

Problem Statements -> Use Cases

1. User -> establish friendships

- User 1->System [send friend request]
- System->User 2 [alert to friend request]
- User 2->System [respond to friend request accept/deny]
- System->User 1 [notify re: User 2's response]

2. Users can borrow friends' Music—we'll get to this later, there are a lot of complications, which will be underlined for easy reference.

3. User can make library visible to anyone or just friends

- User->System [set library view privacy]

4. Users can:

- Add new songs
 - User->System [Add Song]
- Remove songs
 - User->System [Remove Song]
- Edit songs (**Not Included**)
 - User->System [Edit Song Data]
- Search for friends with songs
 - User->System [Search for friends with Song]
- Search for songs within friends
 - User->System [Search for songs within friends]
- Search for songs globally
 - User->System [Search for songs among all globally visible libraries]

5. Playlists:

- User->System [Create Playlist]
- User->System [Add to Playlist]
- User->System [Remove from Playlist]
- User->System [Delete Playlist]
- User->System [Sort Playlist]
- **Note:** Loaned songs should not be visible in playlists

6. Limit to # of times someone can borrow the same song from the same friend. This is changeable, but default is 3.

- User->System [Change Maximum Borrow Limit]

7. Loaned songs cannot be listened to by owner, but can be reclaimed at any time.

- User->System [Retrieve Song]
- **Note:** Loaned songs should not be visible in library, or if they are, should not be playable.

8. Users can get on a waiting list to borrow a song

- Queued Users when asking to borrow a lent song. While not a use case, it adds internal complexity to the Borrow song case we have yet to get to.

9. Owners can specify how long someone can borrow a song. This can be in units of time or number of song listens

- User->System [Change Single Borrow Limit]
- User->System [Change Single Borrow Limit Units]

10. Owners can specify whether a song needs approval to be borrowed or not. This can be assigned song by song. (e.g., one song may be borrowed at will, while another needs approval.)

- User->System [Change Song Borrow Restrictions]

11. System reads file upon bootup.

- System->File->System [Input users, owned songs, and friendships]

12. Borrow a song

- A. User->System [Borrow Song]
- B. Assuming song in A belongs to friend and is freely available, Jump to step G
- C. If User has borrowed Song maximum number of times (#6), inform of failure, end.
- D. If owner of Song is not friend System->User [notify of non-friend status and ask to friend request]
 - If request is sent and accepted, proceed to step D.
 - If request is sent and rejected, inform user of failure, end.
 - If request is not sent, inform user of failure, end.
- E. If song requires validation (#10) System->User [Inform of need for validation]
 - System->User 2 [notify of request to borrow a song]
 - If approval is granted, proceed to step E
 - If approval is denied, inform user of failure, end.
- F. If song is currently lent out (#8) System->User [inform of addition to that song's queue and the User's position in the queue]
 - If person previous to User in the Queue returns song, song is automatically lent to User.
- G. System->User [Borrow Successful]
- H. **Note:** If the owner wishes to reclaim the song, should it clear the Queue? Or just interrupt it? Leaning toward interrupting it. Assuming the owner wishes to play the song when it is reclaimed, after playing it could automatically lent to the next person in the queue.