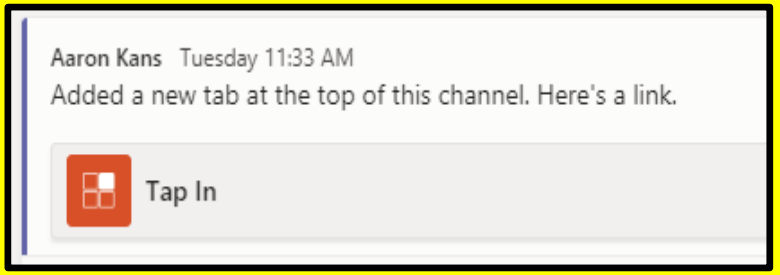
CD/CN4001: Topic 7 Lab

ON CAMPUS

Tap in* with your ID card in a *UEL lab

REMOTE

Click on the Tap in tab in the General channel of the Teams site



CD/CN4001: Topic 7 Lab

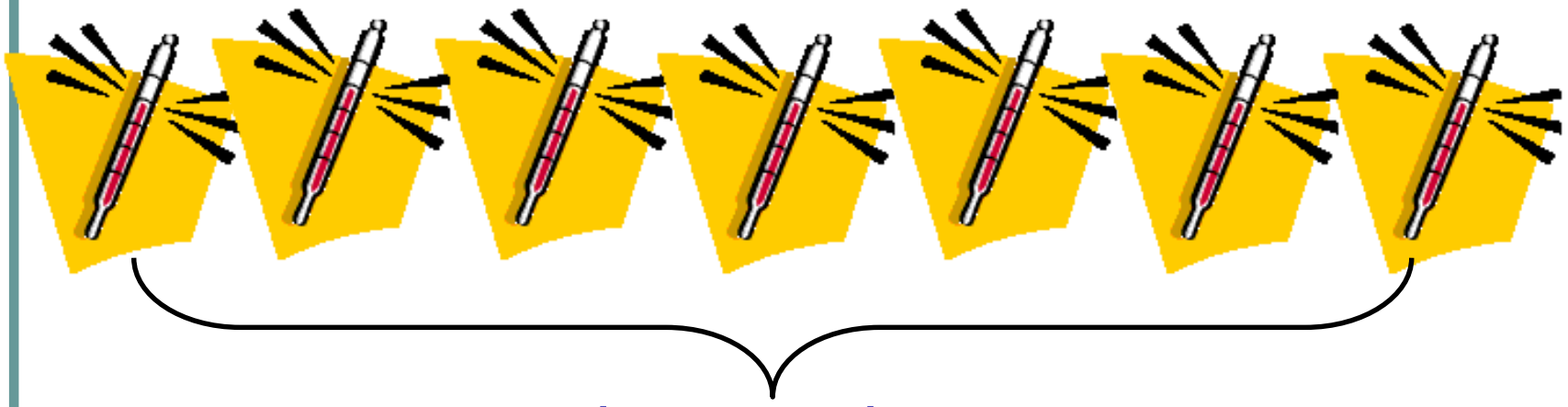
This week we will look at the TemperatureReadings app from the lecture.

Arrays: Lecture Review

TemperatureReadingApp.java

A program to enter and display 7 temperature readings using arrays.

Arrays: Lecture Review

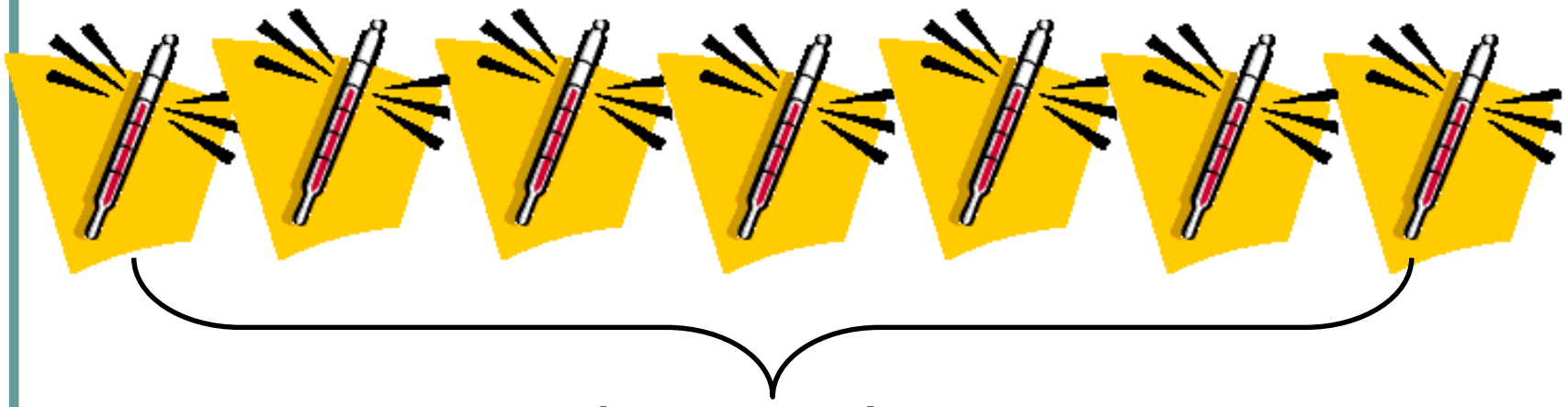


temperature

```
double[ ] temperature  ;

temperature   = new double [7];
```

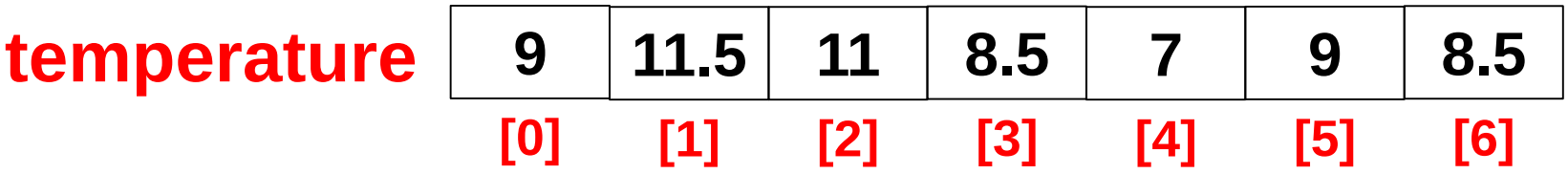
Arrays: Lecture Review



temperature

```
double[ ] temperature  = new double [7];
```

Arrays: Lecture Review




```
for (   int i = 0      ;   i < temperature.length;  i++)
{
        System.out.println(  temperature[  i  ]  );
}
```

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Click on the Week 7 block of your Moodle Site

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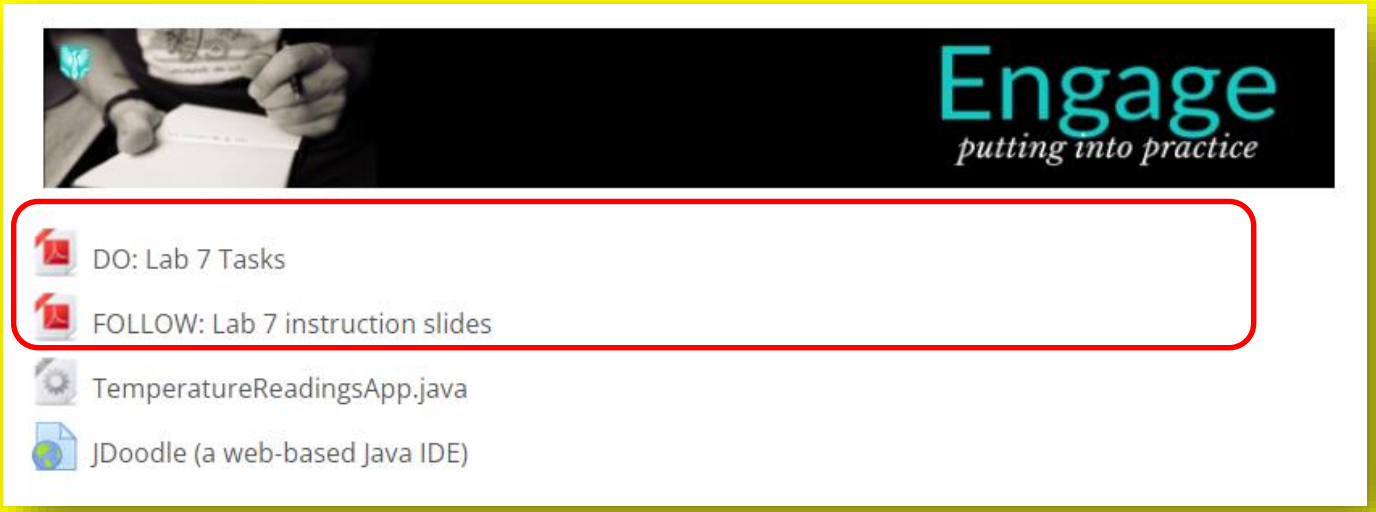

Open the lab 7 tasks/instruction slides

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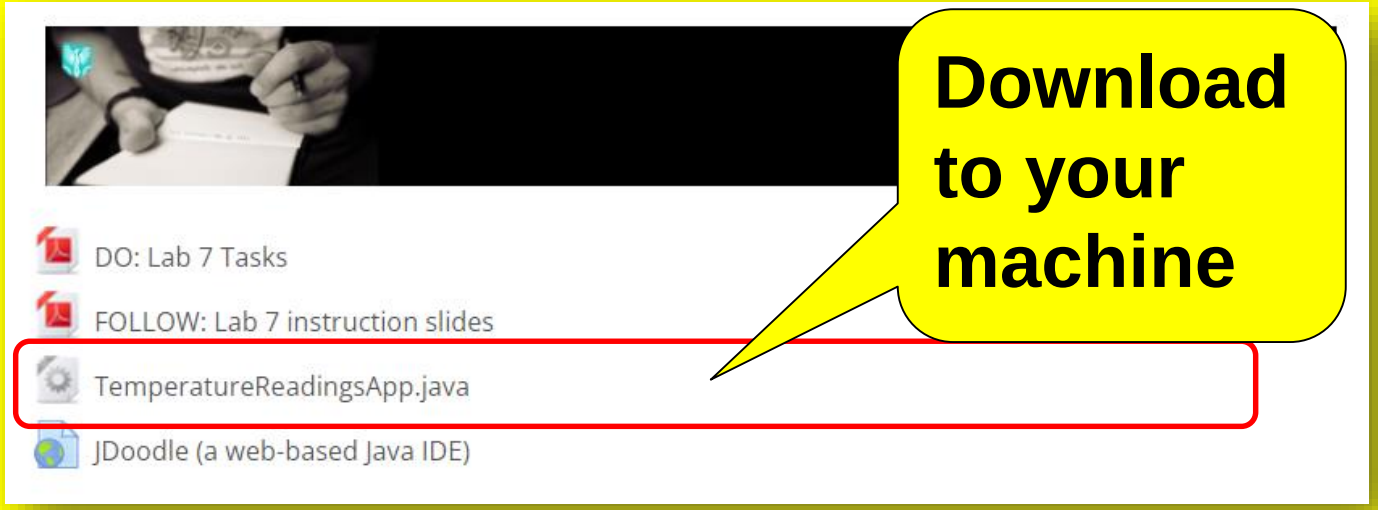
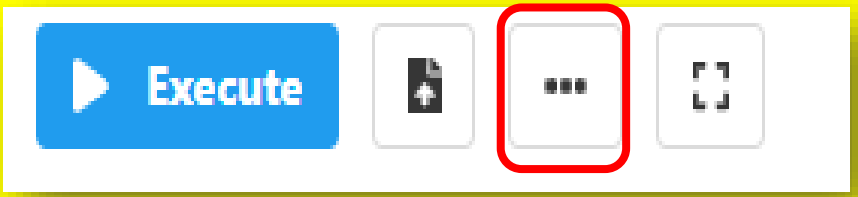


Open the lab 7 tasks/instruction slides

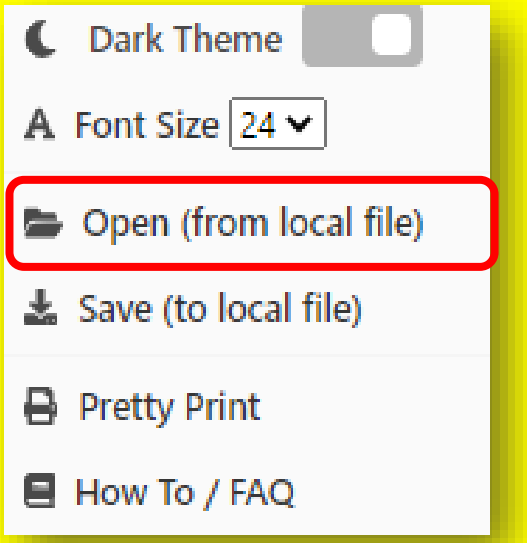
CD/CN4001: Topic 7 Lab

a) **Select the three dots by the Execute button.**



CD/CN4001: Topic 7 Lab

b) From the pop-up menu select **Open (from local file)** and browse to your **TemperatureReadings App.java** file on your machine to open that file in JDoodle



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/TemperatureReadingsApp.java

```
1  import java.util.*;
2
3  public class TemperatureReadingsApp
4  {
5      public static void main(String[] args)
6      {
7          double[ ] temperature = new double[7];
8          enterTemps(temperature);
9          displayTemps(temperature);
10     }
11
12     static void enterTemps(double[] temperatureIn)
13     {
14         Scanner keyboard = new Scanner(System.in);
15         for (int i = 0; i < temperatureIn.length; i++)
16         {
17             System.out.print("enter max temperature for day " + (i+1)+ ": ");
18             temperatureIn[i] = keyboard.nextDouble();
19         }
20     }
21
22     static void displayTemps(double[] temperatureIn)
23     {
24         System.out.println();
25         System.out.println("***TEMPERATURES ENTERED***");
26         for (int i = 0; i < temperatureIn.length; i++)
27         {
28             System.out.println("day "+(i+1)+" "+ temperatureIn[i]);
29         }
30     }
31 }
```

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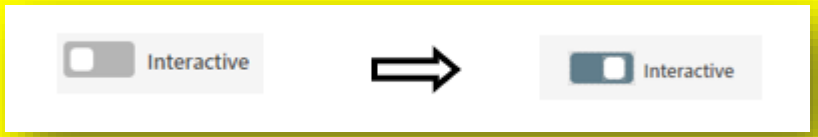
c) To allow for user input also the **Interactive slider** to the on position.



CD/CN4001: Topic 7 Lab

/TemperatureReadingsApp.java

```
1  import java.util.*;
2
3  public class TemperatureReadingsApp
4  {
5      public static void main(String[] args)
6      {
7          double[ ] temperature = new double[7];
8          enterTemps(temperature);
9          displayTemps(temperature);
10     }
11
12     static void enterTemps(double[] temperatureIn)
13     {
14         Scanner keyboard = new Scanner(System.in);
15         for (int i = 0; i < temperatureIn.length; i++)
16         {
17             System.out.print("enter max temperature for day "
18             temperatureIn[i] = keyboard.nextDouble();
19         }
20     }
21
22     static void displayTemps(double[] temperatureIn)
23     {
24         System.out.println();
25         System.out.println("***TEMPERATURES ENTERED***");
26         for (int i = 0; i < temperatureIn.length; i++)
27         {
28             System.out.println("day "+(i+1)+" "+ temperatureIn[i]);
29         }
30     }
31 }
```

We will modify this program this week

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a) **Compile and run the TemperatureReadings program**

