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| --- | --- | --- | --- | --- | --- | --- |
| **Class Name:**  StreamingSystem | | | | | | |
| **Attributes** | | | | | | |
| **Name** | **Type** | **Static [Y/N]** | **Access Modifier** | **Initial Value** | **Range Of Possible Values** | **Notes/Comments** |
| dataBase | ArrayList<User> | N | private | null |  |  |
| counter | int | N | private | 0 | >=0 |  |
| **Methods** | | | | | | |
| **Name** | **Return Type** | **Static [Y/N]** | **Access Modifier** |  | **List Of Arguments And Their Types** | **Notes/Comments** |
| remove() | Boolean | N | public |  | String userName | Removes the user by their username |
| remove() | Boolean | N | public |  | Int Id | Removes the user by their id. |
| run() | void | N | public |  |  | Runs the system (songs, playlist, etc.)  Throws input mismatch exception. Gives the user options. |
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| **Class Name:**  User | | | | | | |
| **Attributes** | | | | | | |
| **Name** | **Type** | **Static [Y/N]** | **Access Modifier** | **Initial Value** | **Range Of Possible Values** | **Notes/Comments** |
| userIDCount | int | Y | private | 0 | >=0 |  |
| userID | int | N | private | 0 | >=0 |  |
| aPlaylist | Playlist | N | private |  |  |  |
| name | String | N | private | null |  |  |
|  |  |  |  |  |  |  |
| **Methods** | | | | | | |
| **Name** | **Return Type** | **Static [Y/N]** | **Access Modifier** |  | **List Of Arguments And Their Types** | **Notes/Comments** |
| User(...) | NA | N | public |  | String aName, String nameOfPlaylist | Increments userIDCount, sets userIDCount equal to userID, and aName equal to name. And also creates a playlist object. |
| setName() | void | N | public |  | String nameOfUser |  |
| getName | String | N | Public |  |  |  |
| getUserID | Int | N | Public |  |  |  |
| getPlaylist | Playlist | N | Public |  |  |  |
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| **Class Name:**  Interface Playable | | | | | | |
| **Attributes** | | | | | | |
| **Name** | **Type** | **Static [Y/N]** | **Access Modifier** | **Initial Value** | **Range Of Possible Values** | **Notes/Comments** |
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| **Methods** | | | | | | |
| **Name** | **Return Type** | **Static [Y/N]** | **Access Modifier** |  | **List Of Arguments And Their Types** | **Notes/Comments** |
| play | void | N | public |  | NA | Abstract method to implement in the classes that implement this interface. |
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| **Class Name:**  Recording implements Playable | | | | | | |
| **Attributes** | | | | | | |
| **Name** | **Type** | **Static [Y/N]** | **Access Modifier** | **Initial Value** | **Range Of Possible Values** | **Notes/Comments** |
| ARTIST | String | N | protected final | NA |  |  |
| NAME | String | N | protected final | NA |  |  |
| rate | double | N | Protected final | NA | >=0 |  |
| DURATION\_IN\_SECONDS | int | N | protected final | NA |  |  |
| **Methods** | | | | | | |
| **Name** | **Return Type** | **Static [Y/N]** | **Access Modifier** |  | **List Of Arguments And Their Types** | **Notes/Comments** |
| Recording(...) | NA | N | public |  | NA | Sets the attributes to default values. |
| Recording(...) | NA | N | public |  | String anArtist, String aName, int aDurationInSeconds, double theRate | Sets the attributes to what the user gives us. |
| getArtist() | String | N | protected |  | NA |  |
| getName() | String | N | protected |  | NA |  |
| getRate | Double | N | protected |  | NA |  |
| getDurationInSeconds() | int | N | protected |  | NA |  |
| play() | void | N | protected |  | NA | Throws Unplayable Exception if the song cannot be played. |
| toString() | String | N | public |  | NA | ARTIST + " - " + NAME + "[" + DURATION\_IN\_SECONDS / 60 + "m" + DURATION\_IN\_SECONDS % 60 + "s]"; |

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| **Class Name:**  AudioRecording extends Recording | | | | | | |
| **Attributes** | | | | | | |
| **Name** | **Type** | **Static [Y/N]** | **Access Modifier** | **Initial Value** | **Range Of Possible Values** | **Notes/Comments** |
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| **Methods** | | | | | | |
| **Name** | **Return Type** | **Static [Y/N]** | **Access Modifier** |  | **List Of Arguments And Their Types** | **Notes/Comments** |
| AudioRecording() | NA | N | public |  | NA | Initializes the attributes extended from class Recording |
| AudioRecording(...) | NA | N | public |  | String anArtist, String aName, int aDurationInSeconds, double newBitrate | Initializes the attributes extended from class Recording. If the values from the argument list are invalid, set the attributes to have default values. |
| toString() | String | N | public |  | NA | Overrides the toString() of Recording.  super.toString() + "[AUDIO | bitrate: " + super.getRate() + " kbps]"; |
| type() | String | N | public |  | NA | Returns “A” |

