

## Working Prototype Known Problems Report

- **List of functions not working correctly (can lose up to 20 points):**
  - In general, there are some possible sync problems in loading initial information
    - Input/action: loading app
    - Failure: sometimes name or various saved choices such as preferences will not load properly
    - Location: Lobby page or Edit Profile mainly
    - Possible solution: Thorough trace through and cleanup of async tasks? May need major changes.
  - Avatars unused at the moment
    - Input/action: Choose an avatar which saves it
    - Failure: We do not utilize it anywhere else in the app yet
    - Location: EditProfile
    - Possible solution: More time
  - If user types past the resolution of their screen the text may not automatically scroll down.
    - Input/action: User types long string in chat.
    - Failure: Text will not automatically scroll down.
    - Location: MatchedActivity Chat Page
    - Possible solution: Research for an Android method that fixes this.
  - User preferences is sometimes finicky
    - Input/action: Clicking on Preferences button.
    - Failure: Old Preferences will be inaccurate?
    - Location: LobbyActivity Chat Page
    - Possible solution: This might have to do with local changes and remote changes not being sync'd completely.
  - Firestore database is public read/write mode
    - Input/action: None
    - Failure: Security
    - Location: Firebase Server
    - Possible solution: Change permissions.
  - Phone crashes/emulator crashes don't delete user from database.

- Input/action: Close emulator or crash phone without going through the proper lifestyles
  - Failure: User will still be seen as online.
  - Location: LobbyActivity, MatchedActivity, and Firestore
  - Possible solution: Not sure, there might be a way for google to check through Firebase.auth.
- Firestore Database may not properly delete documents that should be cleaned up
  - Input/action: Chatroom, Phone crash/emulator crash
  - Failure: We do not always properly delete created documents
  - Location: MatchedActivity
  - Possible solution: Find a solution to the above and also properly create a delete method to clean up once user does leave.
- When there's a lot of users, it doesn't scroll down automatically, so we do not realize they may be online.
  - Input/action: Many users come online.
  - Failure: App user may not realize they are there since it doesn't automatically scroll down. Visual indications of scrolling being available also missing.
  - Location: LobbyActivity
  - Possible solution: Better UI and need to research the scrolling solution.
- Scrolling in general
  - Input/action: Scrolling
  - Failure: Sometimes not smooth and jumps down a bit from top of screen
  - Location: Edit profile page and lobby page, observed on emulator
  - Possible solution: Not sure at this time, it may be an emulator or there may be an option to smoothen/slow-down scrolling.
- SUT and tests have many bugs because they are incomplete.
  - Input/action: Running Activity Tests that interact with the User info.
  - Failure: May have real user info show up or null values which fail tests instead.
  - Location: androidTest folder, relevant activity tests
  - Possible solutions:
    - Complete mocking of behaviors and test the SUT system.
    - Fix the system so that we can inject dependencies.
    - Fix the system to handle errors that are causing inconsistencies.

- Spend a lot more time on it, as required.
- Espresso Tests may be a buggy
  - Input/action: run tests
  - Failure: test fails despite expected behavior
  - Location: ActivityTests
  - Possible solutions: Largely due to a shaky understanding of the lifecycle of test, i.e. order of execution, which will likely cause unexpected test behaviors if we expect the Activity to be rerun or the intents cleared, which they are not. And due to the SUT along with system flaws, as mentioned above.
- Match button clicking may not function correctly
  - Input/action: Clicking on match button
  - Failure: Queue/Online status sometimes inconsistent. Further behaviors may be at issue.
  - Location: Lobby Activity
  - Possible solutions: Code perusal and time
- Server can only process a certain limit of characters
  - Input/action: input over the character limit
  - Failure: Server truncates it so user may not expect this
  - Location: Chat
  - Possible solutions: Guard statements to let users know about truncated messages
- Notifications may crash emulator/device or cause lost chat messages
  - Input/action: match or have a chat while in background
  - Failure: Server truncates it so user may not expect this
  - Location: App not in foreground or if come back to chat
  - Possible solutions: More research and static reviewing of code. Could partly just be this type of Android notifications, which is currently depreciated.
- Not being online will cause tests to break. May crash user.
  - Input/action: Trying to use the app without internet
  - Failure: Test breaks. May indicate that app will crash or stall as well
  - Location: Anywhere
  - Possible solutions: Guard statements
- If the user minimized the app while matching is happening, is matched with another user, and doesn't reopen the app after matching, they will not receive any messages sent to them during that time window.
  - Input/action: minimize app while waiting for match then match and receive messages before reopening the app.

- Failure: messages received during that time are lost.
- Location: LobbyActivity / When app is minimized.
- Possible solutions: create the MatchedActivity in advance before the user reopens the app.
- If running on a version of Android API 26 or newer, notifications may not fire.
  - Input/action: Minimized app while in the chat activity
  - Failure: No notification is shown, and error message may be shown.
  - Location: Lobby Activity/ Matched Activity / when app is minimized.
  - Possible solutions: Use the newer implementation of notifications that uses Channels.