# Class Diagram Description

Home Audio System (HAS) is composed of several classes as shown in the class diagram.

**HomeAudioSystemController**

The controller of the HAS has several responsibilities. The methods in this class are responsible for adding album, artist, song, playlist, and location and updates the library of HAS. It will display error message when the input is empty. Also it allows to assign song, album and playlist to a location where user desires, and play at the selected location with adjustable volume.

Method Index

* addAlbum(String title, String genre, Date date)

Add album entered by user to the library

* addArtist(String name)

Add artist name entered by user to the library

* addSong(String title, String duration, int positionInAlbum, Album album, Artist artist)

Add song entered by user to the library

* addPlaylist(String name)

Add playlist entered by user to the library

* addLocation(String name, int volume)

Add location entered by user to the library

* addSongToPlaylist(Song song, Playlist playlist)

Add a song to playlist

* assignSongToLocation(Song song, Location location)

Assign a song to a specific location

* assignAlbumToLocation(Album album, Location location)

Assign an album to a specific location

* assignPlaylistToLocation(Playlist playlist, Location location)

Assign a playlist to a specific location

* playAtSelectedLocations(List<Location> locations)

Play song, album, or playlist that were assigned to the selected locations

* changeVolume(int volume, Location location)

Change volume at selected location

**InvalidInputException**

InvalidInputException class allows controller to display error message at certain conditions specified by the controller.

Method Index

* InvalidInputException(String errorMessage)

Constructs a new exception with the specified error message.

**PersistenceHomeAudioSystem**

PersistenceHomeAudioSystem class manages the HAS library. It efficiently stores and retrieves data from the library.

Method Index

* initializeXStream()

Set class with xml tag name for storing data

* loadHomeAudioSystemModel()

Load the instance of HAS

* setFileName(String name)

Set name of the file where data is stored

**PersistenceXStream**

PersistenceXStream class uses XStream library to write and read from an XML file.

Method Index

* saveToXMLwithXStream(Object obj)

Save data to xml file

* loadFromXMLwithXStream()

Load xml file where data is stored

* setAlias(String xmlTagName, Class<?> className)

Set xml tag name for classes when storing data

* setFilename(String fn)

Set file name with given string

**DateLabelFormatter**

DateLabelFormatter class is responsible for the format of the date display

Method Index

* stringToValue(String text)

Parses text from the beginning of the given string to produce an object

* valueToString(Object value))

Formats a Date into a date/time string

**HAS**

The HAS class manages how the information is stored for Location, Artist, Song, and Playlist within the library. The HAS was designed using the singleton pattern, therefore there will only be one library that contains all information about the Locations, Artists, Songs, and Playlists.

**Song**

The Song class stores information on title, duration, position in an album, album name, and artist name for each song in the HAS library.

**Artist**

The Artist class stores the name of the artist as well as a list of every song that the artist is associated with.

**Playlist**

The Playlist class stores the name of the playlist, and lists containing the songs, artists, and albums on the playlist.

**Album**

The Album class stores the name of the album, the album release date, album genre, and a list containing all songs on the album.

**HomeAudioSystem**

Contains the main method for the Home Audio System.