Project Specification

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Here are bullet points of our team's specification report:

● The product backlog: a complete list of all functionality (i.e., the actions) of your project, and an English description of each action. We strongly suggest that you organize these features into groups/modules based on related functionality.

Workspace Module:
1. Add track: User can click to add another track with a selected instrument.
2. *Velocity Adjustment: For each track the user could adjust velocity/volume. We will plan this function according to the functionality of backend sound library. Will not be a priority.
3. Playback: Play, pause, rewind the sythesized song on the web page. (The availability of adjusting speed might be added if supported by backend sound library).
4. Publish: When satisfied with playback results the user can permanently export the song and publish the work to his portfolio. Other people will be able to listen.
5. Collaboration: Access control (as suggest by TA and professor) will be implemented so that different user can work in the same workspace. This way one user can edit at one time in the workspace but others can playback as well.

Track Module (within workspace):
1. Music note editing: A module that allows users to add musical notes by clicking on the "track timeline". Different notes can be chosen acrosses octaves.
2. Playback: Play, pause, rewind the synthesized song on the web page. (The availability of adjusting speed might be added if supported by backend sound library).

Portfolio Module:
1. Like: Liking the songs in portfolio. The songs could optionlly be placed under an album according to user needs. Album will have its description and picture.
2. Comment: A song will be able to receive comments underneath.
3. Playback: Even on the portfolio page we still provide a playback function - so that is is more convenient for people to share songs and enjoy melodies.

User module:
1. Log in/out.
2. Register.
3. Change basic info like profile picture and description.

● The first sprint backlog: a complete list of the functionality you will complete during your first sprint, and how that work is allocated among your team members.
1. Two static web pages to display user workspaces, the first web page is aimed for adding different instruments, following each instrument there will be a bar showing music track and is able to be clicked. If the bar is clicked, the user will be guided to another web page for adding different notes under that instrument to form a melody. (Kejing is responsible for implementing the two HTML pages)

2. Backend functionality (experiments mostly): Find a library that can synthesize sounds out of MIDI files. Demonstrate how that can be done in command line. Try to find a good library written in python that can manipulate and create MIDI files and write a hello-world python script to demonstrate.

● The name and Andrew ID of the product owner for the first sprint:
Jieying Xu, jieyingx

● A complete implementation of the data models used by your application. This may be written in as Django models, SQL, or some equivalent style implementation if you use another framework.
1. User model: Store info about user accounts, possible social linkage, etc. Fields include username, password, email, picture, description.
2. Collaboration Groups: Will be mapped to a workspace model, users in the group will be getting relative access control. All possible collaborative/access control information could go here. Fields include users and access control info for each respective users (allowed to edit or not, for example).
3. Workspace model: A workspace will be constructed by all the track information. A track is essentially a collection of musical notes across several minutes of time with one instrument assigned. In the end all the tracks composed in different instruments will be synthesized together during playback.
4. User portfolio: Published musical pieces could be stored in user portfolios. Nested within the portfolio model could be possible albums (another data model), etc. for which we store likes and comments and other related information. Fields could be linked to song or album (there will be a database field to distinguish between them).
5. Song Model: Song in a portfolio will have its name, description, picture and genre and the album it belongs to. If null then it will be put at a "root" location. Additionally it will point to the workspace it was created in.
6. Album model: Album in a portfolio wil have name, description, picture.
7. Track model: as mentioned above multiple track will be mapped to a workspace. It will store musical note information such as timing, length and pitch. It will have musical note information that should be translated into MIDI and we will be implementing the wheels by ourselves here. We will work further on the API.

● A complete set of drawn wireframes or HTML mockups for your application, for all non-trivial views within the application.
1, User register/login page: For users to register/login

Register

Username: [   ]
Password: [   ]
Login

2, User portfolio page: display users' music works in My music link and display music works from friends in Friends Music link.

Friends Music
Jeff Posts an music work *Still Water*
Boy Posts an music work *Still Water*

