**Web Information Technologies – Part C Testing Plan**

For our project there will be two areas of testing that we will be focusing on. The first will be unit testing to ensure that our software functions correctly and that edge cases and security risks will be accounted for. Unit testing will be written for larger more complicated parts of the project, particularly the database interface and the various RoRails controllers. The second realm of testing will be usability testing. This will focus on developing an intuitive and clean user interface catered to the user's needs and problems, while keeping the overall goal of the project in perspective (a music streaming site with a focus on promoting new and little known artists).

**Unit Testing**

For the backend, unit testing will ensure that the various pieces of the project work. By building a unit test that plugs directly into the interface of a controller, database interface, etc. we will be encouraging both working and well tested code as well as loose coupling between parts of the backend. This will also help to avoid issues with code not quite working correctly after minor refactors. If any code is changed in a file with unit testing, the unit tests will need to be run successfully before the code is committed and pushed to the master repository. Unit testing will also allow the group to agree upon how specifically each part of the project will work. Unit tests will be written before an important file or module is implemented, so that team members will know both how that portion of code will work as well as the correct way to interface other parts with it. Both white and black box testing will be used in this process, white box to ensure that the various modules of the project are working properly, and black box to ensure that the various modules of the project interface together properly and seamlessly. By both white and black box testing, we will further promoting loose coupling and modularity in the project. \*SAY WHICH PIECES OF THE PROJECT WILL USE UNIT TESTING\* Unit tests will be written using Ruby on Rails' built in testing framework.

**Usability Testing**

The usability testing for our project will focus on creating software that not only runs cleanly and smoothly but also is intuitive and easy to use for users, as well as being something that is actually useful and usable for the targeted users. It is very easy to assume that as the developers we know what would be the best features for a product, and what would make it the most useful. This however is not a remotely correct assumption, and is a recipe for a product that is both bloated and not useful. To prevent this from happening we plan to do frequent user testing and filter user's feedback when using the site back into the development of the product itself. Once an initial working prototype is created, we will begin this process by regularly having actual users (with no knowledge of the workings of the project) attempt to complete various tasks integral to the sites functionality. These might include uploading a song, playing a song, searching for a user, etc. By doing this, we will both ensure that our interface is intuitive enough for users to use it.

Other forms of usability testing will include asking a potential user with a vested interest in the product, such as an amateur musician, to use the product and without giving them any help observe how they interact and work with the program. Although this process would be more time consuming than simply asking them to do certain tasks, it will allow us to see how users use the site, and what sorts of changes are necessary for us to make, in order to make apparent all the features and functionalities of the site. Another benefit of this process is that it will allow us to see what sorts of features the users find useful and what they do not. Although the benefits of this are limited given a development phase of only a few weeks, the process could still allow us to see major flaws in our design or perhaps improve on certain features that users find especially attractive. If the project was both longer and larger scale we might implement A/B testing during the development of specific features, but given the small timeframe and scale A/B testing is unfeasible.

All observations and results from user testing will be regularly reported back to the relevant development team (primarily the front end group) so that they may use this information while iteratively developing the various features on the site. User testing will be more frequent during the last couple of weeks when the product development is mostly finished so that it can be polished and fine tuned well before submission.