# Functional Properties

1. **Listening Skills Development**

1.1 The application must be able to present at least two words with appropriate difficulty for the user’s level.

1.1.1 The application must be able to play the audio for any of the words presented.

1.1.2 The application must be able to prompt the user to select the word chosen and select the correct answer.

1.1.3 The application must be able to assess the chosen answer and display the correct answer.

1.2 The application must be able to present words with higher difficulty when given a choice to level-up. E.g. “b\_occo\_i” and the two buttons would be r and I respectively.

2. **Speaking Skills Development**

2.1 The application must be to present a word with appropriate difficulty for the user’s level.

2.1.1 The user must be able to press the record button to pronounce the word.

2.1.2 The application must be able to compare the result of the recorded word with the voice recognition and assess the level of accuracy.

2.1.3 The application must be able to play the correct pronunciation of the recorded word if prompted by the user using the voice recognition system.

**3. Tracking Performance**

3.1 The application must be able to track the performance of each user based on both Listening and Speaking skills.

3.1.1 Overall accuracy of both Listening and Speaking skills.

3.1.2 Accuracy per word or word pair

3.1.3 Accuracy over each session.

3.2 The application must be able to track the time each user spends on the application and compare it to their performance on both Listening and Speaking

**4. Point/Reward System**

4.1 The application must be able to award points to user accordingly based on the difficulty of the word pair or word.

4.2. The application must be able to provide an interface to allow the user exchange points for digital badges, titles, dancing animations, or maps.

**5. Practice Schedule**

5.1 Allows the user to schedule for practice of Listening/Speaking skills development.

5.1.1 The users are able to set the date and time of the practice schedule and extra options like daily, weekly, or monthly must be included.

5.1.2 The application must be able to push notifications to remind the user.

**6. Language Pack / Adaptive Plan**

6.1 The application must be able to provide extra Language packs that includes specific types of words / word pair or syllable focus for users who speak different languages.

6.2 The application must be able to make changes to the words or word pair used to focus on specific words that the user struggles with.

**7. Multiple users per account**

7.1 The application must allow each account to have up a maximum of 5 users.

7.2. Each user must be able to upload his/her profile picture.

7.3. Each user must be able to set his/her username and native language.

7.4. Each user under the same account must be able to see his/her own and each other’s performance.

**8. Interactive Game between multiple users(?)**

8.1 The application allows users with different devices to interact with other.

8.1.1 The application allows one of the user to record another user’s reading, and another user to pronounce what was recorded.

# Non Functional Properties

**1. Efficiency**

1.1 The application must respond within 2 seconds after the user recorded the word using the voice recognition.

**2. Extendibility**

2.1 The application must be able to be scaled up or down for adding or removing of language packs.

**3. Evolvability**

3.1 The application must be compatible with Android 4.4 to Android 6.0.1

3.2 The application must be compatible with iOS 8 to iOS 10

**4. Accessibility**

4.1 The help text must be provided in English.

5. Scalability

5.1. The application must be ready for scaling for multiple user interaction through the internet.

**6. Security**

6.1 The application must hash the stored password in the local memory.

6.2 The application will be able to use fingerprint authentication.