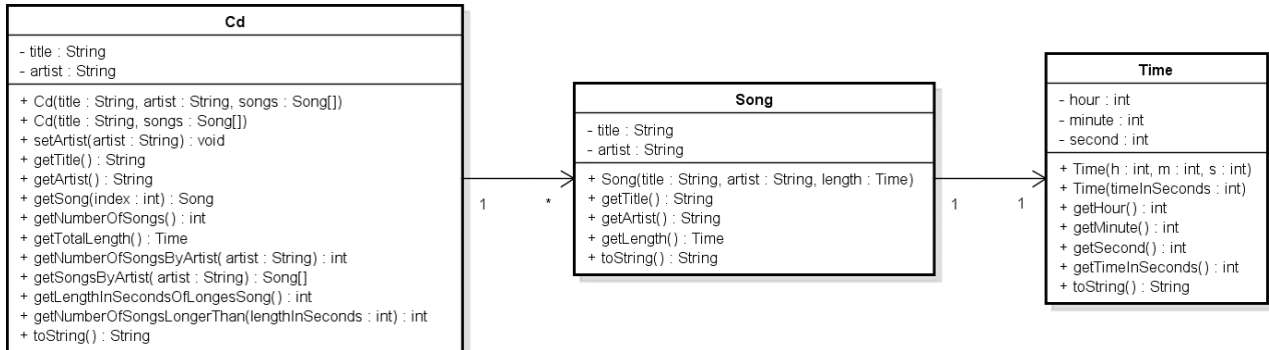


Exercise: Cd

Implement the class `Cd` exactly as shown in the UML class diagram below (Note: class `Time` and `Song` can be taken directly from your solution to a previous exercise):



Notes to class `Cd`:

- The class has 3 instance variable, two of type `String` and one of type `Song[]`
- The three-argument constructor is setting the instance variables to whatever values of the parameter variables.
- The two-argument constructor: If all songs in the array have the same artist, then the instance variable `artist` is given this artist, otherwise `artist` is initialised to "Various artists".
- Setter for artist.
- Getters for title and artist.
- A method `getSong` returning the song at the index specified.
- A method `getNumberOfSongs` returning the number of songs, i.e. the length of the array.
- A method `getTotalLength` calculating the total length of all song and returning a `Time` object with this length. *Hint: loop through the array, add the length in seconds of a song to a running sum. After the loop create, and return a `Time` object using the calculated sum as argument.*
- A method `getNumberOfSongsByArtist` returning the number of songs with the artist being equal to the artist specified.
- A method `getSongsByArtist` returning an array with all the song with the artist being equal to the artist specified. *Hint: the length of the array is equal to what you get calling method `getNumberOfSongsByArtist` with the artist as specified.*
- A method `getLengthInSecondsOfLongestSong` returning the length in seconds for the song with the largest value of length in seconds.
- A method `getNumberOfSongsLongerThan` returning the number of songs with a length more than the length specified.
- A method `toString` returning the information of the `Cd`, i.e. the title, the artist and each of the songs in the array.

Implement a test class with a `main` method in which you create at least one `Cd` object with a few `Song`'s and call methods in class `Cd`. Note: you need to create a `Time` object before creating a `Song` object – and that you need to create a `Song[]` before creating the `Cd`.