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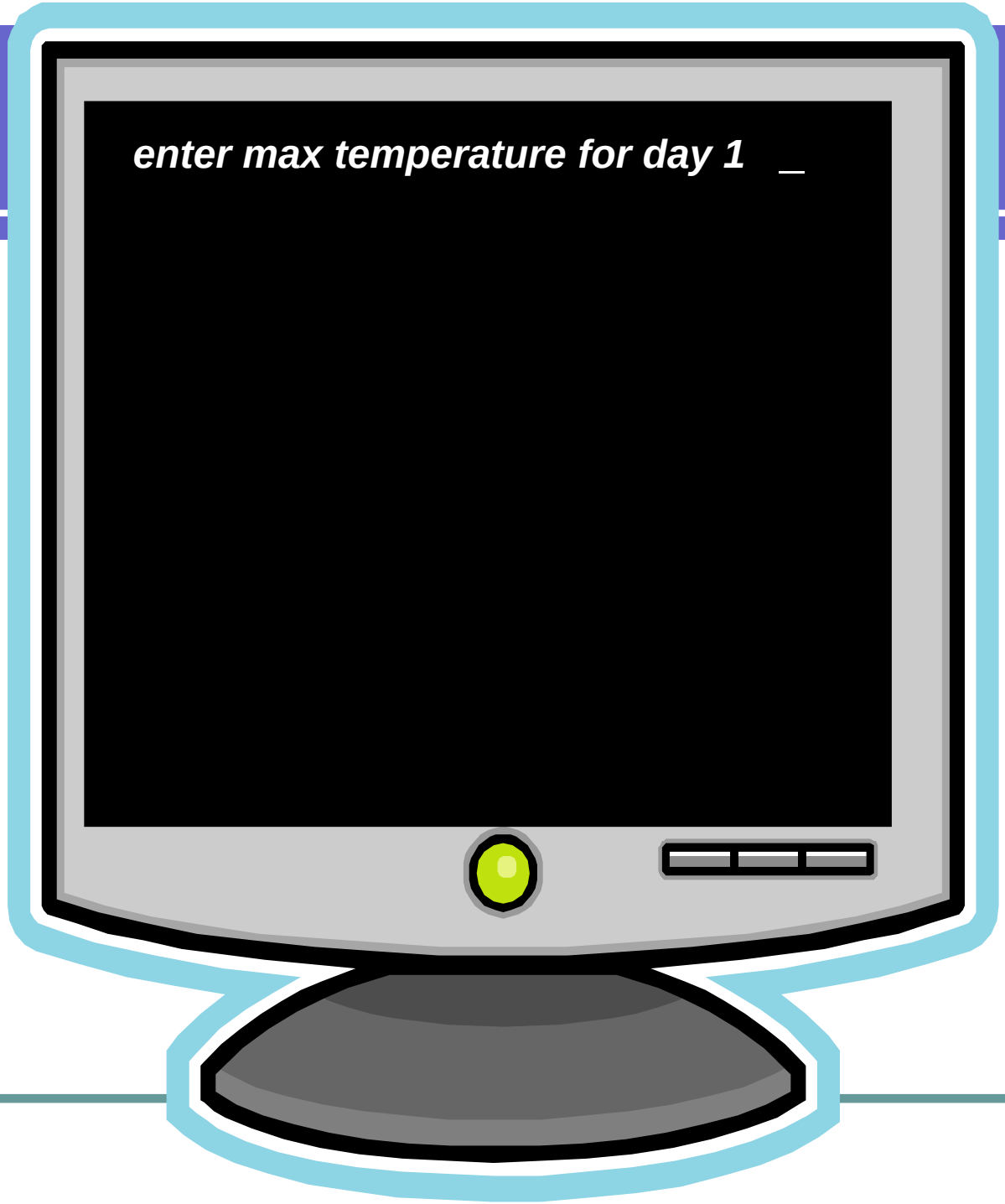
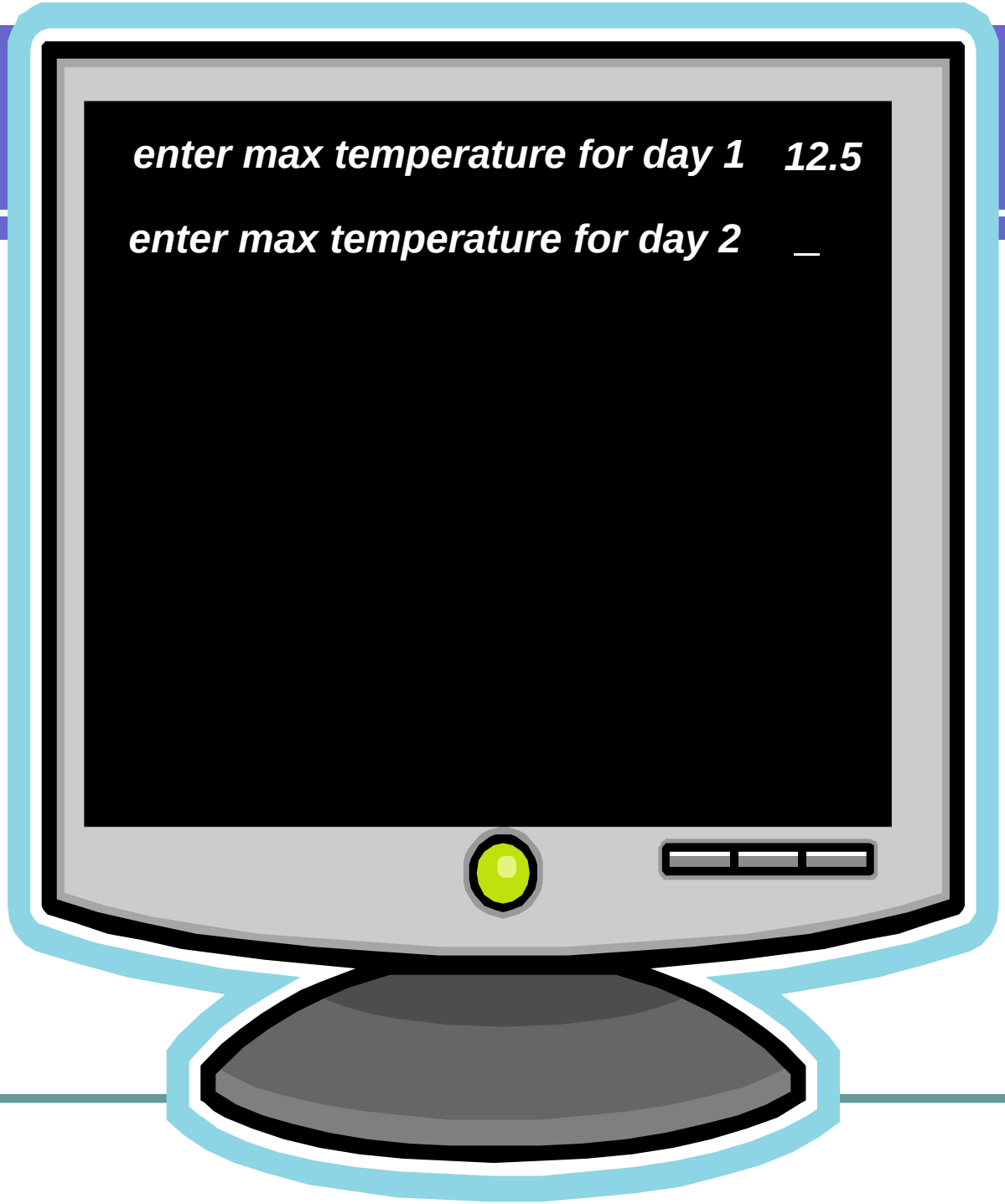
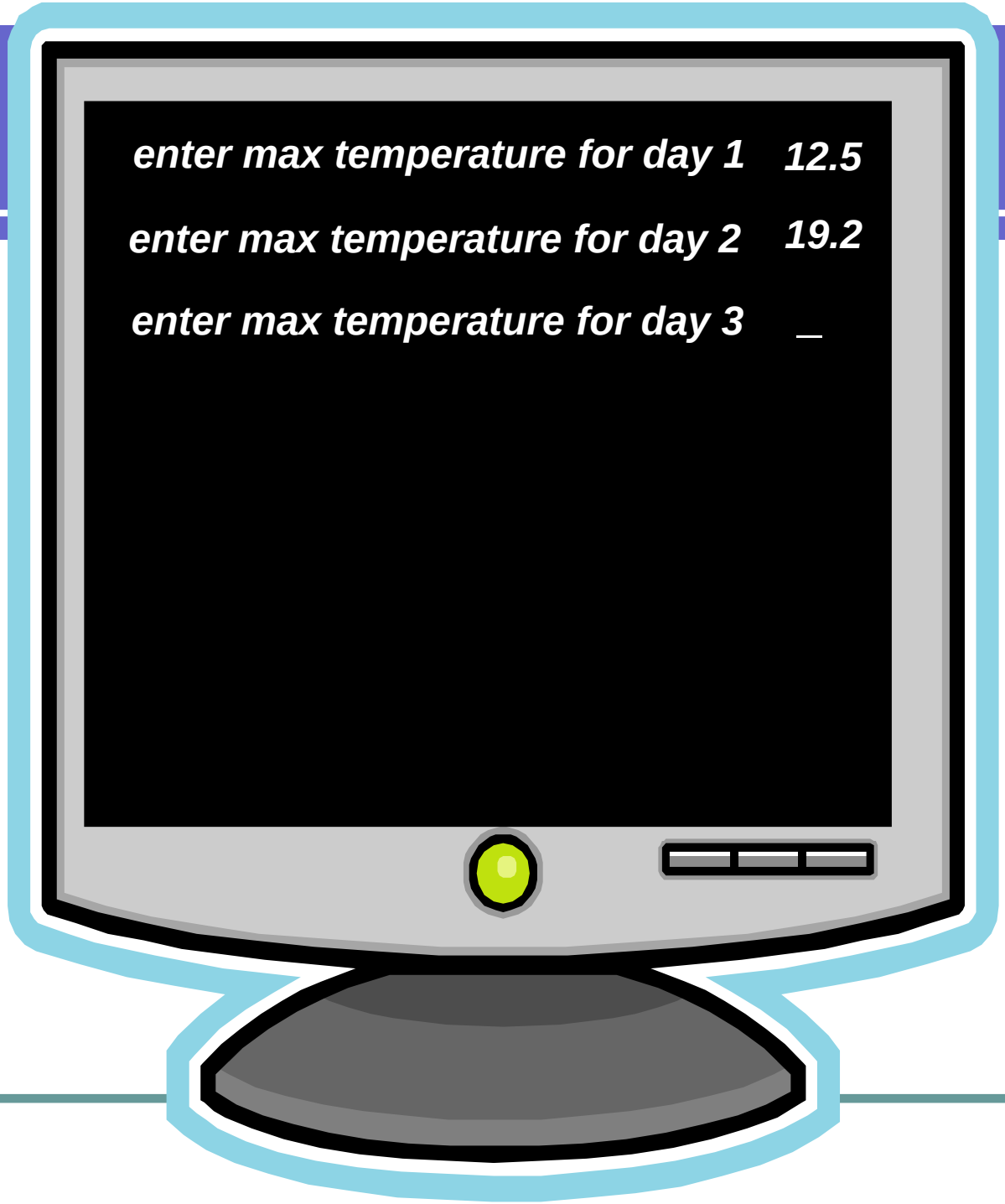
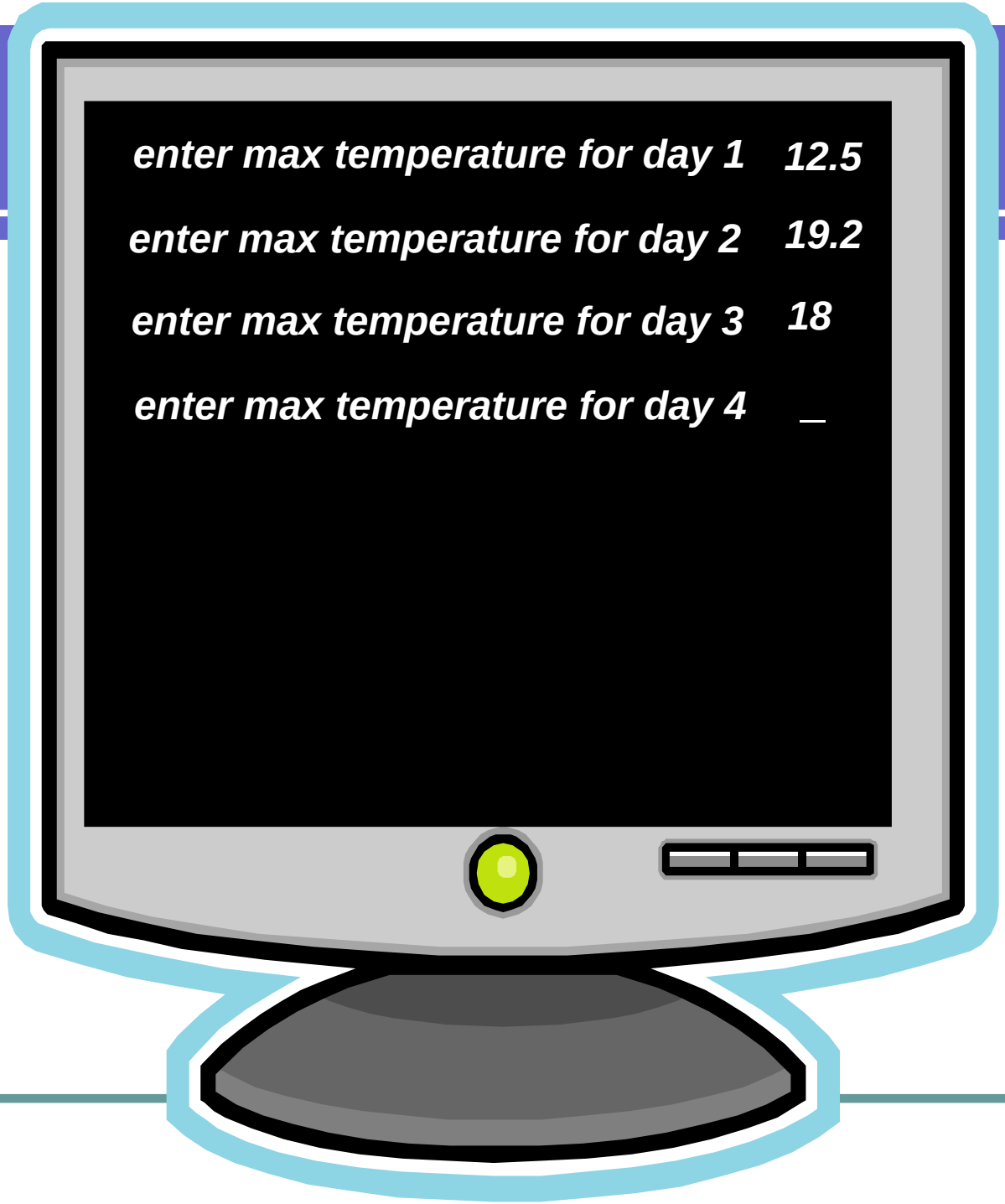
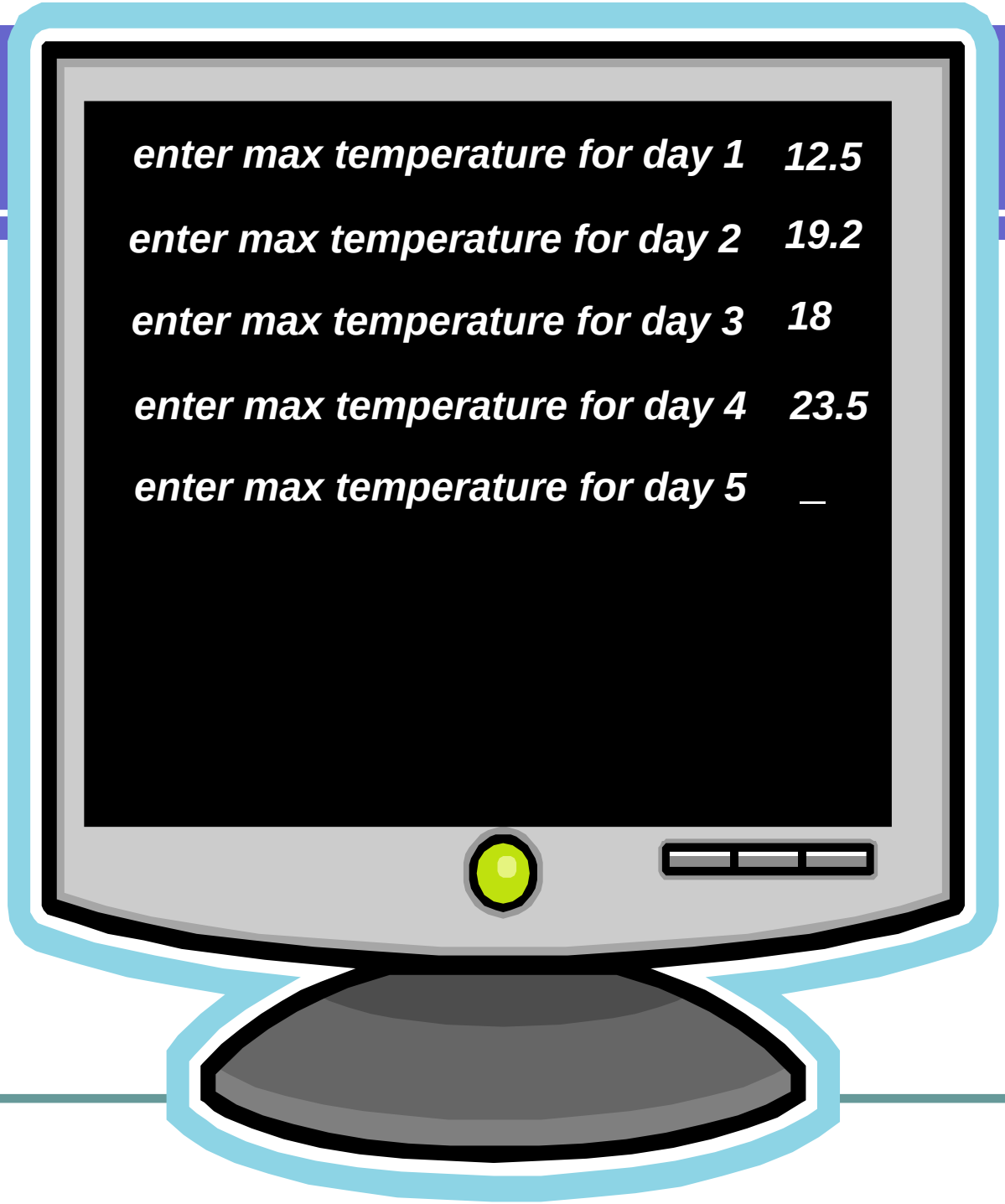
b) Design and implement a method, wasHot, which accepts the temperature array and displays all days that recorded temperatures of 18 degrees or over. Modify the main method so that this wasHot method is called after the displayTemps method.

