

Learning Goals

1. Practice using multi-dimensional arrays
2. See data in a realistic context

Business Goal

Your neighborhood gardener has made a chart of daily temperatures for the past week. She's going to provide more data later, but first she wants a proof of concept program that calculates average temperatures at a given time of day.

Here's the data chart. In the below sample run, you'll see 99's used as examples. In your real program, you should use the data in THIS CHART instead.

		Sun	Mon	Tue	Wed	Thu	Fri	Sat
		0	1	2	3	4	5	6
7:00 AM	0	68	70	76	70	68	71	75
3:00 PM	1	76	76	87	84	82	75	83
7:00 PM	2	73	72	81	78	76	73	77
3:00 AM	3	64	65	69	68	70	74	72

Put this data into a multi-dimensional array (7 by 4) inside your code.

Then, calculate averages in both directions over the data:

1. What is the average temperature for each day? (Your code should produce 7 results.)
2. What is the average temperature for each time? (Your code should produce 4 results.)
3. What is the final average temperature overall? (Your code should produce 1 result.)

You will probably want to use nested for loops to navigate the array. The outer for-loop identifies the row (time of day), while the inner for-loop identifies the column (day of week).

Here is a sample run. The values here are **wrong** for the above data; you'll need to run your own calculation in your code. (I couldn't make it that easy!)

```
Temperature Calculator
```

```
The data provided are:
```

```
7 AM: 68, 70, 76, 70, 68, 71, 75
```

```
3 PM: 76, 99, 99, 99, 99, 99, 99
```

```
7 PM: 99, 99, 99, 99, 99, 99, 99
```

```
3 AM: 99, 99, 99, 99, 99, 99, 99
```

```
Based on that data, the following are the average temperatures for the week.
```

```
Sun: 87
```

```
Mon: 88
```

```
Tue: 87
```

```
Wed: 88
```

```
Thu: 87
```

```
Fri: 88
```

```
Sat: 87
```

```
7 AM: 85
```

```
3 PM: 96
```

```
7 PM: 87
```

```
3 AM: 81
```

```
The final average temperature for the week was:
```

```
Overall: 99
```

Coding Syntax Examples - Reference Guide

```
int[] [] temps = new int[4][7];
```

```
temps[0][0] = 68;
```

```
temps[3][6] = 72;
```

Testing

- Verify your results by calculating the averages by hand.
- Pay attention to the effects of rounding.
- Check that if you change the data values, the averages change automatically.