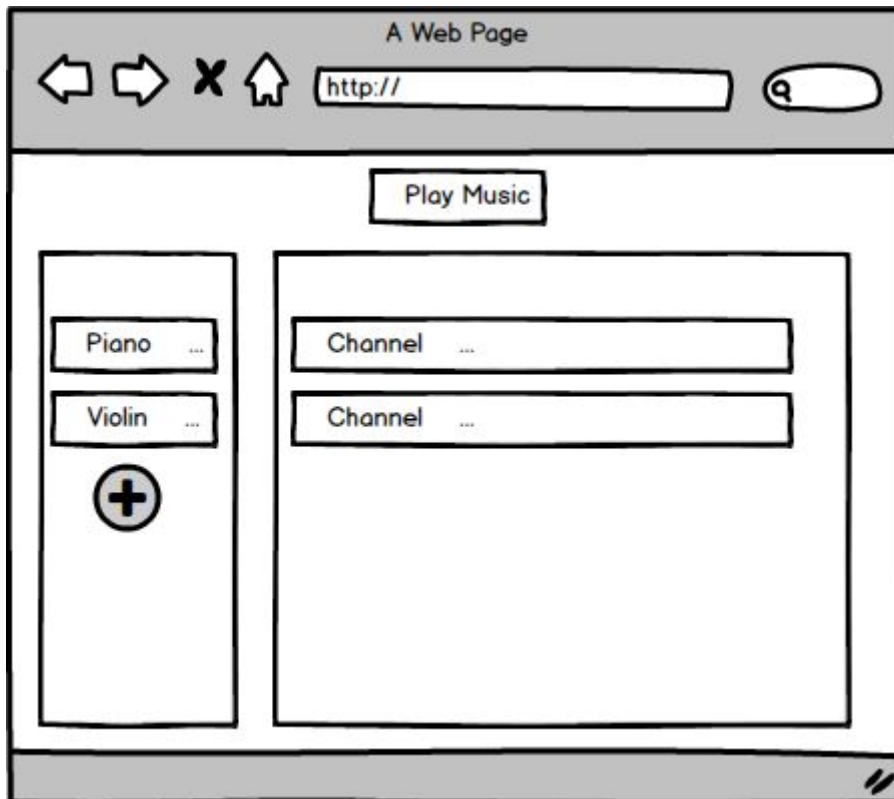username
My music
FriendsMusic
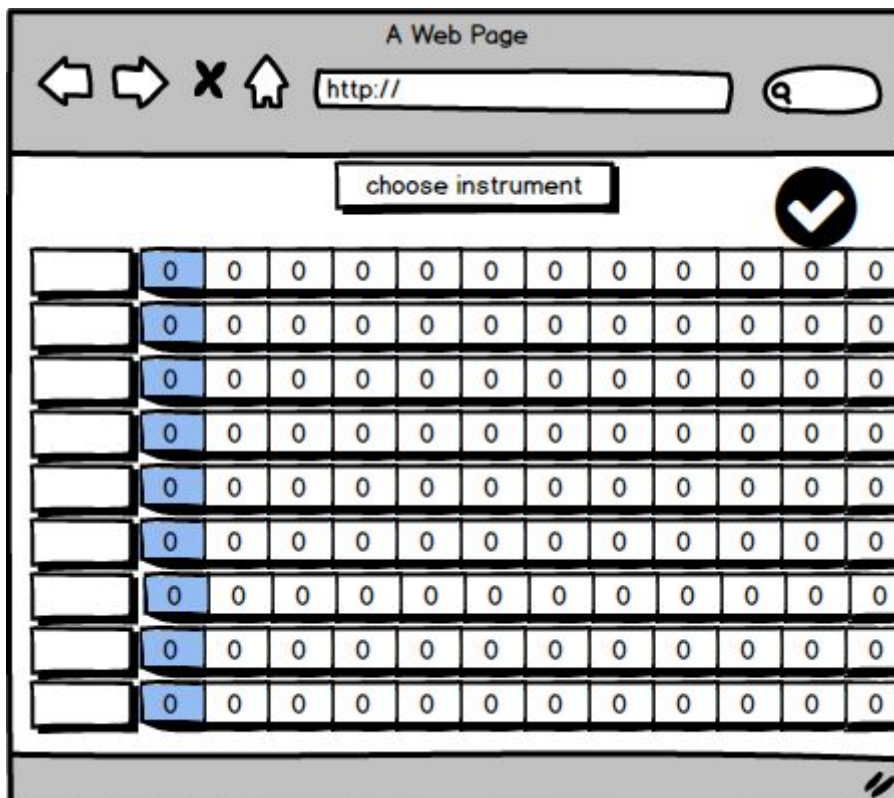

My Music
Still Water
Croatian Rhapsody

username
My music
FriendsMusic

3, Workspace page: user can play current work, or choose to add/edit channels

A Web Page

http://

Play Music

Piano ...

Violin ...

+

Channel ...

Channel ...

4, Track editing page: click on on one channel will redirect to channel edit page to compose music, including choose tone and arrange syllable.

A Web Page

http://

choose instrument ✓

	0	0	0	0	0	0	0	0	0	0	0	0
	0	0	0	0	0	0	0	0	0	0	0	0
	0	0	0	0	0	0	0	0	0	0	0	0
	0	0	0	0	0	0	0	0	0	0	0	0
	0	0	0	0	0	0	0	0	0	0	0	0
	0	0	0	0	0	0	0	0	0	0	0	0
	0	0	0	0	0	0	0	0	0	0	0	0
	0	0	0	0	0	0	0	0	0	0	0	0
	0	0	0	0	0	0	0	0	0	0	0	0

Users can choose instrument for track and save current work. The first column is all music notes we can have. The matrix following is for the user to click to add specific music note.