

Transition System

There are 4 main subsystems - User Management, Library Management, Last.fm Integration, Administrator Features.

User Management

Several users can use the same Music server for managing their libraries. Music thus has a user management system, with users needing to login to add music to the library.

For the six tuple $\{X, X^0, U, f, y, h\}$

$X = \{ \text{Login, Dashboard, Failed Login} \}$

$X^0 = \{ \text{Login} \}$

$U = \{ \text{RememberMeClick, LoginClick, LogoutClick, OkClick} \}$

$Y = \{ \text{Login Page, Dashboard Page, Failed Login Popup} \}$

$f(\text{Login, LoginClick}) = \text{Dashboard}$ (for valid credentials)

$f(\text{Login, LoginClick}) = \text{Failed Login}$ (for invalid credentials)

$f(\text{Failed Login, OkClick}) = \text{Login}$

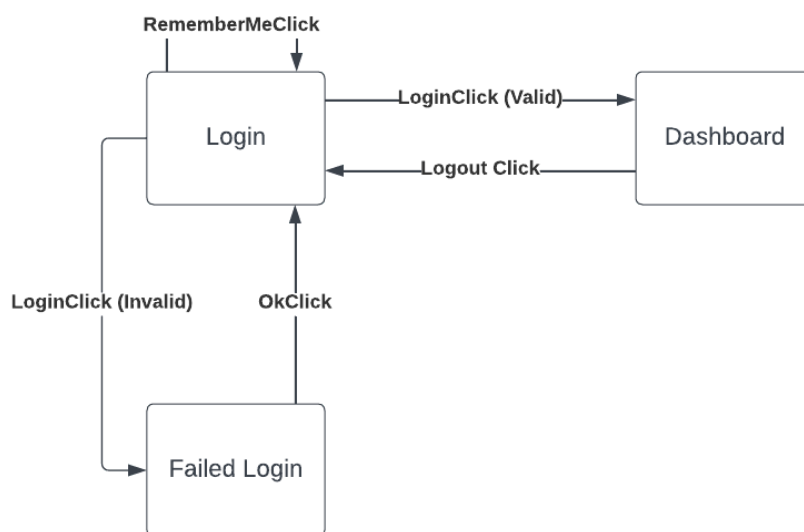
$f(\text{Dashboard, LogoutClick}) = \text{Login}$

$f(\text{Login, RememberMeClick}) = \text{Login}$

$h(\text{Login}) = \text{Login Page}$

$h(\text{Dashboard}) = \text{Dashboard Page}$

$h(\text{Failed Login}) = \text{Failed Login Popup}$



Library Management

Users can add songs to Music with a two-step process. First, new music is imported in one of two ways - uploading local files, or downloading files from external sources. Once the file is imported, they can be added to the library after adding metadata information. Users can also edit existing songs.

The library management system is complex and so it has been divided into further 2 subsystems - Add Music Subsystem, Manage Playlist Subsystem

Add Music Subsystem

$X = \{ \text{Dashboard, AddMusic, AddImportedMusic, ExternalSource} \}$

$X^0 = \{ \text{Dashboard} \}$

$U = \{ \text{AddMusicClick, NowPlayingClick, FileUpload, UploadClick, AddImportedClick, ImportClick, RefreshClick, ImportClick, ExternalSourceClick, AddClick, RemoveClick, UploadClick} \}$

$Y = \{ \text{Dashboard Page, Add Music Page, Add Imported Page, External Source Page} \}$

