Hands-On: Collections

This activity is designed to illustrate the design and utility of elements of the Java Collections Framework (JCF). You should study the instructional resources on Collections before attempting this activity.

You will need the following source code files to complete this activity.

- `Song.java`
- `Playlist.java`

Note: This activity utilizes jGRASP Viewers, which are available in jGRASP, IntelliJ, and Eclipse.

`Playlist`

1. Open `Playlist.java`, then compile and run it. Observe the output to understand what the `main` method is doing.
2. Set a breakpoint on the following line in the `main` method: `List<Song> playlist = new ArrayList<>();`
3. Start the debugger and wait until execution is paused at the breakpoint.
4. Step over this statement and then raise a viewer on the `playlist` object.
5. Step over the next several statements and watch the viewer as it shows the effect of adding songs to the `playlist`.
6. Note that four different implementing classes of the `List` interface are already imported (`ArrayList`, `LinkedList`, `Stack`, and `Vector`). Systematically change the instantiation of `playlist` to each of these classes in turn. Run and debug the program each time to observe that the functionality of the program doesn't change although the exact nature of the `playlist` object does indeed change.

Working with collections

1. Practice working with collecitons by completing the `runningTime` method in the `Playlist` class. Note that your solution will work for any class that implements the `List` interface.

Submission

The submission page for this activity asks you to complete the `runningTime` method above and then submit it for a grade.