| **Exercise 4.43** The following exercises present a challenge because they involve using some things that we have not covered explicitly. Nevertheless, you should be able to make a reasonable attempt at them if you have a comfortable grasp of the material covered so far. They involve adding something that most music players have: a “shuffle,” or “random-play,” feature.The **java.util** package contains the **Random** class whose **nextInt** method will generate a positive random integer within a limited range. Write a method in the **MusicOrganizer** class to select a single random track from its list and play it. *Hint:* You will need to import **Random** and create a **Random** object, either directly in the new method or in the constructor and stored in a field. You will need to find the API documentation for the **Random** class and check its methods to choose the correct version of **nextInt**. |  |
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| **Exercise 4.44** Consider how you might play multiple tracks in a random order. Would you want to make sure that all tracks are played equally or prefer favorite tracks? How might a “play count” field in the **Track** class help with this task? Discuss the various options. |  |
| **Exercise 4.45** *Challenge exercise – Extra Credit* Write a method to play every track in the track list exactly once in random order.*Hint:* One way to do this would be to shuffle the order of the tracks in the list—or, perhaps better, a copy of the list—and then play through from start to finish. Another way would be to make a copy of the list and then repeatedly choose a random track from the list, play it, and remove it from the list until the list is empty. Try to implement one of these approaches. If you try the first, how easy is it to shuffle the list so that it is genuinely in a new random order? Are there any library methods that could help with this?*Fadoir Hint:* When I coded my solution, I was able to get a copy of the list by using the **addAll** method from the **ArrayList** class. When I ran the code in the debug mode, it ran fine; when I ran it in normal mode, the player had a hard time trying to playing all the songs at the same time. |  |