$f(\text{Dashboard, AddMusicClick}) = \text{AddMusic}$

$f(\text{AddMusic, NowPlayingClick}) = \text{Dashboard}$

$f(\text{AddMusic, FileUpload}) = \text{AddMusic}$

$f(\text{AddMusic, AddImportedClick}) = \text{AddImportedMusic}$

$f(\text{AddMusic, ExternalSourcesClick}) = \text{ExternalSources}$

$f(\text{AddImportedMusic, UploadClick}) = \text{AddMusic}$

$f(\text{AddImportedMusic, ImportClick}) = \text{AddImportedMusic}$

$f(\text{AddImportedMusic, ExternalSourceClick}) = \text{ExternalSource}$

$f(\text{AddImportedMusic, RefreshClick}) = \text{AddImportedMusic}$

$f(\text{AddImportedMusic, ImportClick}) = \text{AddImportedMusic}$

$f(\text{ExternalSources, AddImportedClick}) = \text{Add Imported Music}$

$f(\text{ExternalSources, RefreshClick}) = \text{ExternalSources}$

$f(\text{ExternalSources, AddClick}) = \text{ExternalSources}$

$f(\text{ExternalSources, RemoveClick}) = \text{ExternalSources}$

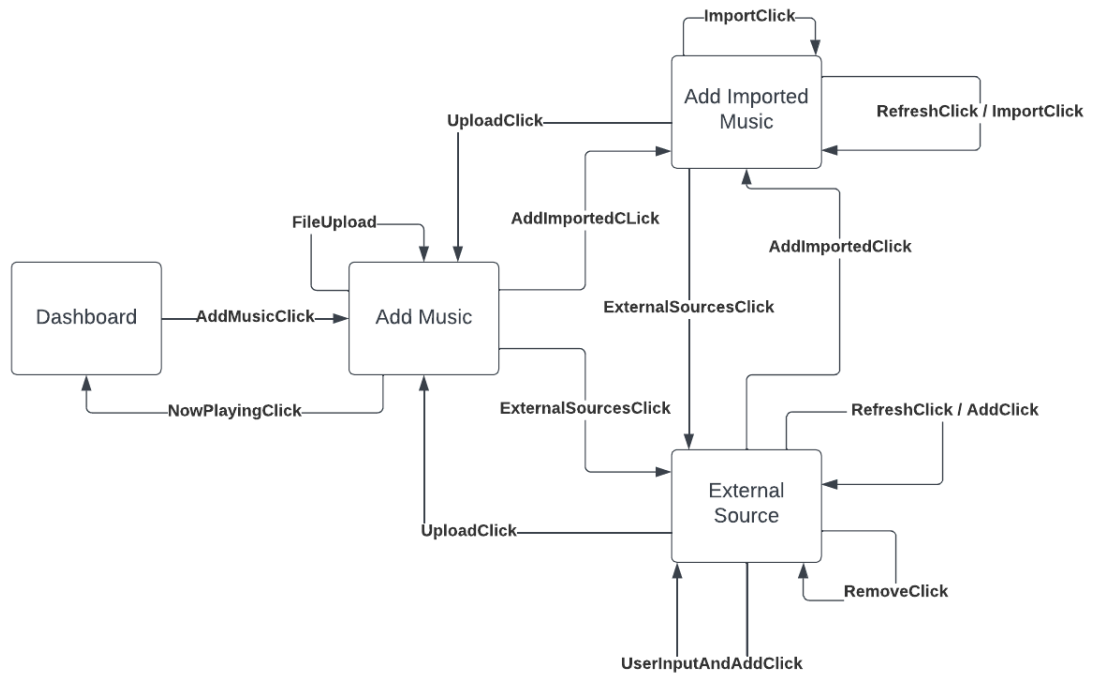
$f(\text{ExternalSources, UploadClick}) = \text{AddMusic}$

$h(\text{Dashboard}) = \text{Dashboard Page}$

$h(\text{AddMusic}) = \text{Add Music Page}$

$h(\text{AddImportedMusic}) = \text{My Imported Page}$

$h(\text{External Source}) = \text{External Source Page}$



Manage Playlist Subsystem

$X = \{ \text{Dashboard, Albums, Artists, Artist Albums, Album Details} \}$

$X^0 = \{ \text{Dashboard} \}$

$U = \{ \text{ClearClick, AddToPlaylistClick, MyMusicClick, ExistingAlbumClick, DropDownAction, FilterAction, ArtistsClick, NowPlayingClick, LatestAlbumsClick, MostListenedClick, AlbumDetailsClick, PlayClick, ShuffleClick, EditClick, AlbumsClick, ArtistAlbumsClick} \}$

$Y = \{ \text{Dashboard Page, Albums Page, Artists Page, Artist Albums Page, Album Details Page} \}$