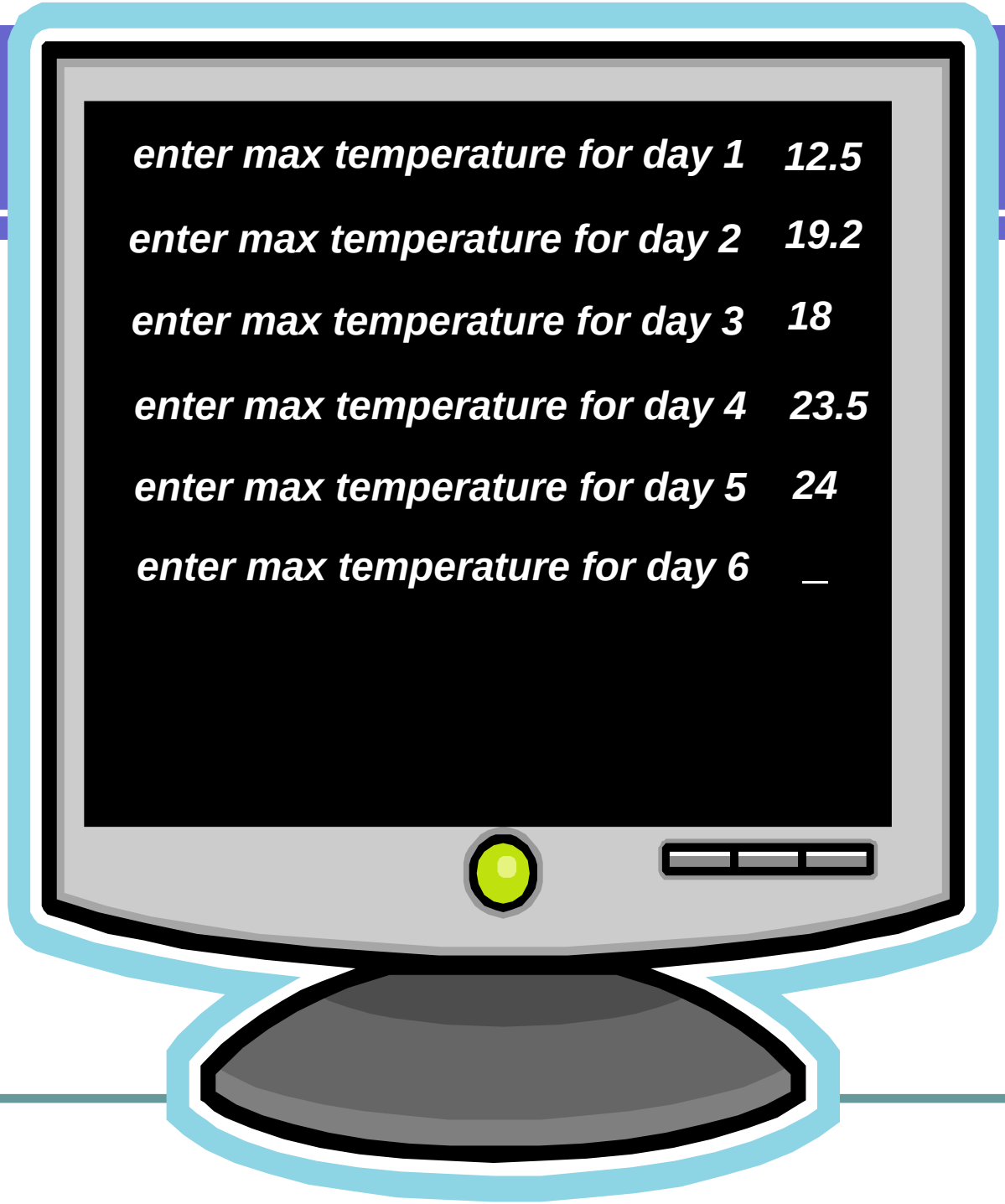

enter max temperature for day 1 _

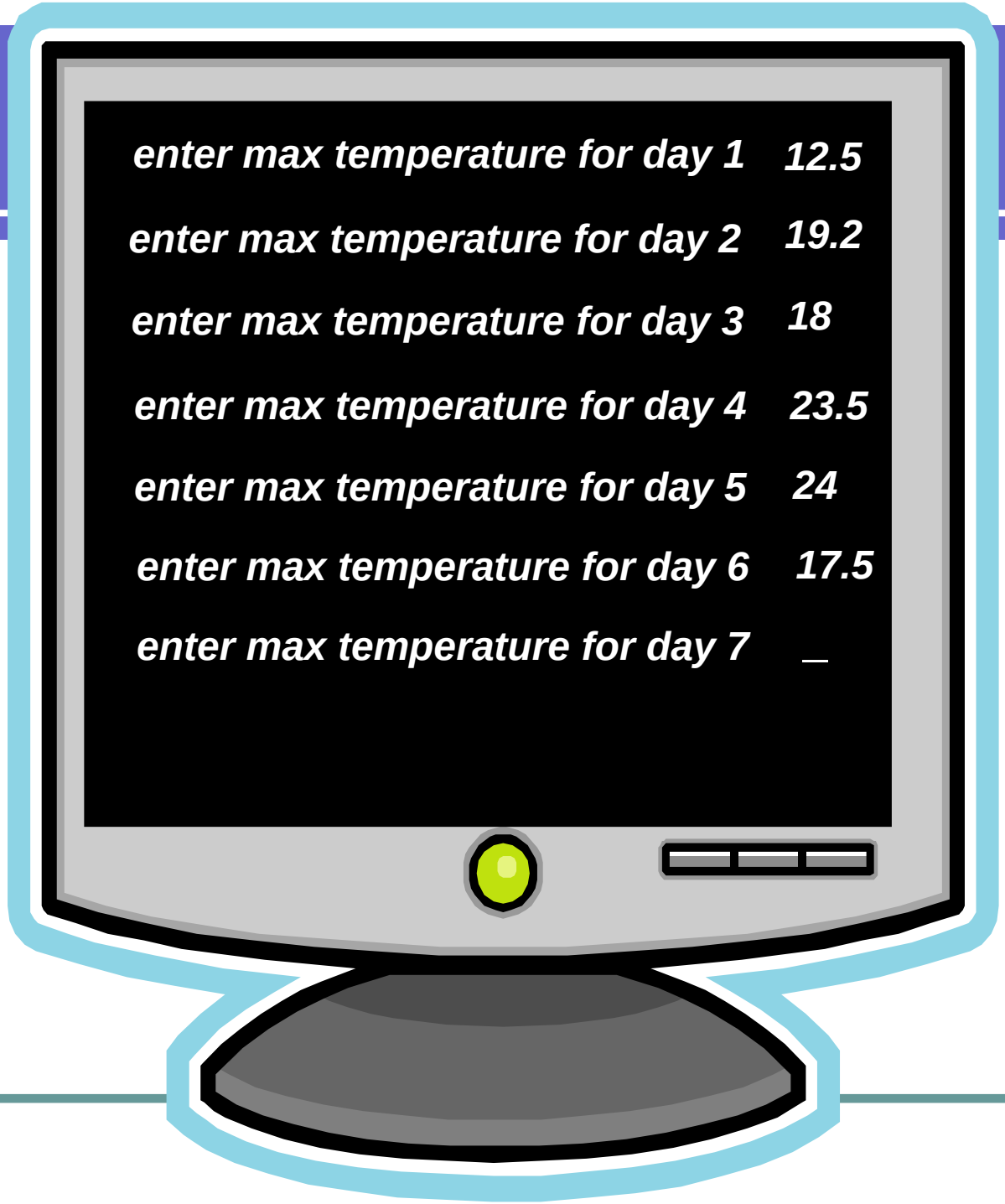

enter max temperature for day 1 12.5
enter max temperature for day 2 _

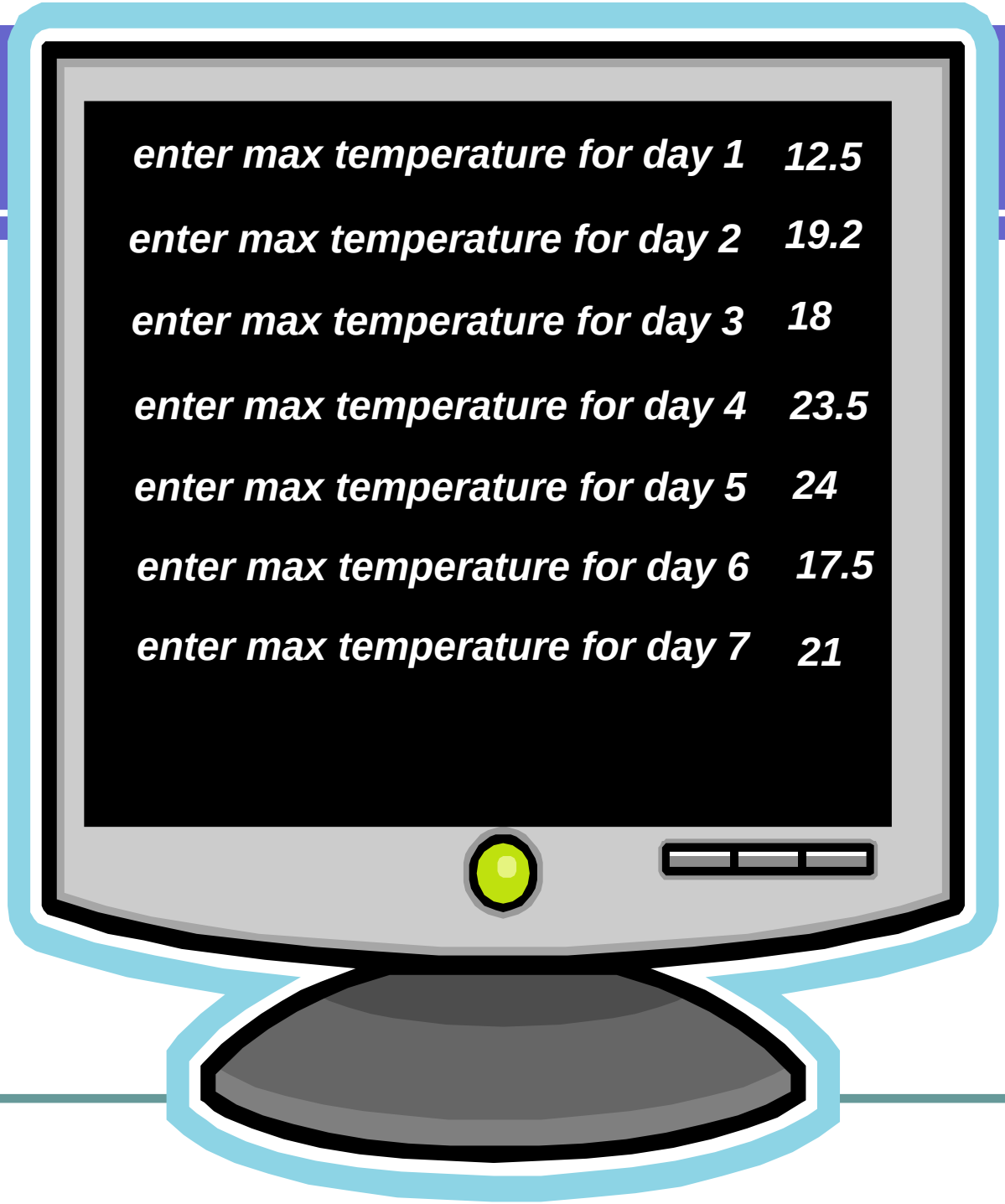

enter max temperature for day 1 12.5
enter max temperature for day 2 19.2
enter max temperature for day 3 _

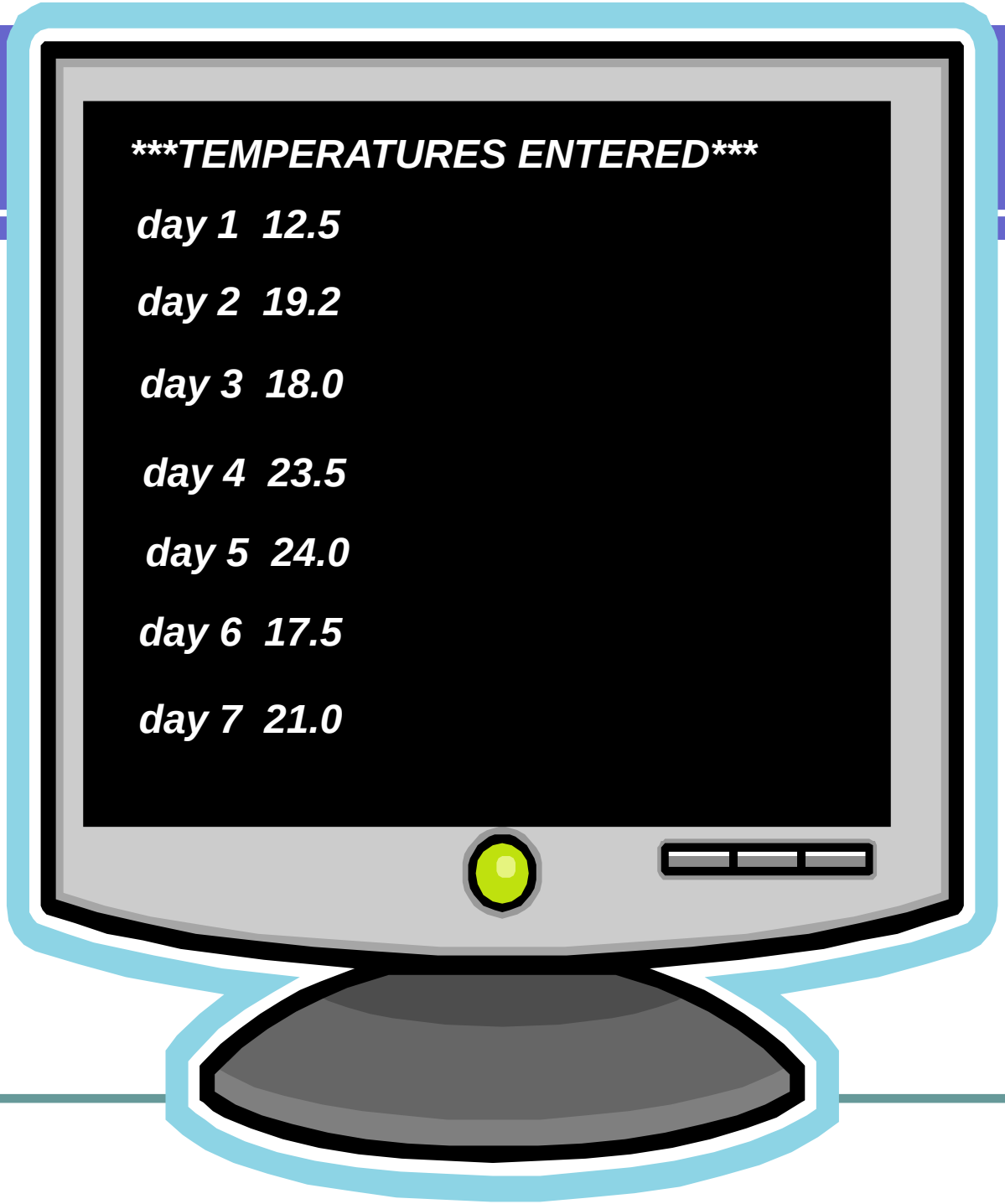

enter max temperature for day 1 12.5
enter max temperature for day 2 19.2
enter max temperature for day 3 18
enter max temperature for day 4 _

