

## **‘Statfinder’ Higher Order Testing**

John Du, Mitch Holm, Shawn Nirappil, George Lo, Joe Coy,  
Michael Crabill, Timothy Vincent

Numeric rating	Severity Scale
1	Critical
2	Important
3	Workaround

Each test consists of parts:

- A. Entry #
- B. Description
- C. Severity

Usability		
Entry	Description	Severity
1	App should not crash when submitting question	1
2	App should not crash even if GPS is off	1
3	App should not crash if using android API 16 (specified min version)	1
4	App should not crash if using android API 23 (specified target version)	1
5	If the app has crashed, then the user should be able to reopen it (without clearing cache)	2
6	App should not crash when the user attempts to view the history	2
7	User should be able to sign in with Facebook simply by clicking on the sign in button	1
8	The question should be displayed in a reasonable format	3
9	The location results should properly display the user's location	2
10	Clicking an item in the navigation drawer should bring up the corresponding activity	2
11	Questions should only appear once	2
12	Users should only be able to respond to a question once	3
13	Settings should be saved after closing and reopening the app	3

14	All buttons function as intended	3
15	App should not just randomly crash for no reason	1
16	The searching function should not just match the first letter	2
17	History should be sorted	3
<b>Security</b>		
1	App should not be vulnerable to man-in-the-middle attacks (should reject connections with invalid / unknown SSL certificate, authority, hostname, signature)	2
2	The application's local data storage should not store/contain any sensitive information (unless encrypted)	2
3	There should be input validation for every single input that appear in the app	2
4	A non-privileged user should not be able to reset the entire database	1
5	App should not have any built-in backdoor	2
Most security is handled by Firebase and Facebook, and there is no central server. Therefore it will likely not be feasible to find any other security related vulnerabilities without looking through the source code of the app.		
<b>Performance</b>		
1	UI should not lag when opening menus	3
2	UI should not lag or freeze when rendering (result) pie chart for each question (should use lightweight rendering engine)	3
3	Every single button in the app should be responsive at all times, even in the case of OS warning low memory (should free up other unused resources at that moment and let the button be responsive still)	2
4	App should not have memory leaks which can potentially result in poor performance	2
Further performance testing will likely be dependant on Facebook and Firebase, and thus have more capability than users can use.		
<b>Volume</b>		
1	The app should be able to handle 1000 answers without crashing, dropping or mutating data	2

2	User should be able to input a large number of text in a question (at least 1000 characters) without crashing	2
<b>Stress</b>		
1	The app should not crash on devices with insufficient computational resource (i.e. on an Android simulator with a limit of 128 MB of RAM)	2
2	The app should not crash when the user (spam) tap on the menu button for a certain duration (i.e. 5 sec)	2
3	The app should be able to handle 10 answer submissions per second without crashing, mutating or dropping data.	2