$f(\text{Dashboard, MyMusicClick}) = \text{AddMusic}$

$f(\text{Dashboard, LatestAlbumsClick}) = \text{Albums}$

$f(\text{Dashboard, MostListenedClick}) = \text{Albums}$

$f(\text{Dashboard, ClearClick}) = \text{Dashboard}$

$f(\text{Dashboard, AddToPlaylisstClick}) = \text{Dashboard}$

$f(\text{Dashboard, ExistingAlbumClick}) = \text{AlbumDetails}$

$f(\text{Albums, DropDownAction}) = \text{Albums}$

$f(\text{Albums, FilterAction}) = \text{Albums}$

$f(\text{Albums, AlbumDetailsClick}) = \text{Album Details}$

$f(\text{Albums, ArtistsClick}) = \text{Artists}$

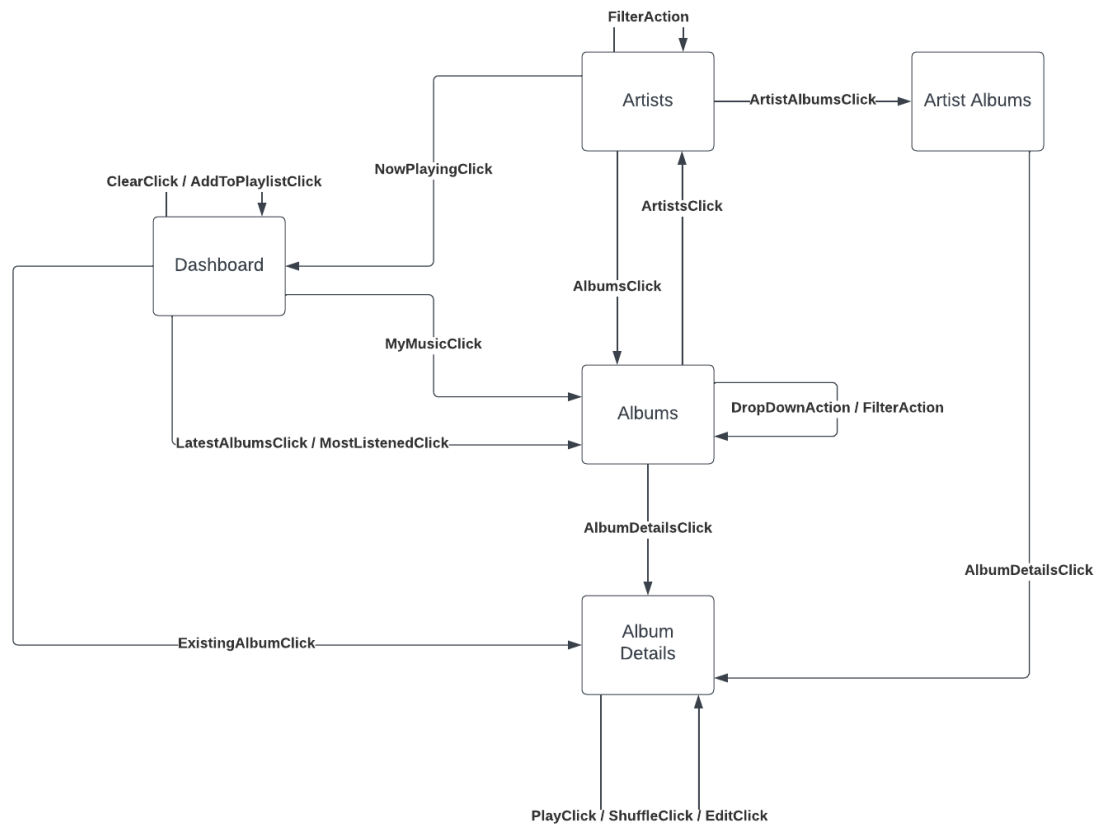
$f(\text{Album Details, PlayClick}) = \text{Album Details}$

$f(\text{Album Details, ShuffleClick}) = \text{Album Details}$

$f(\text{Album Details, EditClick}) = \text{Album Details}$

$f(\text{Artists}, \text{FilterClick}) = \text{Artists}$
 $f(\text{Artists}, \text{NowPlayingClick}) = \text{Dashboard}$
 $f(\text{Artists}, \text{AlbumsClick}) = \text{Albums}$
 $f(\text{Artists}, \text{ArtistAlbumsClick}) = \text{Artist Albums}$
 $f(\text{Artist Albums}, \text{AlbumDetailsClick}) = \text{AlbumDetails}$

$h(\text{Dashboard}) = \text{Dashboard Page}$
 $h(\text{Artists}) = \text{Artists Page}$
 $h(\text{Albums}) = \text{Albums Page}$
 $h(\text{Album Details}) = \text{Album Details Page}$
 $h(\text{Artist Albums}) = \text{Artist Albums Page}$



Note: The Dashboard can be reached from all states using StartPartyClick action and hence has not been mentioned in f or shown in the diagram.

