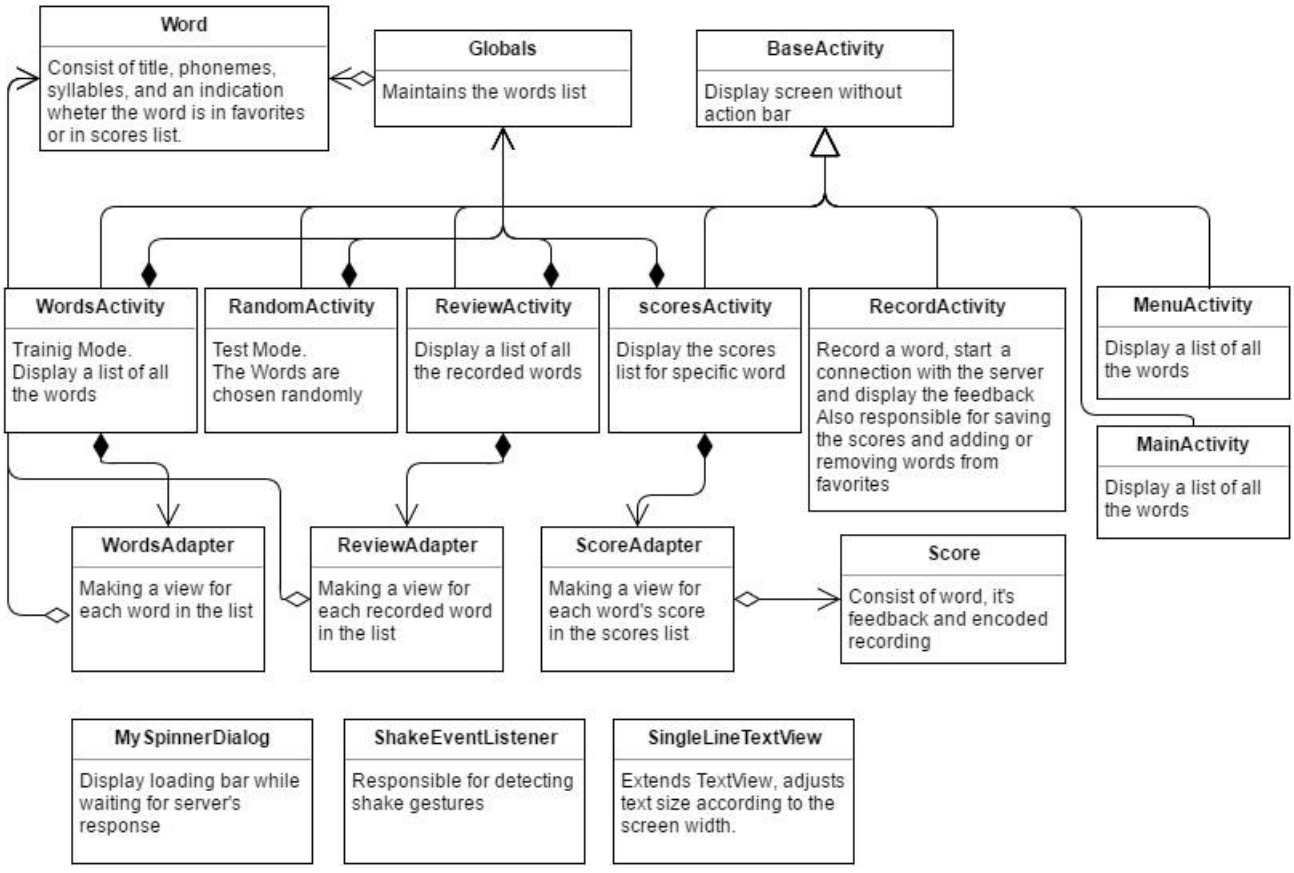
Application Architecture

1 Code Structure



2 Application Data Handling

The application holds a file of items representing words. Each item consists of the word, its phonemes and its syllables. We use the syllable for representing the part of the word that matches each phoneme.

```
shall  /sh ae el /sh a ll
shallowness  /sh ae el ow en ih s /sh a ll ow n e ss
shame  /sh ey m /sh a me
shampoo  /sh ae m p uw /sh a m p oo
```

When opening the app, the words are loaded from the file to a list, so that every access to the words is through that list. The favorite words are saved as a list in shared preferences. When marking a word as favorite it is added to the saved list.

3 Connection with the server

After recording a word, pressing 'submit' will start a connection with the server. The application will send the recording in wav format along with its phonemes and the server will return the scores feedback in string format.

4 Displaying feedback

The application splits the string received from the server into scores for every phoneme, and colors each matching syllable according to the threshold: 0-0.6: bad, 0.6-0.8: medium, 0.8-1: good.

For Example:

Scores for the word shampoo: 0.5, 0.4, 0.9, 1, 0.7, 0.9, 0.8

The feedback:

5 Scores Tracking

For each record that was submitted and got feedback we save the record and its score for future review. The wav file is encoded to string and saved in shared preferences along with the scores string, and when watching the scores the record is decoded back to wav file.