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Bar data type

▼ The compiler says it can't find `Arrays.sort()`. What should I do?

`Arrays.sort()` is in the package `java.util.Arrays`, so you need to include the following import statement at the beginning of your program.

```
import java.util.Arrays;
```

If you use our custom version of *IntelliJ*, the IDE will automatically add (and remove) the import statement as needed.

▼ How does `Arrays.sort()` know to call the `compareTo()` method that I defined?

This mechanism is known as *dynamic dispatch*. Since Java knows the type of every object, when it is time to compare two objects of type `Bar`, Java calls the `compareTo()` method that you implemented in the class `Bar`.

▼ What happens if I leave out `implements Comparable<Bar>` in class declaration?

It would lead to a compile-time error if you attempted to call `Arrays.sort()` with an array of `Bar` objects. The argument to `Arrays.sort()` must be an array of comparable objects; otherwise, Java cannot guarantee the existence of the `compareTo()` method at compile time.

▼ What happens if I include `implements Comparable<Bar>` but don't implement the `compareTo()` method?

It would lead to a compile-time error. By including the code `implements Comparable<Bar>`, you are promising to implement a method named `compareTo()` with the specified signature.

BarChartRacer data type

▼ How should I read the data file?

Use the `In` data type and read the file one line at a time. Call `readLine()` to read the next line of data and call `hasNextLine()` to detect whether you have reached the end of the file.

▼ How should I parse each line of data in the data file?

To parse a line containing the number of records in the group, use `Integer.parseInt()`. To parse a line containing a record, use the `split()` method from the `String` library.

▼ My program doesn't animate things properly. Any advice?

First, make sure that you call `StdDraw.enableDoubleBuffering()` at the beginning of your program. Then, you should repeatedly read a group of records. When you are done reading a group of records (corresponding to one time period), create the bar chart; clear the screen; draw the bar chart; call `StdDraw.show()` to display the bar chart on the screen; and call `StdDraw.pause(100)` to leave the bar chart on the screen for, say, 1/10 of a second. You can adjust the parameter 100 to speed up or slow down the animation.

▼ My program doesn't use the country field. Is that a problem?

No. While this field is part of the input file format, you will not need that field in this program.

▼ How does `BarChart` determine which color to color the bars?

It associates each category (e.g., South Asia) with one of 20 predefined colors. If there are more than 20 categories, two entries from two different categories may share the same color.

Curating data sets

▼ Any ideas for curating new data sets?

Yes. You can find lots of animated bar charts on the web. Here are a few starting points:

- [WawamuStats](#) . Examples include twitter accounts by number of followers, most subscribed YouTube channels, most populous megacities.
- [Data is Beautiful](#) . Examples include most popular programming languages, most popular browsers, most sold video games, top car brands, world's largest religions, largest armies in the world.