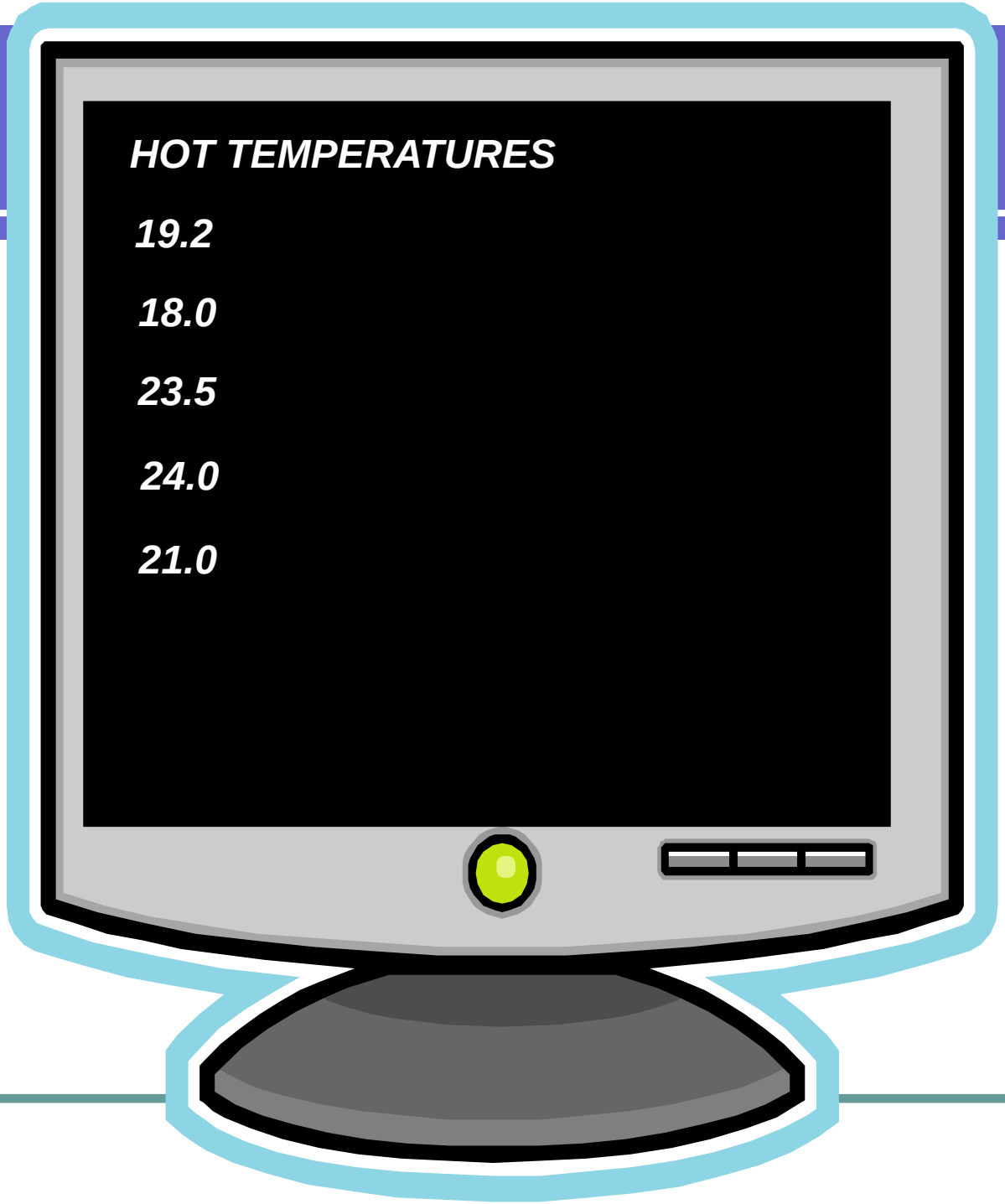

enter max temperature for day 1 12.5
enter max temperature for day 2 19.2
enter max temperature for day 3 18
enter max temperature for day 4 23.5
enter max temperature for day 5 _


enter max temperature for day 1 12.5
enter max temperature for day 2 19.2
enter max temperature for day 3 18
enter max temperature for day 4 23.5
enter max temperature for day 5 24
enter max temperature for day 6 _


enter max temperature for day 1 12.5
enter max temperature for day 2 19.2
enter max temperature for day 3 18
enter max temperature for day 4 23.5
enter max temperature for day 5 24
enter max temperature for day 6 17.5
enter max temperature for day 7 _


enter max temperature for day 1 12.5
enter max temperature for day 2 19.2
enter max temperature for day 3 18
enter max temperature for day 4 23.5
enter max temperature for day 5 24
enter max temperature for day 6 17.5
enter max temperature for day 7 21


TEMPERATURES ENTERED
day 1 12.5
day 2 19.2
day 3 18.0
day 4 23.5
day 5 24.0
day 6 17.5
day 7 21.0


HOT TEMPERATURES
19.2
18.0
23.5
24.0
21.0

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b) Design and implement a method, wasHot, which accepts the temperature array and displays all days that recorded temperatures of 18 degrees or over. Modify the main method so that this wasHot method is called after the displayTemps method.

YOU HAVE 20 MINUTES!!!

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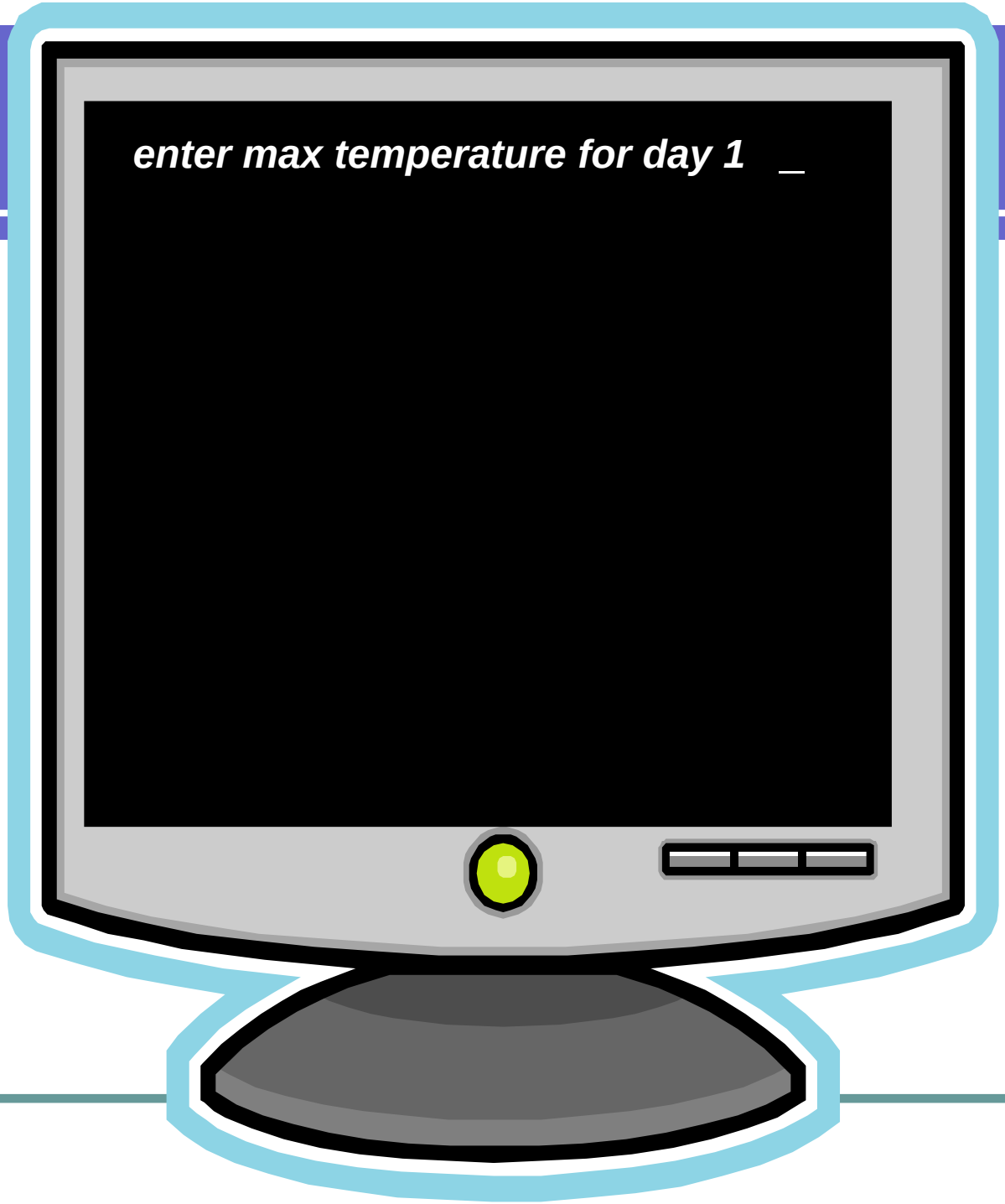
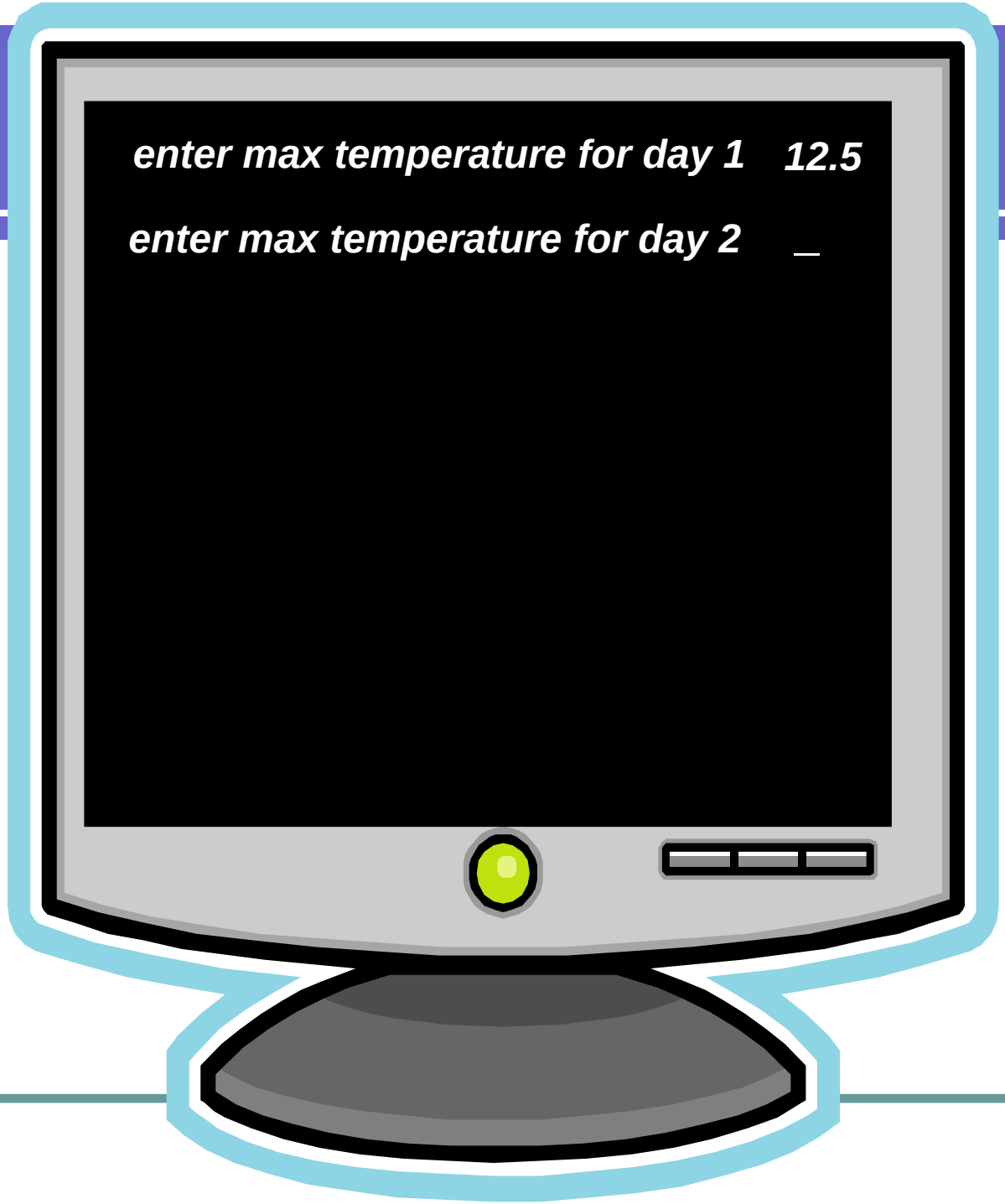
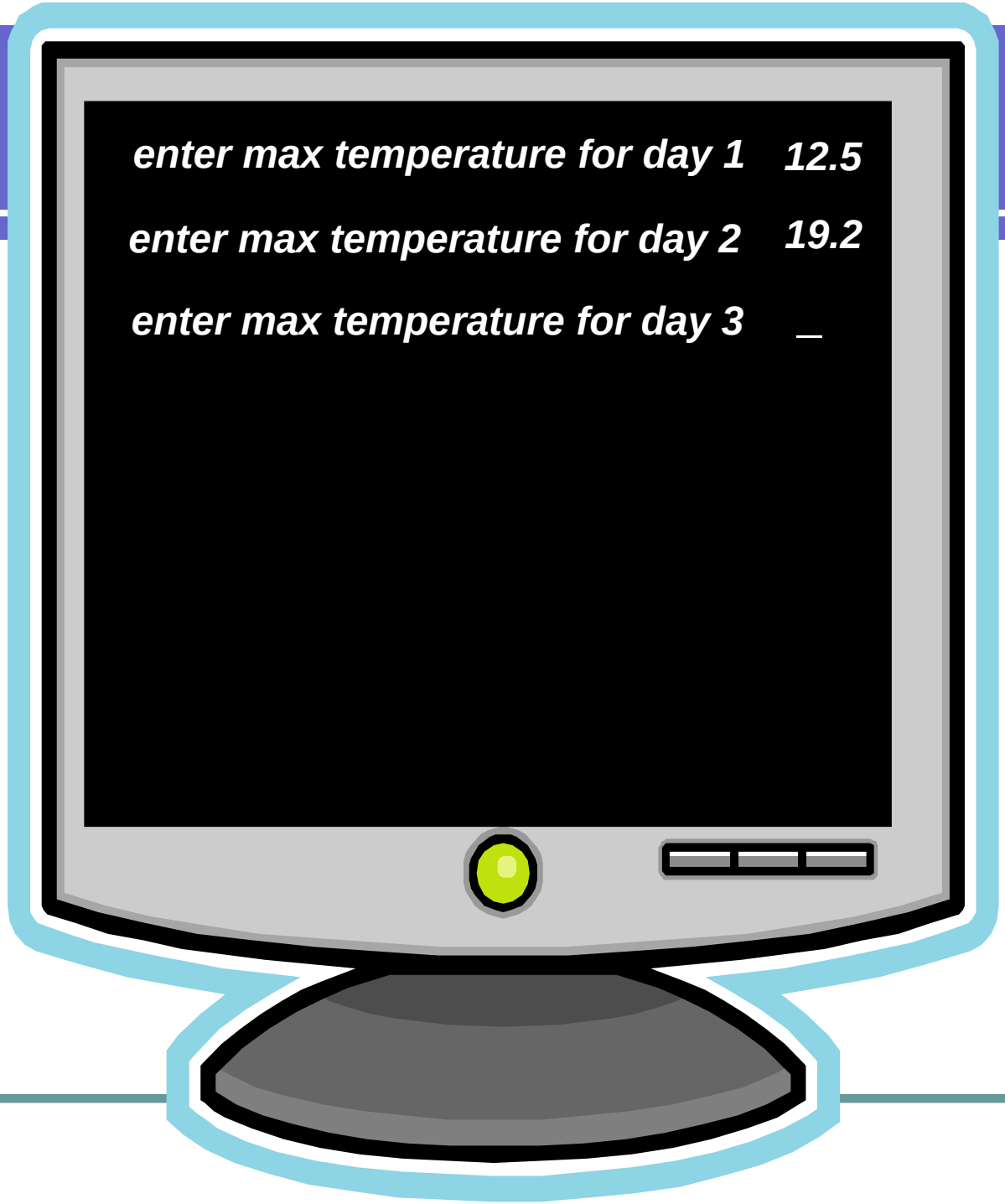
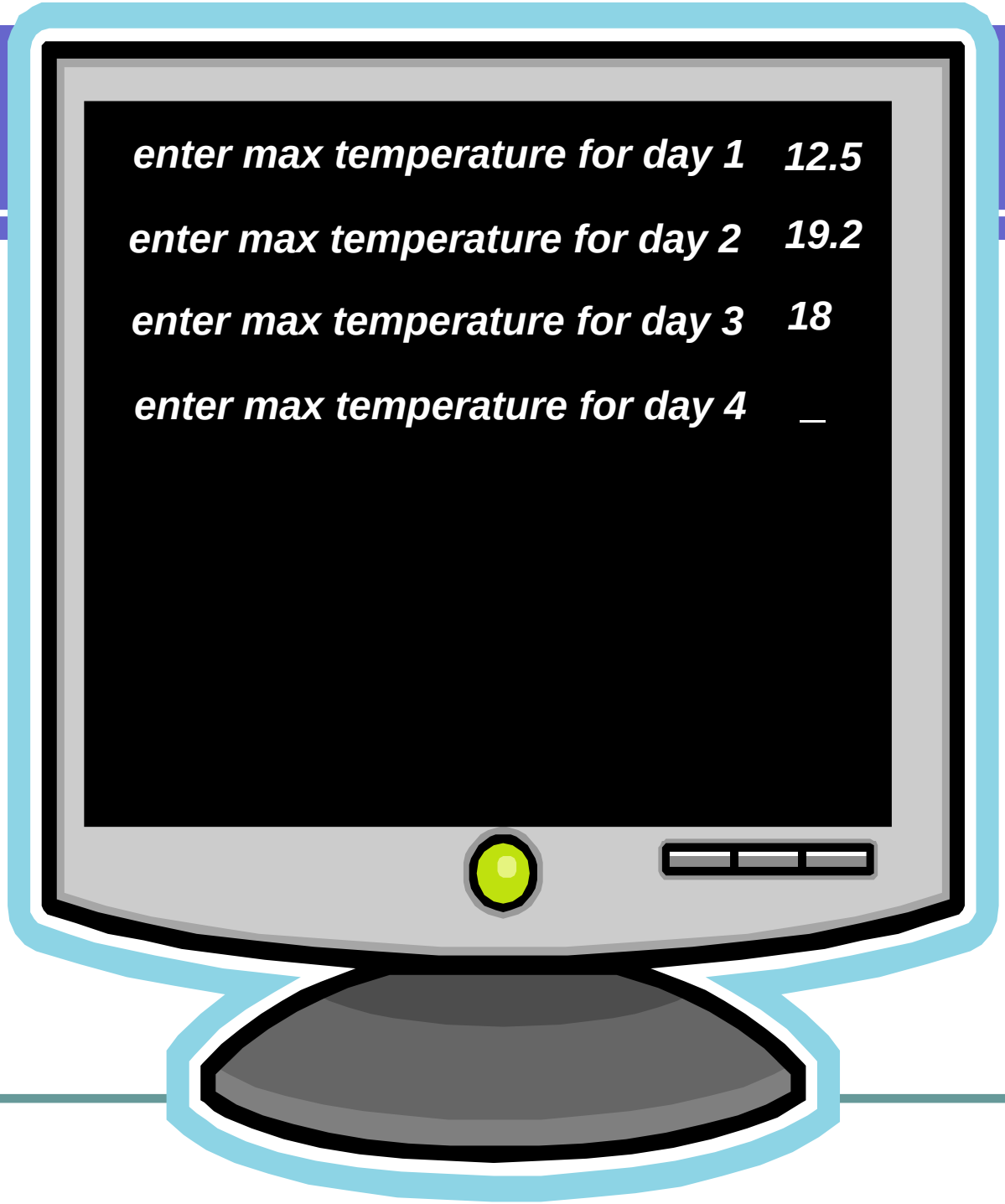
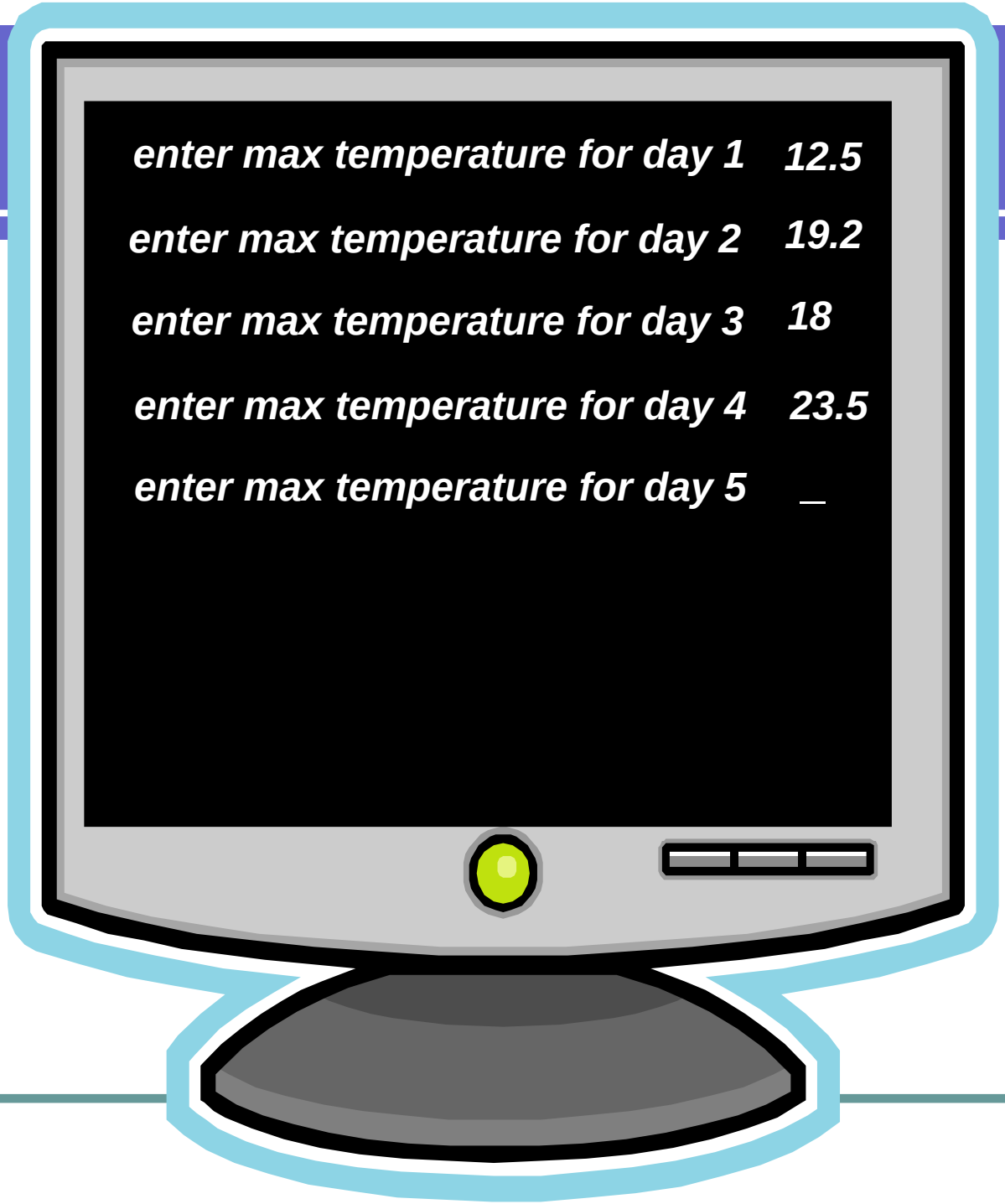
TIME'S UP!!


