Second Iteration Report

**User Stories Completed:**

* Additional word set of 10 words ("nonliving things medium")
* Additional score metrics: total score, high score for each set, longest streak
* Gamification elements with score: star system displayed on pick set screen to show previous achievement for each set (1 star for 60% of words, 2 for 80%, 3 for 100%)
* Gamification element: End of set results screen
* Allows for dynamic addition of sets or items to sets without modification of app, purely by uploading to S3 and modifying 2 text files
* Persistent storage of scores across app instances (using an SQLite database)
* Text-to-speech for hints (1 hint, 2 rhymes, and the word itself)
* New unified design and color scheme
* Animations for pictures

**User Stories Planned But Not Finished**

* We planned to add additional score metrics, like streaks per set, speed, efficiency, but didn’t have time to implement them

**Known Application Bugs**

* If the user selects the set and hits start too fast in the PickSet activity, or if the user hits skip too quickly in the MainActivity, the app will not have time to download the images and words and may fail to update the image or may freeze
  + To fix this, we can implement some Loading indicator that prevents the user from clicking before the app is ready

**Unit Tests**

Unit tests were written for each of our Activity classes, PickSet, MainActivity, and EndSet. The tests evaluated components like the handling of intents at the start of activities, the finishing of activities, the successful download of files, words, and hints through AsyncTasks, as well as evaluated the internal states of the Activities.

Unit tests could not be written to test the SQLite database because we could not determine how to obtain a valid context in the testing environment to use for database creation. Unit tests for the speech recognition and image correctness could not be written because we could not find functionality built into the testing environment that would allow us to test them.

To more completely cover more difficult test scenarios (like UI elements), we have written a list of specifications which can be followed:

* PickSet Test
  + Open the app
  + Select a stimulus set and difficulty (for example, "Non living things", "easy")
  + Click the "Start" button
  + **Assert:** the app should launch the MainActivity, and the first picture should load (for nonliving things easy, a picture of a banana)
* Phrase Hint Test
  + Beginning from the MainActivity screen, select the "Phrase" button
  + **Assert:** A text-to-speech hint involving the use of the word in a phrase should be played
* Rhyme Hint Test
  + Beginning from the MainActivity screen, select the "Rhyme" button
  + **Assert:** A text-to-speech hint involving a rhyming word should be played
* Word Hint Test
  + Beginning from the MainActivity screen, select the "Word" button
  + **Assert:** A text-to-speech hint that says the word answer should be played
* Skip Test
  + Beginning from the MainActivity screen, select the "Skip" button
  + **Assert:** You should be taken to the next image in the set
* Correct Speech Test
  + Beginning from the MainActivity screen, select the microphone icon
  + **Assert:** Google's Speech Recognition popup should display, requesting that you speak into the microphone
  + Say the correct word into the microphone
  + **Assert:** You should see a popup that says "Correct", has a checkmark, and has text displaying the word it thinks you said. The popup should give you one button option to continue to the next word
  + Click the "Continue" button
  + **Assert:** You should be taken to the next image in the set
  + **Assert:** Your score in the upper right hand corner should increment by (3 - the number of hints used).
* Wrong Speech Test
  + Beginning from the MainActivity screen, select the microphone icon
  + **Assert:** Google's Speech Recognition popup should display, requesting that you speak into the microphone
  + Say an incorrect word into the microphone
  + **Assert:** You should see a popup that says "Not Quite", has an X, and has text displaying the word it thinks you said. The popup should give you one button option to try again.
  + Click the "Try Again" button
  + **Assert:** You should be taken back to the previous screen (same image in the set)
  + **Assert:** Your score in the upper right hand corner should remain unchanged.
* End of Set Test
  + Beginning from the MainActivity screen, keep clicking the "Skip" button (slowly, too fast and you may induce one of our program faults) until you reach the end of the set
  + **Assert:** the EndSet activity should be launched (an end screen listing the name of the set you just completed, along with score information)
  + Click on the "Finish" button of the end set screen
  + **Assert:** you should be taken back to the PickSet screen as the EndSet and the MainActivity both finish