and passes in location summary, image, and position information
- onSaveInstance
  - Stores camera position and location list
- isinsideCircle
  - Checks if provided location long lat are within a desired radius

ListModel

- Contains All location data references. Initializes a list depending on current selected list from spinner in Main activity.

KAdapter

- onCreateViewHolder
  - Create a view holder to display current visible locations in list
- getItemCount
  - Get size of list
- onBindViewHolder
  - Sets view of list,
- onClick
  - Toggles background when location clicked on list, generates intent to Location Page and activates intent.

LocationPage

- OnCreate
  - Loads intent datasets up audio player, loads audio file and loads and display image file. Sets up audio controls and displays, sets up back button to return to main activity.
- OnPause
  - Pauses audio player