enter max temperature for day 1 _


enter max temperature for day 1 12.5
enter max temperature for day 2 _


enter max temperature for day 1 12.5
enter max temperature for day 2 19.2
enter max temperature for day 3 _


enter max temperature for day 1 12.5
enter max temperature for day 2 19.2
enter max temperature for day 3 18
enter max temperature for day 4 _


enter max temperature for day 1 12.5
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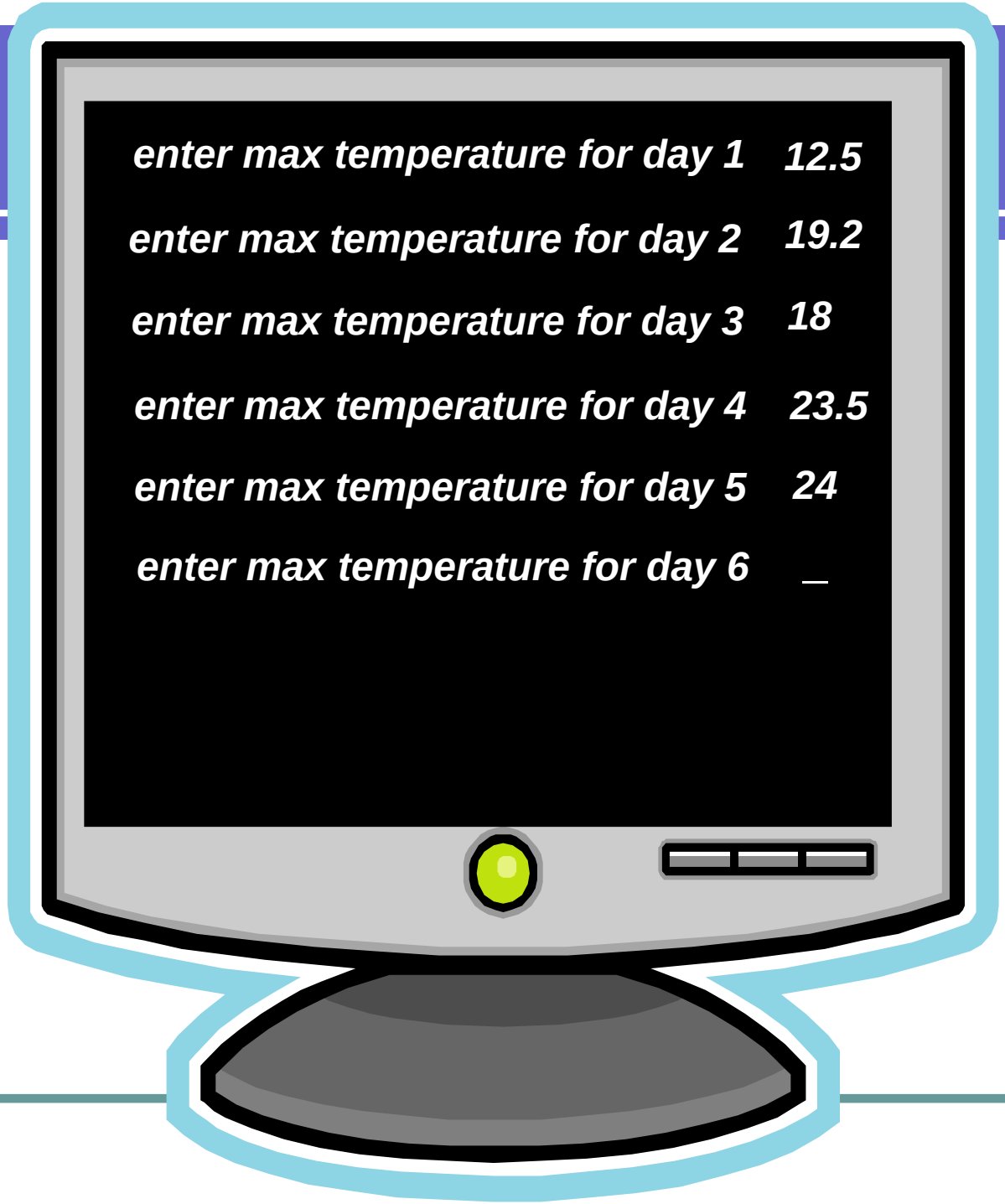
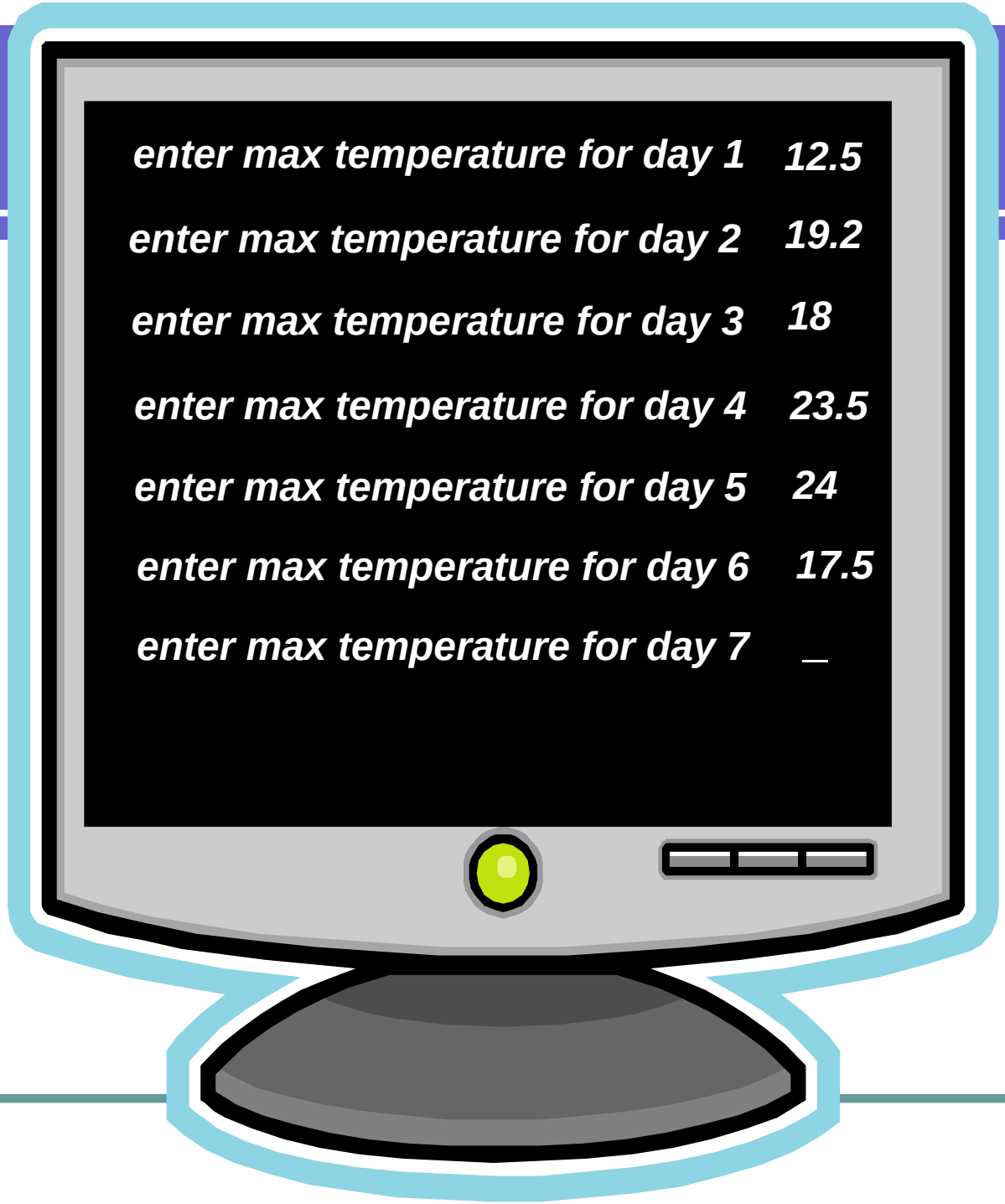
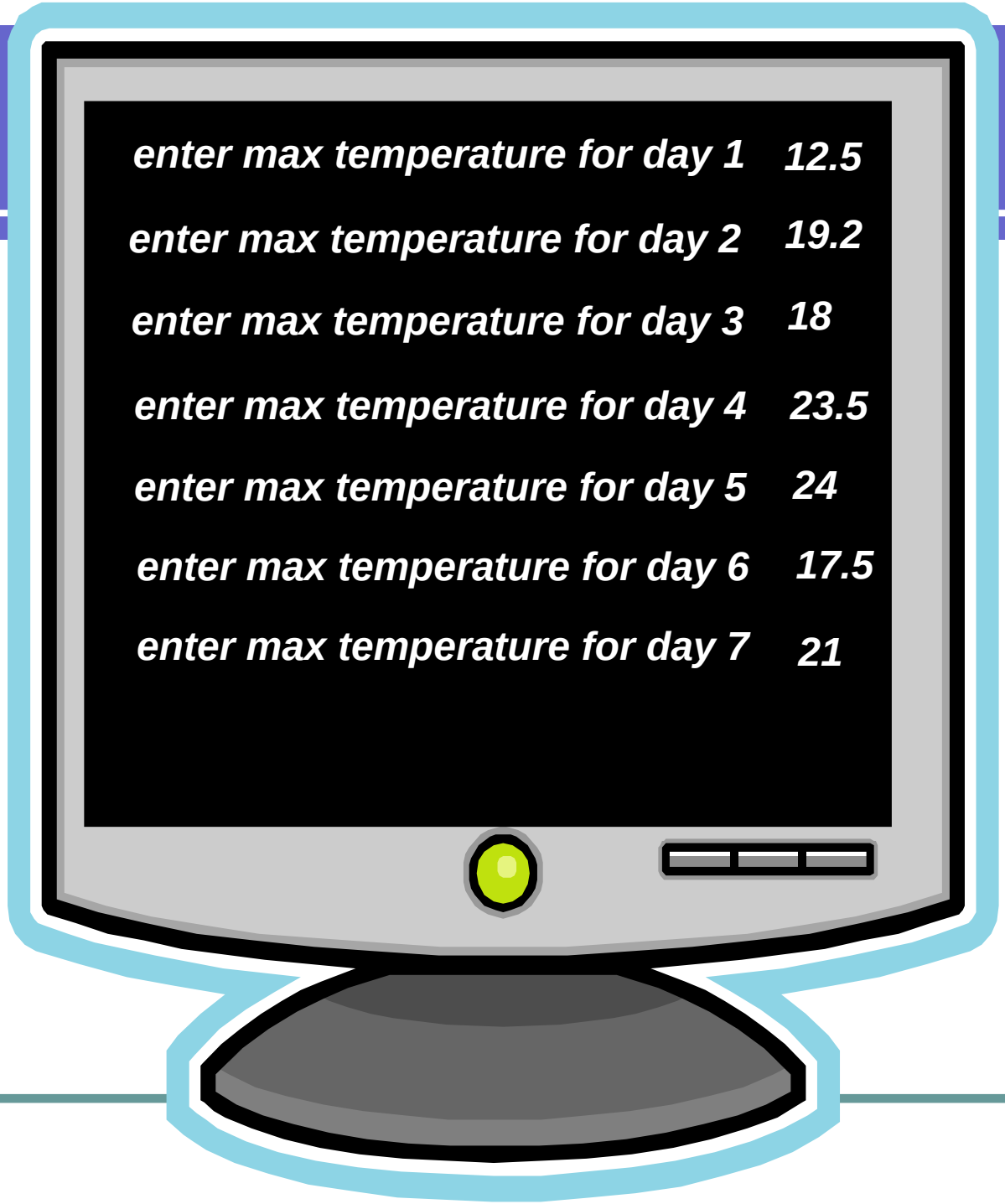
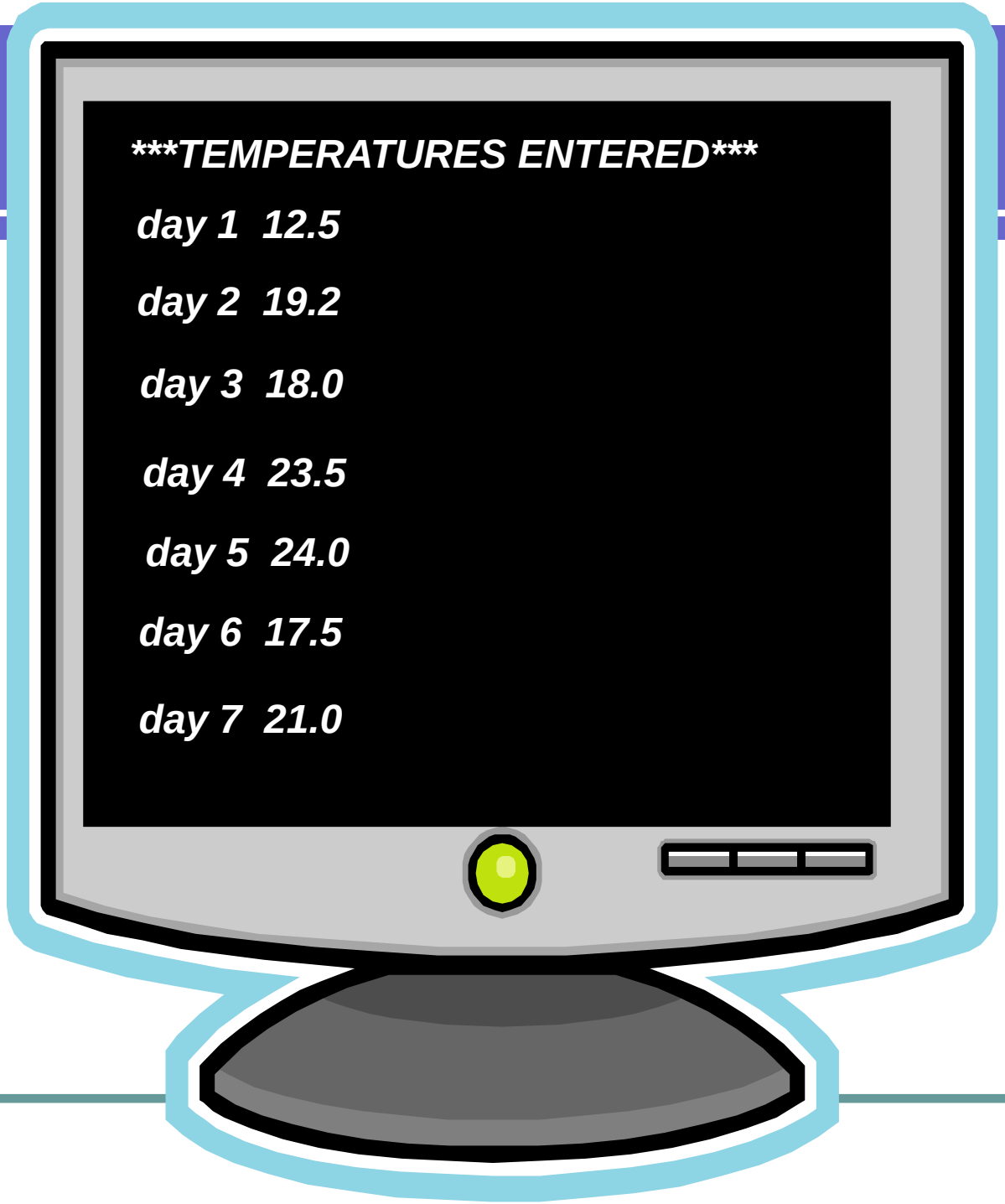
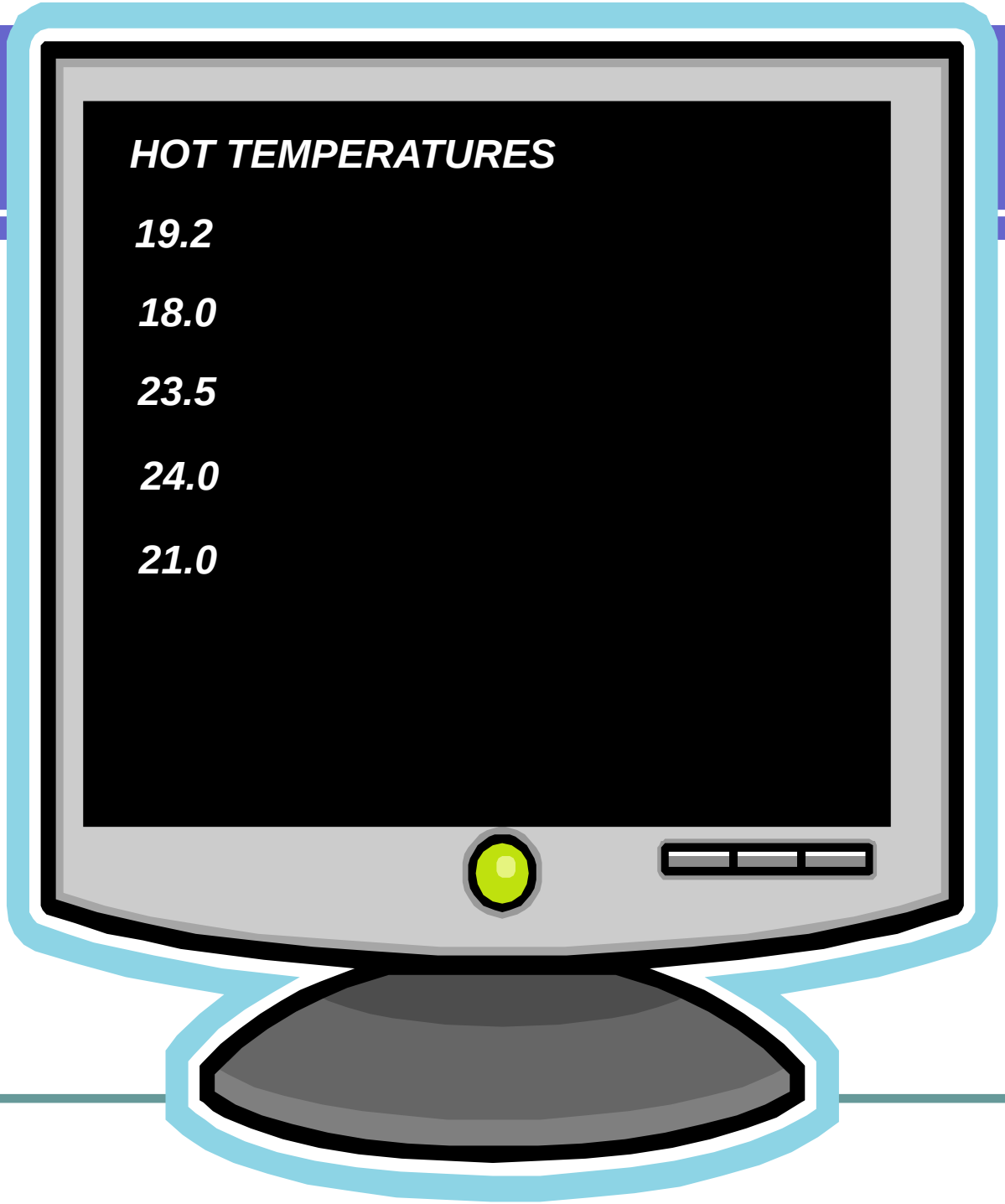
enter max temperature for day 5 _


