7.12 Write a program that simulates the control software for a "people mover" system, a set of driverless trains that move in two concentric circular tracks. A set of switches allows trains to switch tracks.

In your program, the outer and inner tracks should each be divided into ten segments. Each track segment can contain a train that moves either clockwise or counterclockwise. A train moves to an adjacent segment in its track or, if that segment is occupied, to the adjacent segment in the other track.


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Define a `Segment` structure. Each segment has a pointer to the next and previous segments in its track, a pointer to the next and previous segments in the other track, and a train indicator that is 0 (empty), +1 (train moving clockwise), or –1 (train moving counterclockwise). Populate the system with four trains at random segments, two in each direction. Display the tracks and trains in each step, like this:

```
+--------------->--+
|  x  x  x  x  x  |
| ----------<---- |
| |             | |
| ->--<---------- |
|  x  x  x  x  x  |
+-----------------+
```

The two rectangles indicate the tracks. Each switch that allows a train to switch between the outer and inner track is indicated by an `x`. Each train is drawn as a `>` or `<`, indicating its current direction. Your program should show fifty rounds. In each round, all trains move once.