Note: The music can be paused / resumed / stopped from all states and hence has not been mentioned or shown.

Last.fm Integration

Music allows users to link their Last.fm profile, and sync their listening history with it.

For the six tuple $\{X, X^0, U, f, y, h\}$

$X = \{ \text{Dashboard, Settings, My Account, Remote Control} \}$

$X^0 = \{ \text{Dashboard} \}$

$U = \{ \text{SettingsClick, UserInputAndConnectClick, UserInputAndSaveClick, ActivateRemoteClick, MyAccountClick, RemoteControlClick, StartPartyClick} \}$

$Y = \{ \text{My Account Page, Dashboard Page, Settings Dropdown, Remote Control Page} \}$

$f(\text{Dashboard, SettingsClick}) = \text{Settings}$

$f(\text{Settings, StartPartyClick}) = \text{Dashboard}$

$f(\text{Settings, MyAccountClick}) = \text{My Account}$

$f(\text{Settings, Remote ControlClick}) = \text{Remote Control}$

$f(\text{Remote Control, ActivateRemoteClick}) = \text{Remote Control}$

$f(\text{Remote Control, StartPartyClick}) = \text{Dashboard}$

$f(\text{Remote Control, SettingsClick}) = \text{Settings}$

$f(\text{My Account, UserInputAndConnectClick}) = \text{My Account}$

$f(\text{My Account, UserInputAndSaveClick}) = \text{My Account}$

$f(\text{My Account, StartPartyClick}) = \text{Dashboard}$

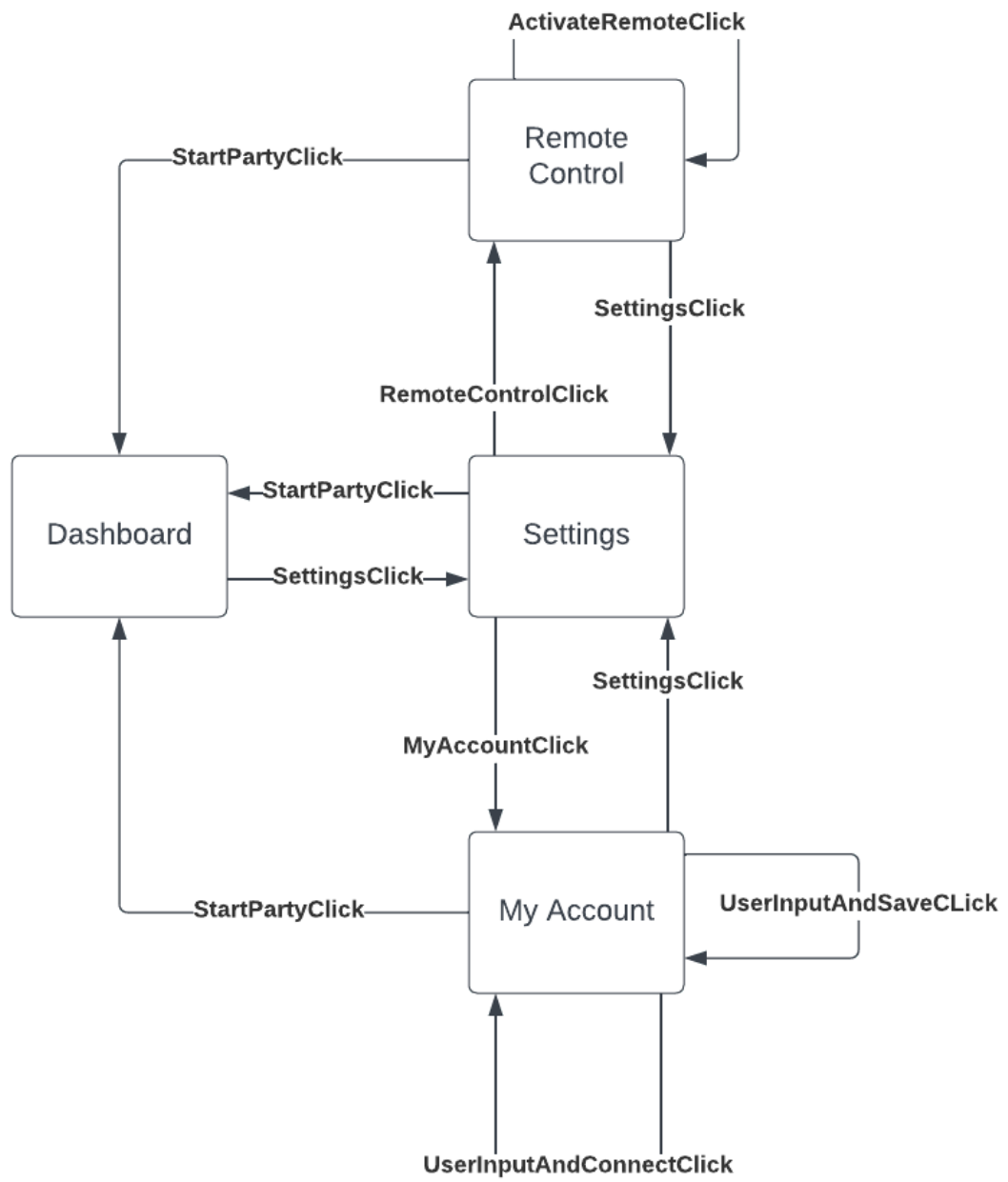
$f(\text{My Account, SettingsClick}) = \text{Settings}$