enter max temperature for day 1 12.5
enter max temperature for day 2 19.2
enter max temperature for day 3 18
enter max temperature for day 4 23.5
enter max temperature for day 5 24
enter max temperature for day 6 _


enter max temperature for day 1 12.5
enter max temperature for day 2 19.2
enter max temperature for day 3 18
enter max temperature for day 4 23.5
enter max temperature for day 5 24
enter max temperature for day 6 17.5
enter max temperature for day 7 _


enter max temperature for day 1 12.5
enter max temperature for day 2 19.2
enter max temperature for day 3 18
enter max temperature for day 4 23.5
enter max temperature for day 5 24
enter max temperature for day 6 17.5
enter max temperature for day 7 21


TEMPERATURES ENTERED
day 1 12.5
day 2 19.2
day 3 18.0
day 4 23.5
day 5 24.0
day 6 17.5
day 7 21.0


HOT TEMPERATURES
19.2
18.0
23.5
24.0
21.0

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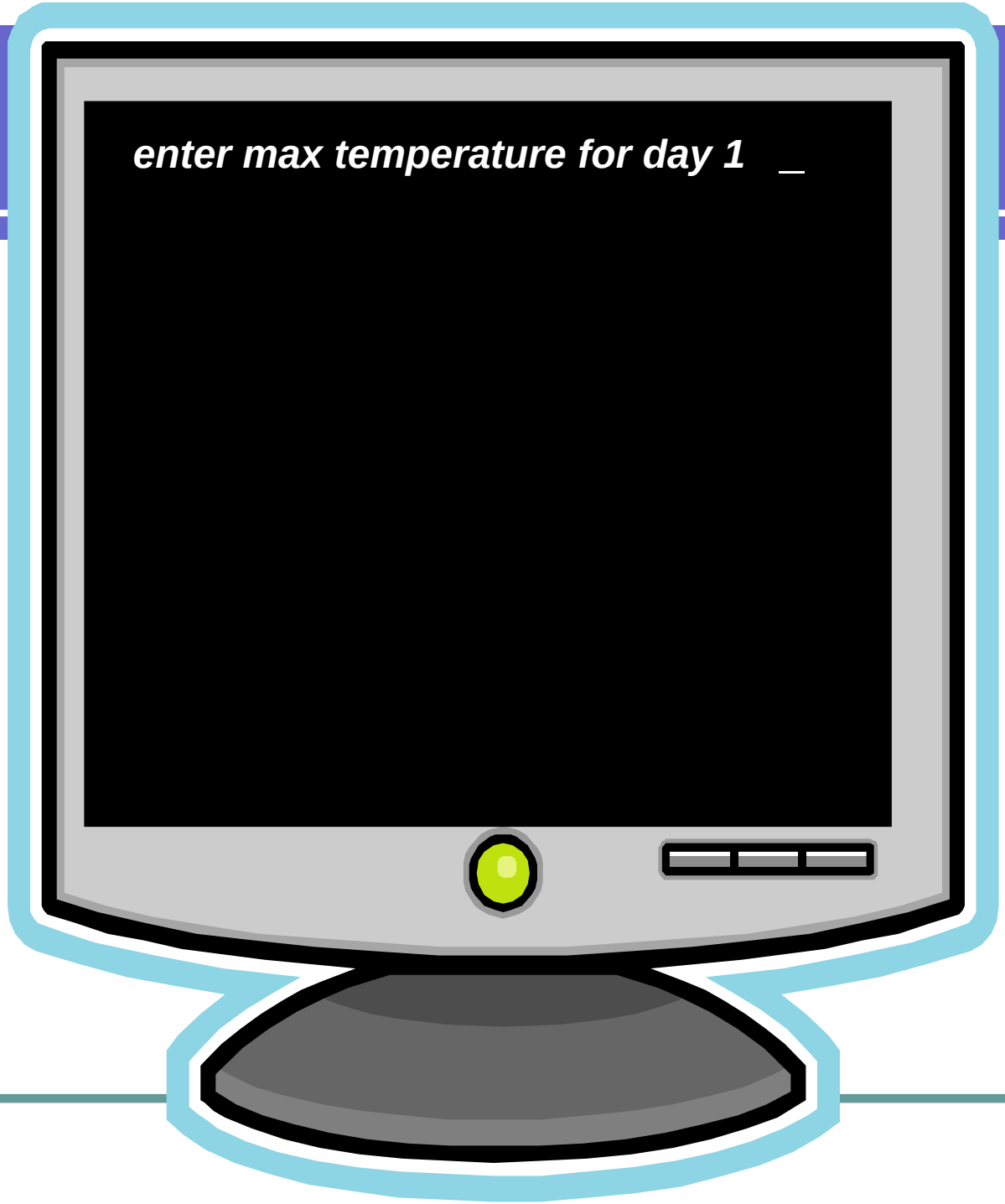
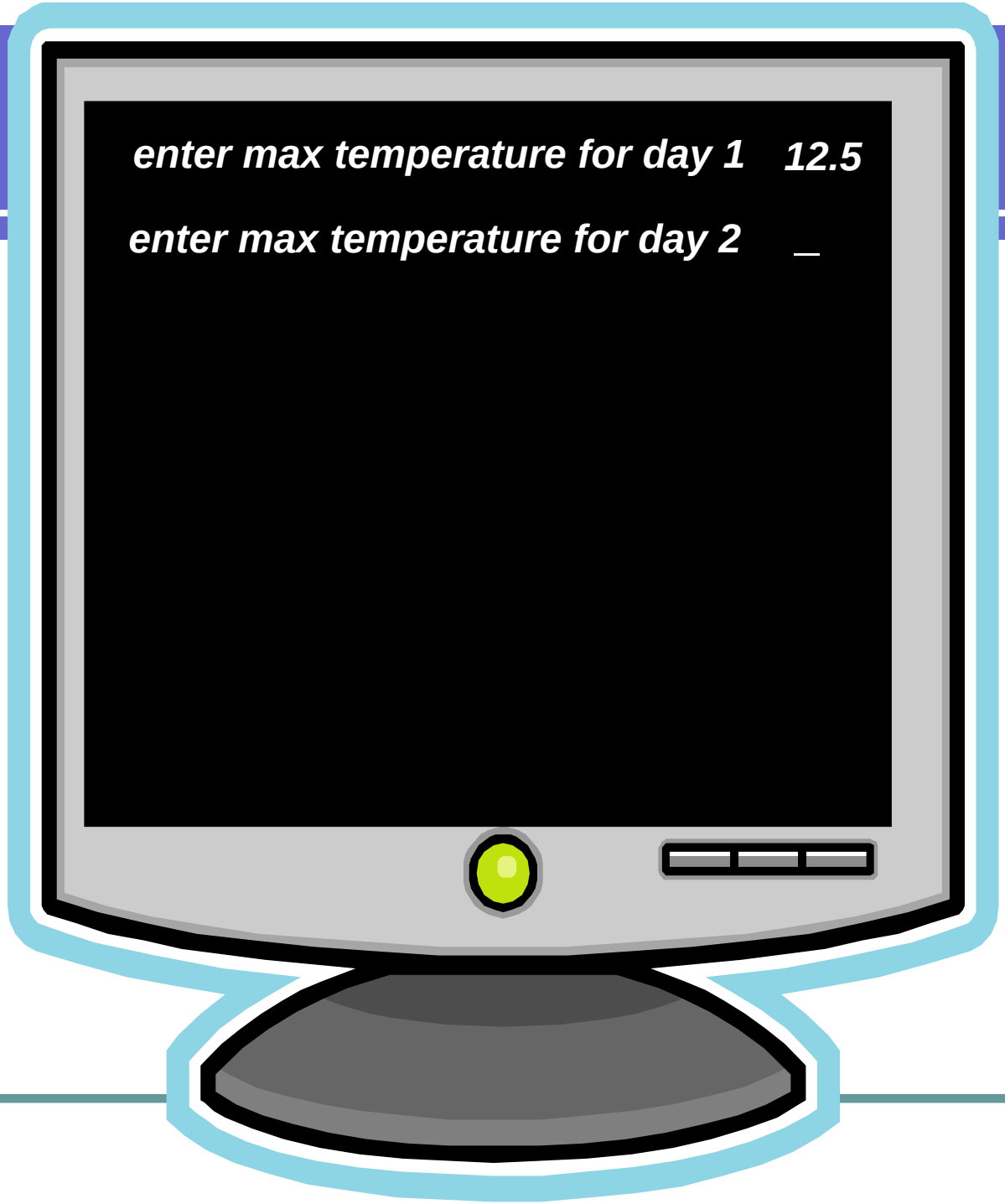
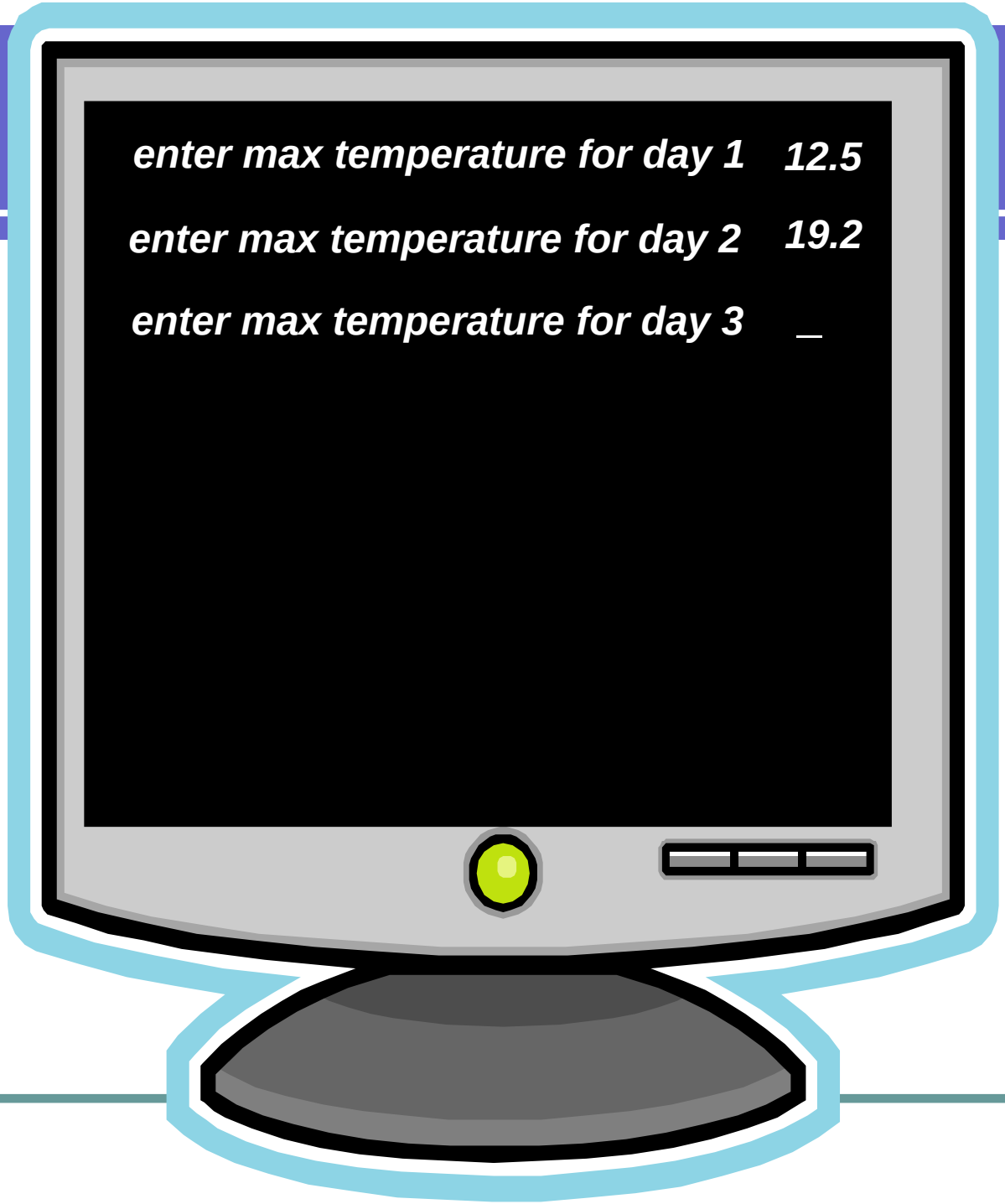
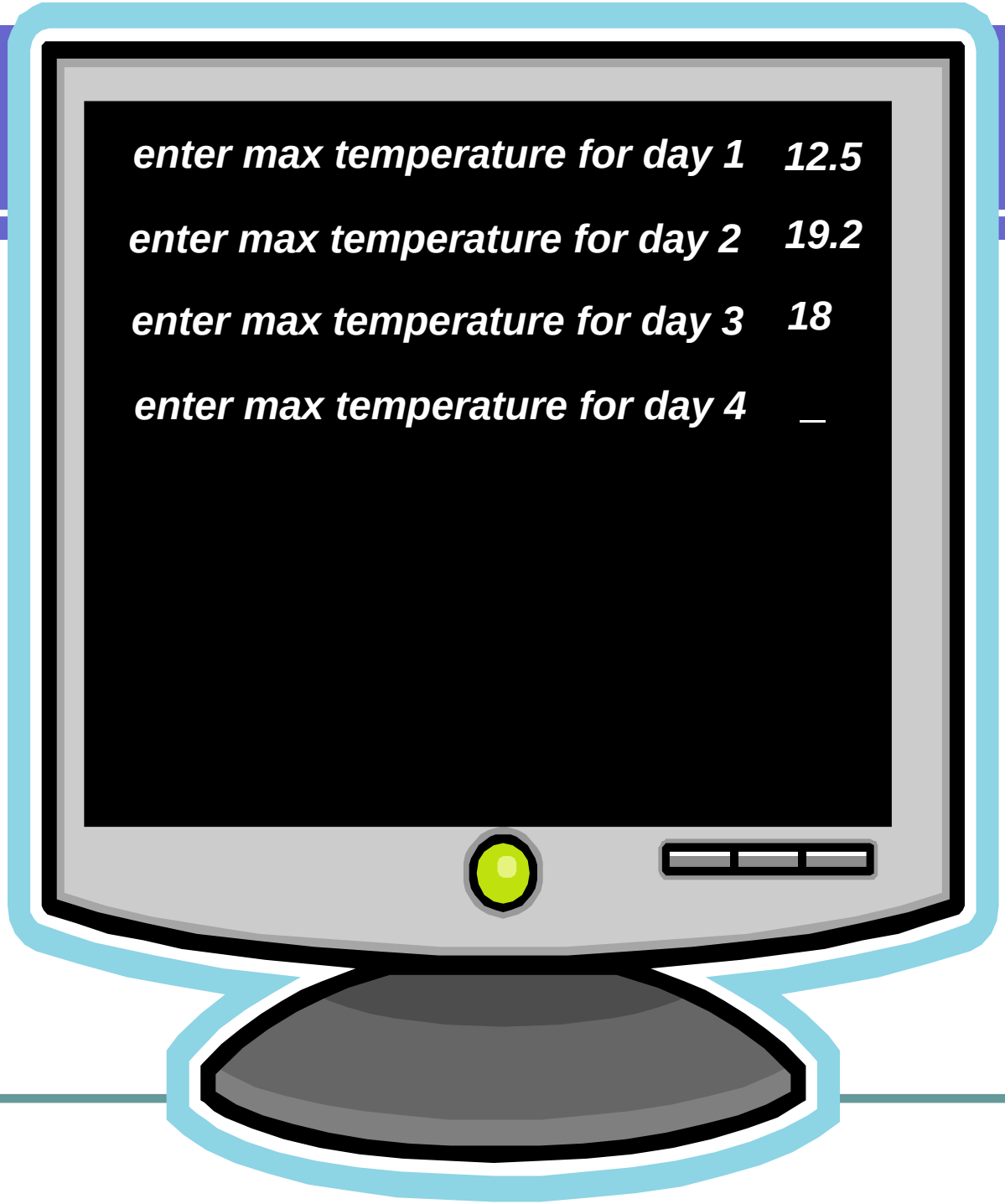
c) Design and implement another method, convertToFarenheit, which accepts the original temperature array and converts each Celsius temperature to Farenheit. The formula for converting Celsius to Farenheit is given below:

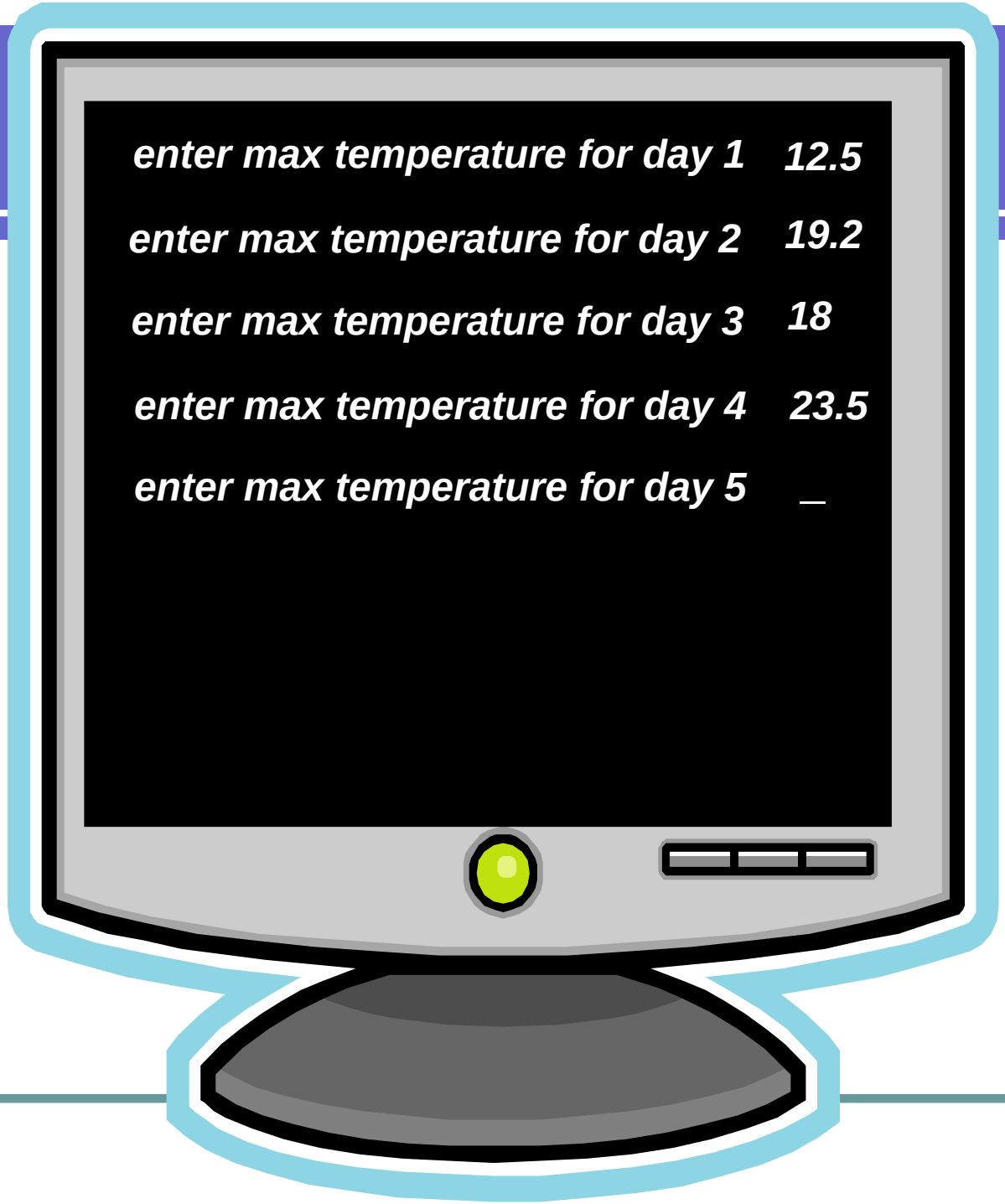
Farenheit = (Celsius *9/ 5) + 32

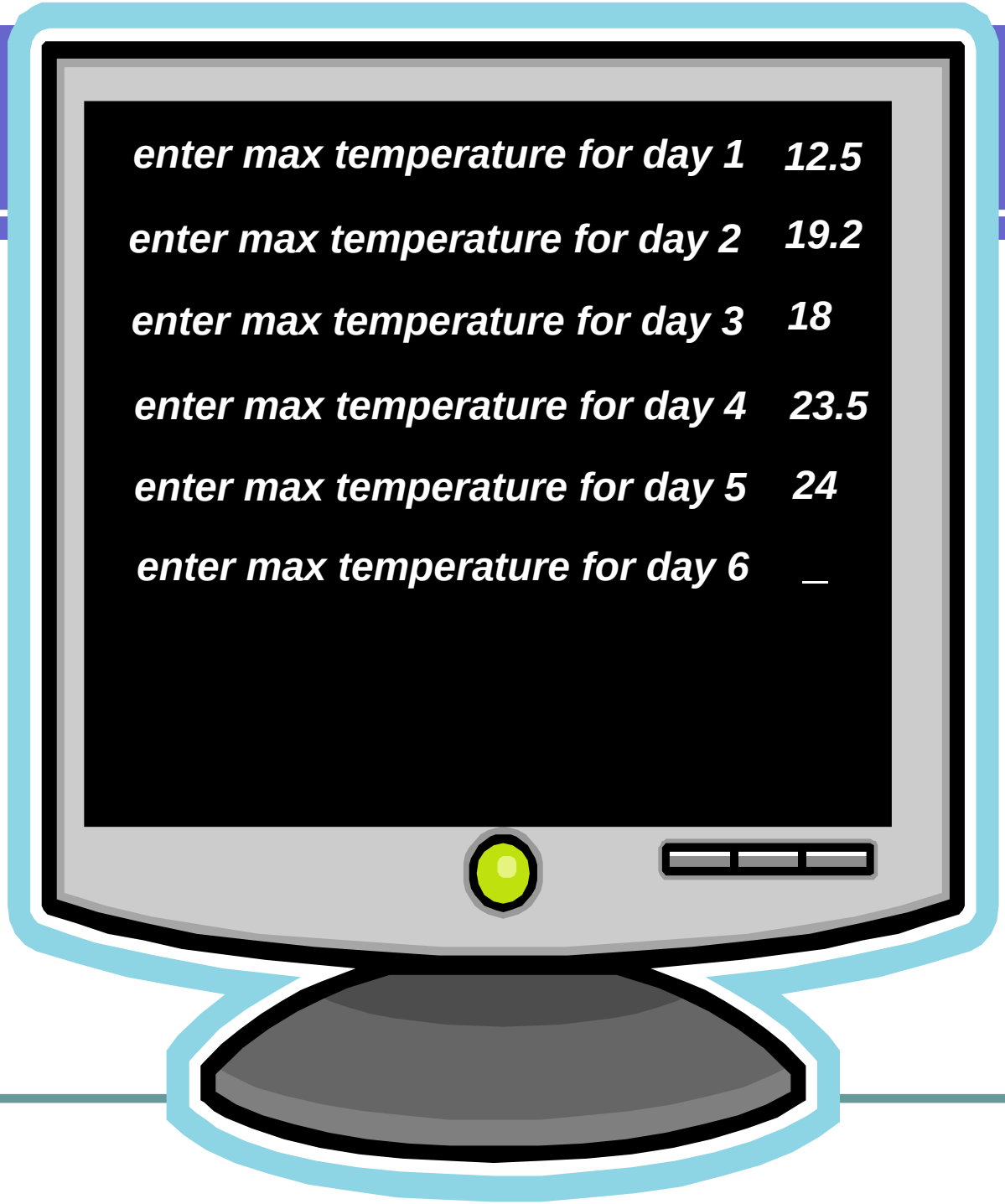

enter max temperature for day 1 _

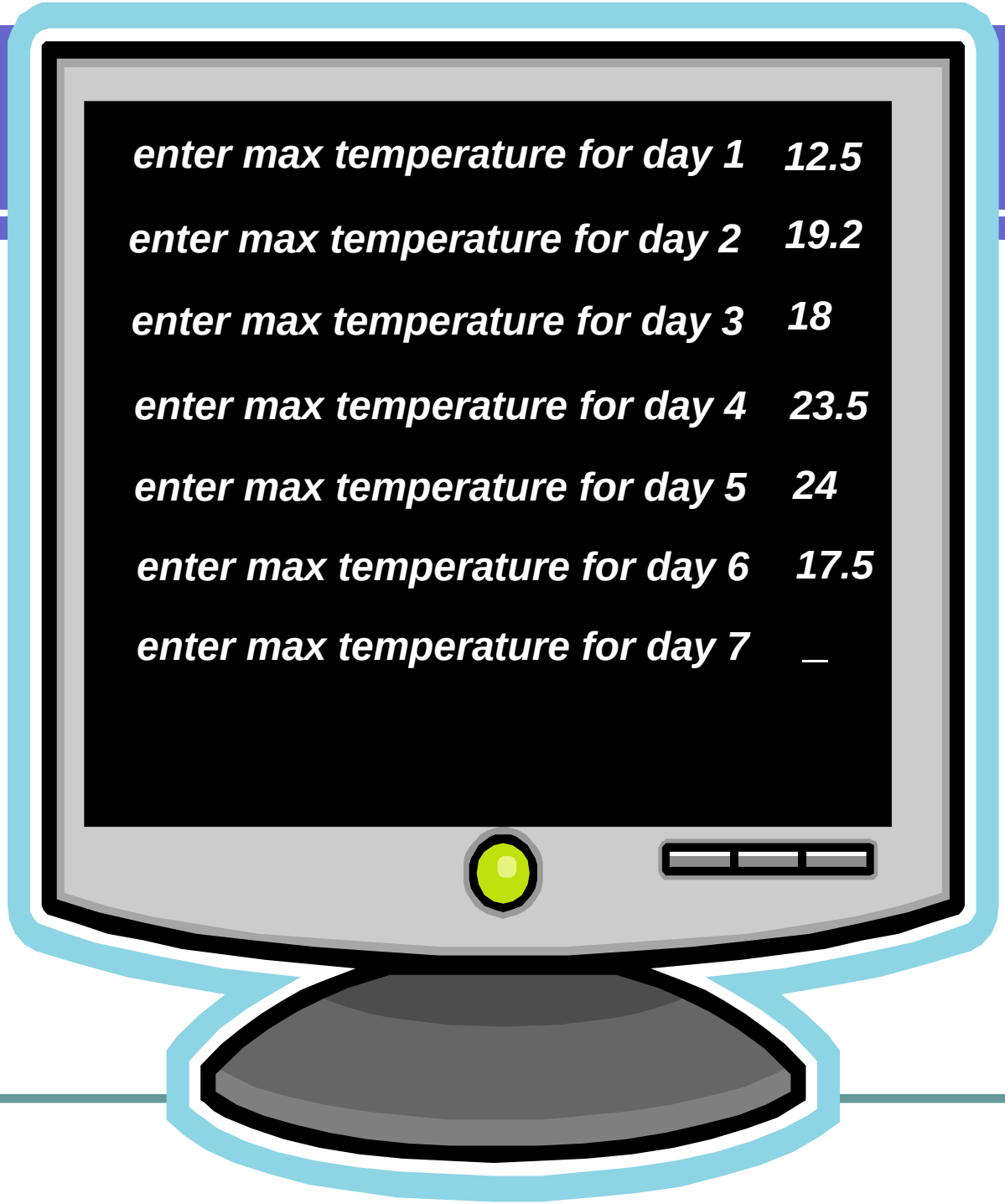

enter max temperature for day 1 12.5
enter max temperature for day 2 _

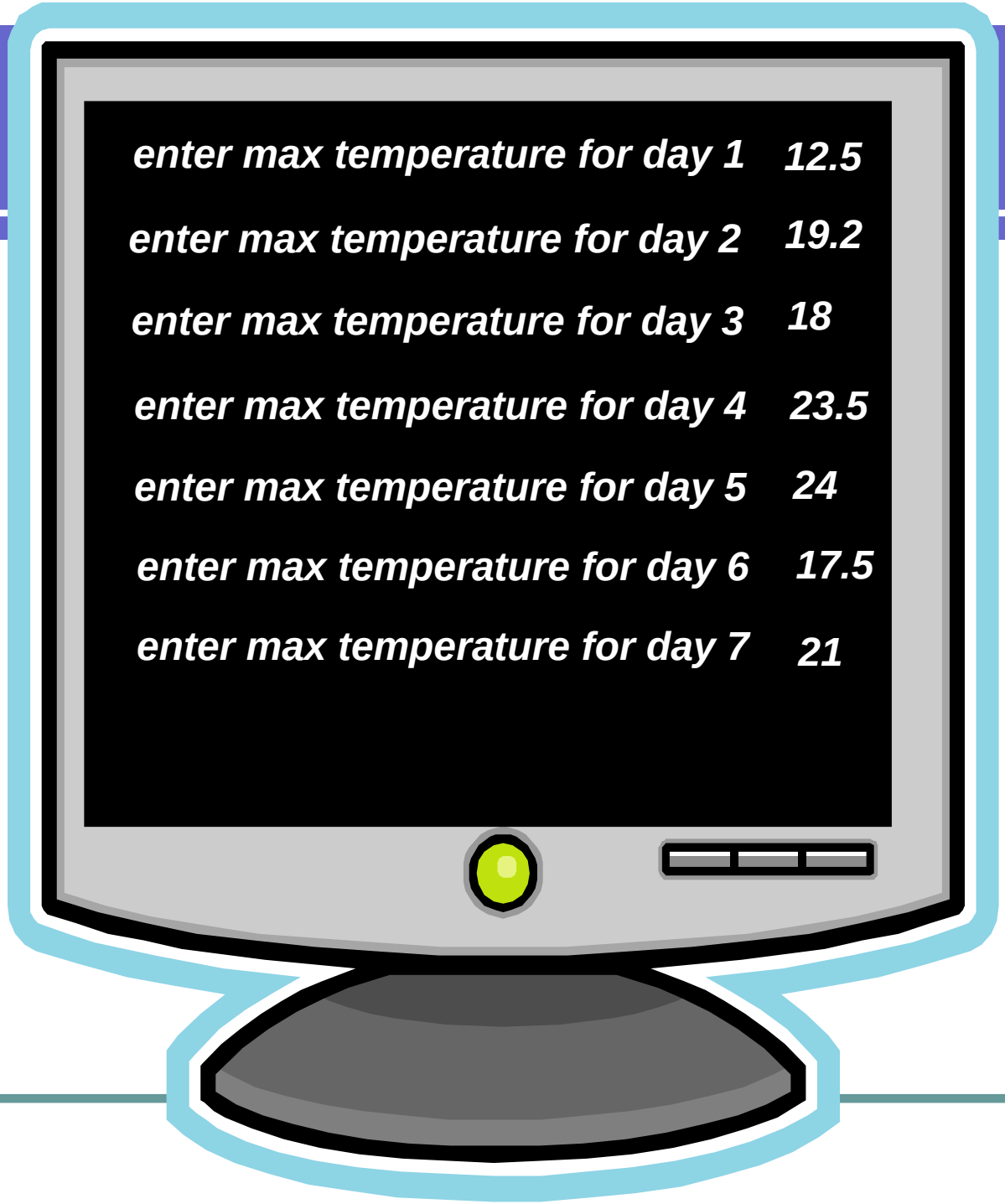

enter max temperature for day 1 12.5
enter max temperature for day 2 19.2
enter max temperature for day 3 _

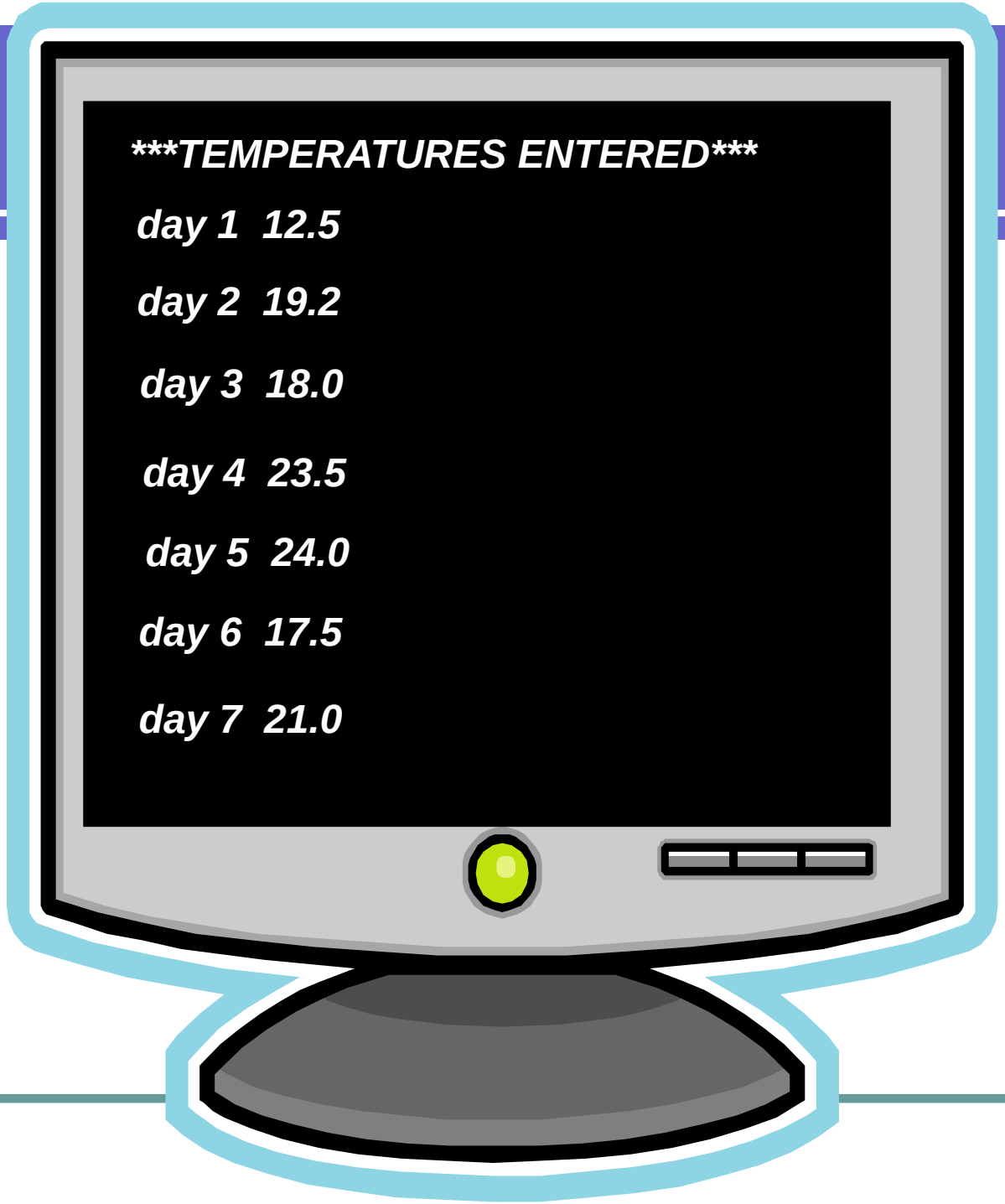

enter max temperature for day 1 12.5
enter max temperature for day 2 19.2
enter max temperature for day 3 18
enter max temperature for day 4 _

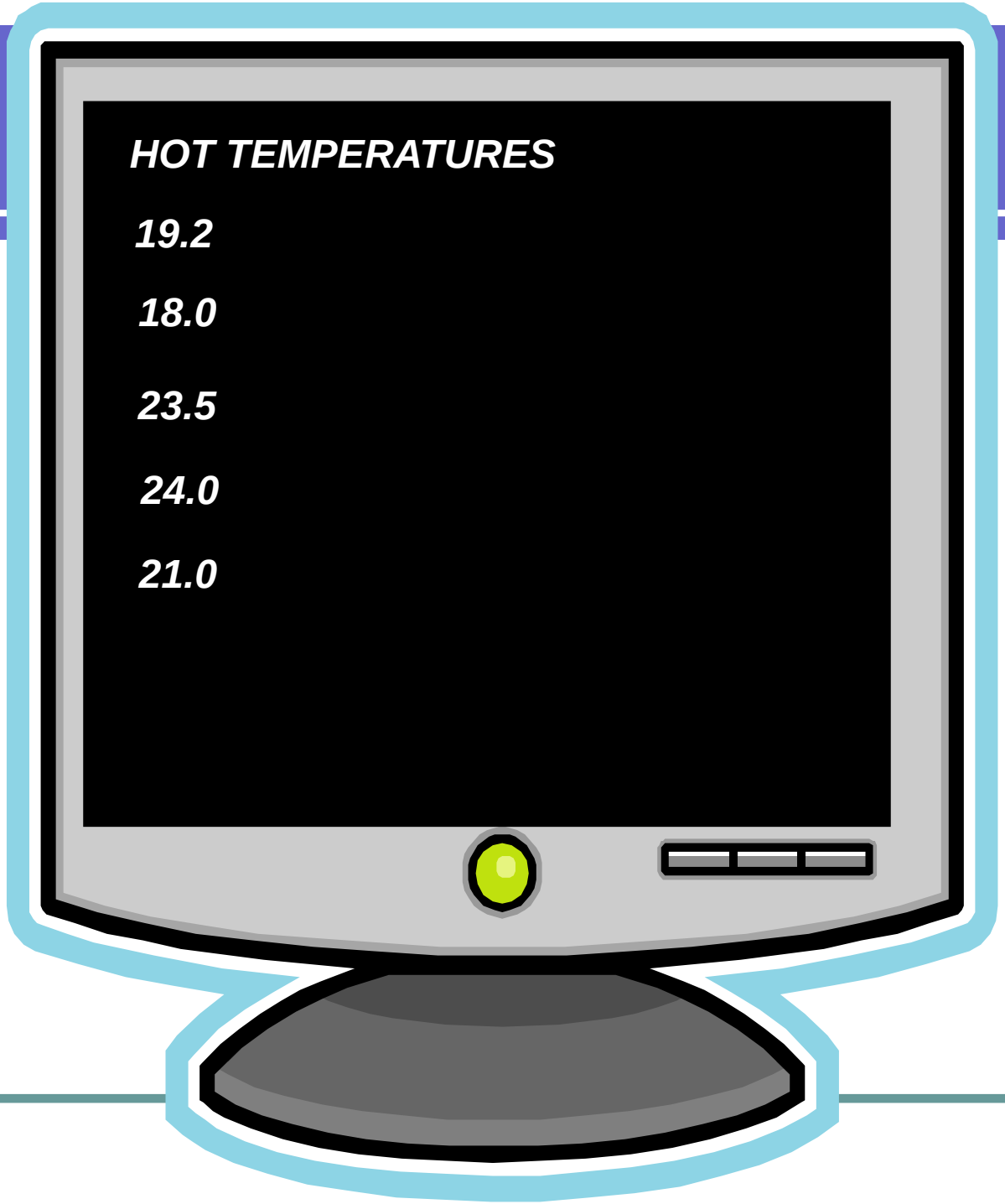

enter max temperature for day 1 12.5
enter max temperature for day 2 19.2
enter max temperature for day 3 18
enter max temperature for day 4 23.5
enter max temperature for day 5 _

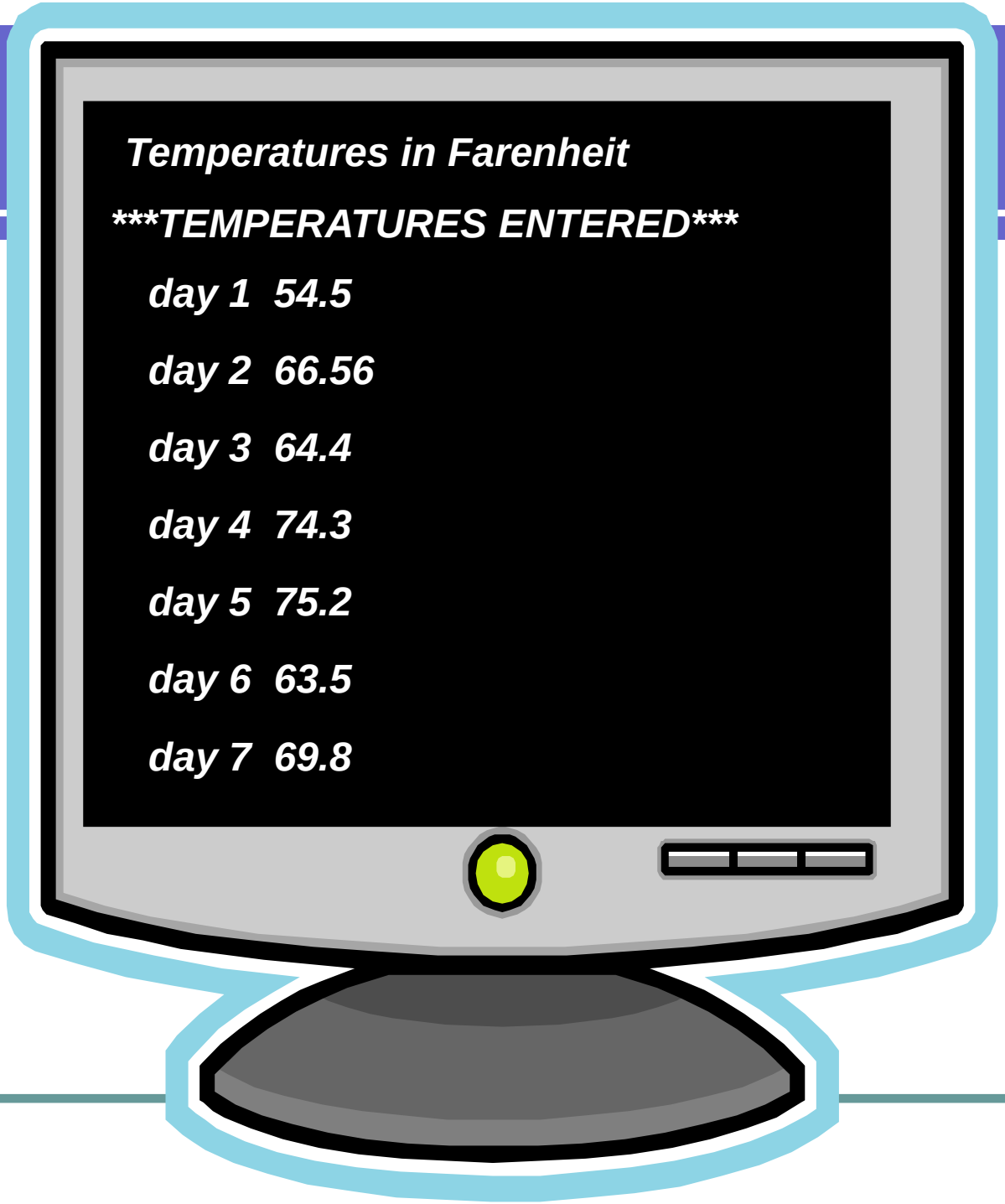

enter max temperature for day 1 12.5
enter max temperature for day 2 19.2
enter max temperature for day 3 18
enter max temperature for day 4 23.5
enter max temperature for day 5 24
enter max temperature for day 6 _


enter max temperature for day 1 12.5
enter max temperature for day 2 19.2
enter max temperature for day 3 18
enter max temperature for day 4 23.5
enter max temperature for day 5 24
enter max temperature for day 6 17.5