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| **Class Name:**  VideoRecording extends Recording | | | | | | |
| **Attributes** | | | | | | |
| **Name** | **Type** | **Static [Y/N]** | **Access Modifier** | **Initial Value** | **Range Of Possible Values** | **Notes/Comments** |
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| **Methods** | | | | | | |
| **Name** | **Return Type** | **Static [Y/N]** | **Access Modifier** |  | **List Of Arguments And Their Types** | **Notes/Comments** |
| VideoRecording() | NA | N | public |  | NA | Initializes the attributes extended from class Recording |
| VideoRecording(...) | NA | N | public |  | String anArtist, String aName, int aDurationInSeconds, double newFramerate | Initializes the attributes extended from class Recording. If the values from the argument list are invalid, set the attributes to have default values. |
| toString() | String | N | public |  | NA | Overrides the toString() of Recording.  super.toString() + "[VIDEO | framerate: " + super.getRate+ " fps]"; |
| type() | String | N | public |  | NA | Returns “v” |

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| **Class Name:**  Playlist extends Unplayable | | | | | | |
| **Attributes** | | | | | | |
| **Name** | **Type** | **Static [Y/N]** | **Access Modifier** | **Initial Value** | **Range Of Possible Values** | **Notes/Comments** |
| name | String | N | private |  |  |  |
| durationInSeconds | int | N | private | 0 | >=0 |  |
| recordingList | ArrayList<Recording> | N | private |  |  |  |
| playlistSize | int | N | private | 0 | >=0 |  |
| countingSongs | int | N | private | 0 | >=0 | Counts the amount of times the song is played, used for statistics. |
| unpl | Unplayable | N | private | null |  | Unplayable object used for the run time exception. |
| **Methods** | | | | | | |
| **Name** | **Return Type** | **Static [Y/N]** | **Access Modifier** |  | **List Of Arguments And Their Types** | **Notes/Comments** |
| Playlist(...) | NA | N | public |  |  | Sets default initial values for the attributes. |
| Playlist(...) | NA | N | public |  | String aName | Sets initial values for the attributes. If they are invalid, it sets them to their default values. |
| getName() | String | N | public |  |  |  |
| getNumberOfRecordings() | int | N | public |  |  |  |
| getDurationInSeconds() | int | N | public |  |  |  |
| getPlaylistSize() | int | N | public |  |  |  |
| getRecordingList() | ArrayList<Recording> | N | public |  |  |  |
| setName() | void | N | public |  | String aName | Sets the name of the playlist. |
| add() | boolean | N | public |  | AudioRecording | duplicates not allowed |
| add() | boolean | N | public |  | VideoRecording | duplicates not allowed |
| add() | boolean | N | public |  | Playlist | duplicates are ignored |
| add() | boolean | N | public |  | String nameOfFile | Adds a list of recordings from a file.  Duplicates are ignored |
| remove() | boolean | N | public |  | int index |  |
| remove() | boolean | N | public |  | String name |  |
| play() | void | N | public |  | int PlaylistIndex | If there are recordings → play. Otherwise, error message. Play specific recording based on the index in the playlist. |
| play() | void | N | public |  | String nameOfSong | If there are recordings → play. Otherwise, error message.Play specific recording based on the name in the playlist. |
| play() | void | N | public |  |  | If there are recordings → play. Otherwise, error message.  Play in the order it was populated. |
| shuffle() | void | N | public |  |  |  |
| save() | void | N | public |  | String nameOfFile | Saves the playlist in a csv format. |
| statistics() | void | N | public |  |  | Displays the amount of times each song was played. |
| toString() | String | N | public |  |  |  |

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| **Class Name:**  Interface Playable | | | | | | |
| **Attributes** | | | | | | |
| **Name** | **Type** | **Static [Y/N]** | **Access Modifier** | **Initial Value** | **Range Of Possible Values** | **Notes/Comments** |
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| **Methods** | | | | | | |
| **Name** | **Return Type** | **Static [Y/N]** | **Access Modifier** |  | **List Of Arguments And Their Types** | **Notes/Comments** |
| play | void | N | public |  | NA | Abstract method to implement in the classes that implement this interface. |
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| **Class Name:**  Unplayable extends RuntimeException | | | | | | |
| **Attributes** | | | | | | |
| **Name** | **Type** | **Static [Y/N]** | **Access Modifier** | **Initial Value** | **Range Of Possible Values** | **Notes/Comments** |
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| **Methods** | | | | | | |
| **Name** | **Return Type** | **Static [Y/N]** | **Access Modifier** |  | **List Of Arguments And Their Types** | **Notes/Comments** |
| Unplayable(...) | NA | N | public |  | NA |  |
| Unplayable(...) | NA | N | public |  | String s | Based on the argument it throws a message. |

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| **Class Name:**  MusicApp | | | | | | |
| **Attributes** | | | | | | |
| **Name** | **Type** | **Static [Y/N]** | **Access Modifier** | **Initial Value** | **Range Of Possible Values** | **Notes/Comments** |
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| **Methods** | | | | | | |
| **Name** | **Return Type** | **Static [Y/N]** | **Access Modifier** |  | **List Of Arguments And Their Types** | **Notes/Comments** |
| main | void | Y | public |  | String[] args | Create Streaming System object and runs the app. |
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Test Cases:

Input Mismatch Try to give a value that does not match the type it is asking for.

File Not Found Give a file name that does not exist or is not formatted as CSV.

Negative Number Negative numbers for seconds and bitrate/frame rate

Normal You add music to the thing and you play and have fun.