$h(\text{Dashboard}) = \text{Dashboard Page}$

$h(\text{Settings}) = \text{Settings Dropdown}$

$h(\text{My Account}) = \text{My Account Page}$

$h(\text{Remote Control}) = \text{Remote Control Page}$



Administrator Features

The administrator has further privileges. They can create and delete user accounts and change the local directory to which the music is stored, or add new directories.

For the six tuple $\{X, X^0, U, f, y, h\}$

$X = \{ \text{Dashboard, Settings, Directories, Users, New User Details, Existing User Details, Sanity Check, Transcoding, Logs} \}$

$X^0 = \{ \text{Dashboard} \}$

$U = \{ \text{SettingsClick, DirectoriesClick, UserInputAndAddClick, UserInputAndSaveClick, RescanClick, DeleteClick, UsersClick, AddClick, ExistingUserClick, TranscodingClick, SanityClick, LogsClick, StartPartyClick} \}$

$Y = \{ \text{Dashboard Page, Settings Dropdown, Directories Page, Users Page, New User Page, Existing User Page, Sanity Check Page, Transcoding Page, Logs Page} \}$

$f(\text{Dashboard, SettingsClick}) = \text{Settings}$
 $f(\text{Settings, DirectoriesClick}) = \text{Directories}$
 $f(\text{Settings, UsersClick}) = \text{Users}$
 $f(\text{Settings, TranscodingClick}) = \text{Transcoding}$
 $f(\text{Settings, SanityClick}) = \text{Sanity Check}$
 $f(\text{Settings, LogsClick}) = \text{Logs}$
 $f(\text{Directories, DeleteClick}) = \text{Directories}$
 $f(\text{Directories, UserInputAndAddClick}) = \text{Directories}$
 $f(\text{Directories, RescanClick}) = \text{Directories}$
 $f(\text{Directories, SettingsClick}) = \text{Settings}$
 $f(\text{Users, AddClick}) = \text{New User Details}$
 $f(\text{New User Details, UserInputAndAddClick}) = \text{Users}$
 $f(\text{Users, ExistingUserClick}) = \text{Existing User Details}$
 $f(\text{Existing User Details, DeleteClick}) = \text{Users}$
 $f(\text{Existing User Details, UserInputAndSaveClick}) = \text{Users}$
 $f(\text{Users, SettingsClick}) = \text{Settings}$
 $f(\text{Transcoding, SettingsClick}) = \text{Settings}$
 $f(\text{Transcoding, UserInputAndAddClick}) = \text{Transcoding}$
 $f(\text{Logs, SettingsClick}) = \text{Settings}$
 $f(\text{Sanity Check, SettingsClick}) = \text{Settings}$

$h(\text{Dashboard}) = \text{Dashboard Page}$
 $h(\text{Settings}) = \text{Settings Dropdown}$
 $h(\text{Directories}) = \text{Directories Page}$
 $h(\text{Users}) = \text{Users Page}$
 $h(\text{New User Details}) = \text{New User Page}$
 $h(\text{Existing User Details}) = \text{Existing User Page}$
 $h(\text{Sanity Check}) = \text{Sanity Check Page}$
 $h(\text{Transcoding}) = \text{Transcoding Page}$

h(Logs) = Logs Page

Note: The Dashboard can be reached from all states using StartPartyClick action and hence has not been mentioned in f or shown in the diagram.

