Grey Box Testing

This is a list of rough notes done for the initial testing with students that study computer science or multimedia and computer science in 2nd/3rd year. The students all tested the application on my laptop to reduce the hassle of having every tester downloading it on their own device. I will test this across platforms myself.

I made sure that all the students have used a windows OS and was comfortable with the whole process before going forward. Some of the students has some knowledge on auditory displays. We had an interaction design module in 3rd year that briefly talked about that, so this also helped the 3rd year students I ran the testing with to understand my application.

Test 1

Tested by a computer science and multimedia student

- Starts filling in the cue sheet using the example entry as reference
- Fills in with detail each cell in the row
- Fills in a row incorrectly. Application crashes and they have to redo what they wrote. User expresses exasperation in having to fill it all out again
- After a while starts filling in less for each row and writes random letters instead
- "How do I know what to write for the cause and associated events?"
- "What is the difference between a scenario and event?"
- Suggested that the layout of the cue sheet should be bigger
- They had to ask me how to add in sound, after explaining they need to double click, they had no problem after
- Adding sounds was an easy task, I had informed them it had to be a WAV file. Need to make this obvious in the future, as nothing states file format currently
- Had to explain the scenario vs event concept through demonstrating how a row is filled out
- Had no problem with saving the cue sheet. They initially thought the timeline could also be saved.
- The buttons for the timeline was very clear. They could play, pause and stop the sound. As well as turn the volume up and down.

- User looked at timeline and cue sheet to check that they correlated.
- They would make changes in cue sheet and see the expected change when they plot the timeline again
- "Can this be saved in any other format?"
- Could successfully save the cue sheet, make changes after and load the saved cue sheet back up to get the original
- I asked if they saw the external media player to which they said no. Although, they expressed that it was useful to test individual sounds
- Overall, they filled in a cue sheet successfully, plot a timeline, make changes, and save the cue sheet
- Certain points of use they were confused by what the buttons or cue sheet columns meant
- Users could be given a whole example cue sheet beforehand so they understand how to fill it in based on a full example

Test 2

Was done as a pair of computer science and multimedia students

- Asks a quite a few questions on what to fill into cue sheet
- Saw the external player that was loaded and asked what it was. Explained it was to test individual sounds.
- They tried to follow the scenario when using this for car dashboard, to see how a designer in this field may use it
- Crashed the application and had to refill, they just filled it in randomly the 2nd time
- Discussions between both participants on what was appropriate to fill in the table
- Asked me what the cause and associated events was
- User 1: "Do you have to fill in the cause and associated?"
- I had to give them a list of what they could fill in for the cause and associated field
- Users expressed the tediousness in having to write out the cause and associated events. Suggested possibly a drop-down list of options.
- Crashed the application when the time field format was incorrect for one of the rows. Had to start all over as no progress had been saved yet.

- User 1: "What exactly is an event? Could I have multiple events each row? How does somebody else looking at it know they are multiple events and not the same one with just multiple sound files?"
- Each time they entered in a row, they would plot on timeline to view current progress
- No problems using the buttons to play and stop the sound.
- Asked the purpose of the timeline – the timeline could not be manipulated currently
- Wanted to switch around 2 rows, but couldn't do that
- User 2: "Can I close this sound player?" Closed the external sound player because they didn't need it. They said they didn't want to have multiple windows open.
- User 2: "Adding in a sound is not very obvious … maybe add some instructions"
- User 1: "Can I reuse sounds … Where can I add the sounds, I find online?"
- Selection issue when adding sound. They kept adding via name of file than path. Not clearly specified on interface
- User 2: "Oh, it has the file type set already, so I just go with that format if I am correct?"
- I showed them that as CSV format they could view it on excel spreadsheet. They mentioned how this was a good way to look over all the information if other people don't have the application.
- Created another quick cue sheet with just 2 rows and saved it. Loaded the first cue sheet back up – No problem. Then opened the 2nd cue sheet – No problem.

Test 3

Was done as a pair of computer science students

- Took turns in filling out rows of the cue sheet.
- They discussed what they thought the cause and associated events meant and attempted to fill it out. After a while I informed them of the purpose and gave them a list of what they could fill it in using. Again, they discussed the options and tried to decide which was the most logical to fill it in with.
- Added quite a few rows and extra columns for sound, so the layout was becoming quite compact and confusing to read from
- User 1: "Can we make the size of the table (cue sheet) bigger?"
- User 2: "Could we just write the path for a sound file we wanted that's not in the database" – Note: in theory this does work as the system just takes in path sound files.

The database is used as a way to store everything in one location and ensure the user has the correct sound file path in the column.

- User 2: "How many rows and columns could we add?"
- Added multiple columns and filled it in with different sound files – No problems
- User 2: "The timeline is a bit difficult to read from" – referring to the intervals
- Made a mistake when adding a sound file that was not WAV to the table. No delete sound file button implemented yet.
- User 1: "How do I change the sound file? I filled in the scenario in the wrong row can I move it?"
- User 2 mentions that the names of the buttons for the cue sheet are a bit confusing and long. Possibly shorten them to improve.
- Users enjoyed experimenting with the various sounds to find a combination. Could see the use for the application. Mentioned how it is similar to programs like Audacity.
- Buttons all responsive. Loads instantly when clicked on
- They could relate the events on the timeline with those on the cue sheet. No problem in finding the scenario to edit when wanting to edit something on the timeline.
- Was a bit of a struggle for the users to find the stop and start times on the timeline because of the intervals. Possibly make intervals shorter so the time is more visible, considering majority of sounds are fairly short.
- Tested individual sounds in the external player. Found it a useful tool to check individual sounds. Was not very clear in how to use it. Accidentally. Closed it and could not open it again unless restarting the whole application – add button to open this back up as improvement
- Saving the cue sheet was straightforward, they selected where to save and filled in the name. They did not look at what file type they saved it in.
- They attempted to open the file they had saved, but accidentally clicked on the wrong file which crashed the application
- Loaded the application up and chose the saved cue sheet to load it up. There were no issues found.
- Saw that there were cue sheets from previous participants and loaded them up into the cue sheet and pressed plot. No issues found.

Test 4

Tested by a computer science student who is proficient at building desktop applications

- User: "Can you move around rows?"
- They copied and pasted the information to move them around.
- Checked the delete row function was working by adding I some rows, filling them in and selecting a random one in the middle to delete. It successfully shifted up all the rows below
- Like previous tests they asked what the cause and associated events meant
- Did not fully understand the purpose of this column at first, until they opened up the sound suggestion dialog
- Filled in as much detail as they could for each row
- Students mentions how the cause and associated events make it seem like you can add multiple ones of each. It does not reflect what is seen in the sound suggestion dialog
- Experimented with the sounds using the external player to see which one they liked
- Asked whether the application could be used on different OS – the programs have all used stated they can be, but with no available device it is a grey area.
- Filled in a cue sheet and saved it. Restarted the whole application and loaded up the saved cue sheet – No problems found
- The user mentions the 2nd time loading up the application is faster
- User plays around with the previous cue sheets created by testers. Opens them up and opens it in excel to check that they correlate. Edits them and saves them replacing the old one. Opens it up in excel the file that has be overwritten and all looks correct.
- User: "Why can't other sound formats be used?" – I explained to them that this is the format PyDub (sound converter) uses. Raises good point of looking for an option to use multiple sound formats for better usability. MP4 is another popular sound file format used. Would be tedious for user to convert to use the application
- The user had no problem using the buttons under the timeline to control the sound
- They explored the taskbar at the top, but currently there were not many functions besides open cue sheet, save cue sheet and close application.
- User suggests that a help tab could be added, so user can lookup functions they are unsure of in the application instead of a written manual.
- Asked how Database is linked – currently written inline was my DB details

- Again, wording of cue sheet buttons could be more concise
- Timeline intervals were an issue that was brought up. Although, user mainly just looked at the time they wrote in the cue sheet and the time for each sound in the sound suggestion dialog. Had not put much thought other than listening to the sound sequence
- Played around with lots of different sounds to listen to how the different combo's sound like.
- Mentioned in discussion the use of error messages will be useful for the application to inform the user clearly what they have to fill-in

Test 5

Tested by a multimedia student

- User looked at the different functions of the whole application before jumping into using the application. Asked a couple questions such as what each column meant and how the timeline is generated.
- The user starts filling in the cue sheet but leaves the sound file column out at first. Later they ask how to add the sound files into the cue sheet – became clear the layout of the cue sheet was not obvious in how to add sound files
- User: "A button may make it more obvious how to upload sound … There should be a max number of sound columns or else the table will get very big"
- The scenarios plotted on the timeline was clear by what they meant. They could see the various events that represented the number of events for a given's scenario.
- User: "The timeline is obvious to me by what events are a scenario, but a random person looking at this might not understand, even if they have used the application before" – the user would have to refer back to the cue sheet every time, which can get quite tedious, especially if there are many rows.
- The user had no problem adding in new sound files to the database. They correctly selected the whole row that would fill in the cell in the table with the sound file path.
- They could save the cue sheet and open it back up. They asked what the file type should be saved as and saw after it was preset already, so they did not need to worry about that
- Had no problem opening the saved cue sheet
- Layout of the cue sheet was becoming slightly confusing as they were adding multiple sound files for every row

- Thought they could change the rows in the cue sheet, so they had to fill in an empty row they had left with random information
- Was using the computer system to turn he sound down. Mentioned there were buttons in the application to do that. They had not realized this because they were used to controlling the sound via the system controls than within an application
- Took time experimenting with different sounds by testing out the various cause and associated event tag combinations. This process took a while as they had to look at the list, I had each time and write it out into the box.
- User wanted to find a sound file again but had trouble locating it. So, they added the file manually instead to a set of random cause and associated event tags.
- User: "Does cause and associated events have to be filled in? It is long-winded having to write them out every time."

Summary

The notes above gathered from the testing was written as close as what was remembered and noted down on paper during the testing. I tried to facilitate as much discussion with them as possible to get other feedback besides errors and layout issues. The improvements made will be discussed in the final report. I have mentioned some improvements in the notes above, so I can easily refer back to them later on.

Further testing will need to be made on a Mac OS to test that it works. This has been tested on Linux and Window devices.

Note: not all test notes have been written out because some tests with users lasted a very short period of time and did not add much value to the overall improvement of the project. The notes written out were testing that lasted around 20 minutes at least. I wrote about the tests done with 8 people.