enter max temperature for day 7 _


enter max temperature for day 1 12.5
enter max temperature for day 2 19.2
enter max temperature for day 3 18
enter max temperature for day 4 23.5
enter max temperature for day 5 24
enter max temperature for day 6 17.5
enter max temperature for day 7 21


TEMPERATURES ENTERED
day 1 12.5
day 2 19.2
day 3 18.0
day 4 23.5
day 5 24.0
day 6 17.5
day 7 21.0


HOT TEMPERATURES
19.2
18.0
23.5
24.0
21.0


Temperatures in Farenheit
TEMPERATURES ENTERED
day 1 54.5
day 2 66.56
day 3 64.4
day 4 74.3
day 5 75.2
day 6 63.5
day 7 69.8

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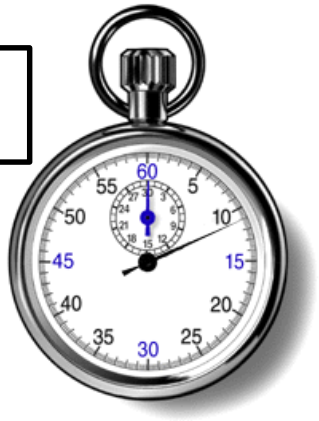
g) Design and implement another method, convertToFarenheit, which accepts the original temperature array and converts each Celsius temperature to Farenheit. The formula for converting Celsius to Farenheit is given below:

Farenheit = (Celsius *9/ 5) + 32



YOU HAVE 20 MINUTES!!!

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TIME'S UP!!

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The convertToFarenheit method should be called from main and then the displayTemps method should be called again in the main method to display the updated temperatures

YOU HAVE 5 MINUTES!!!

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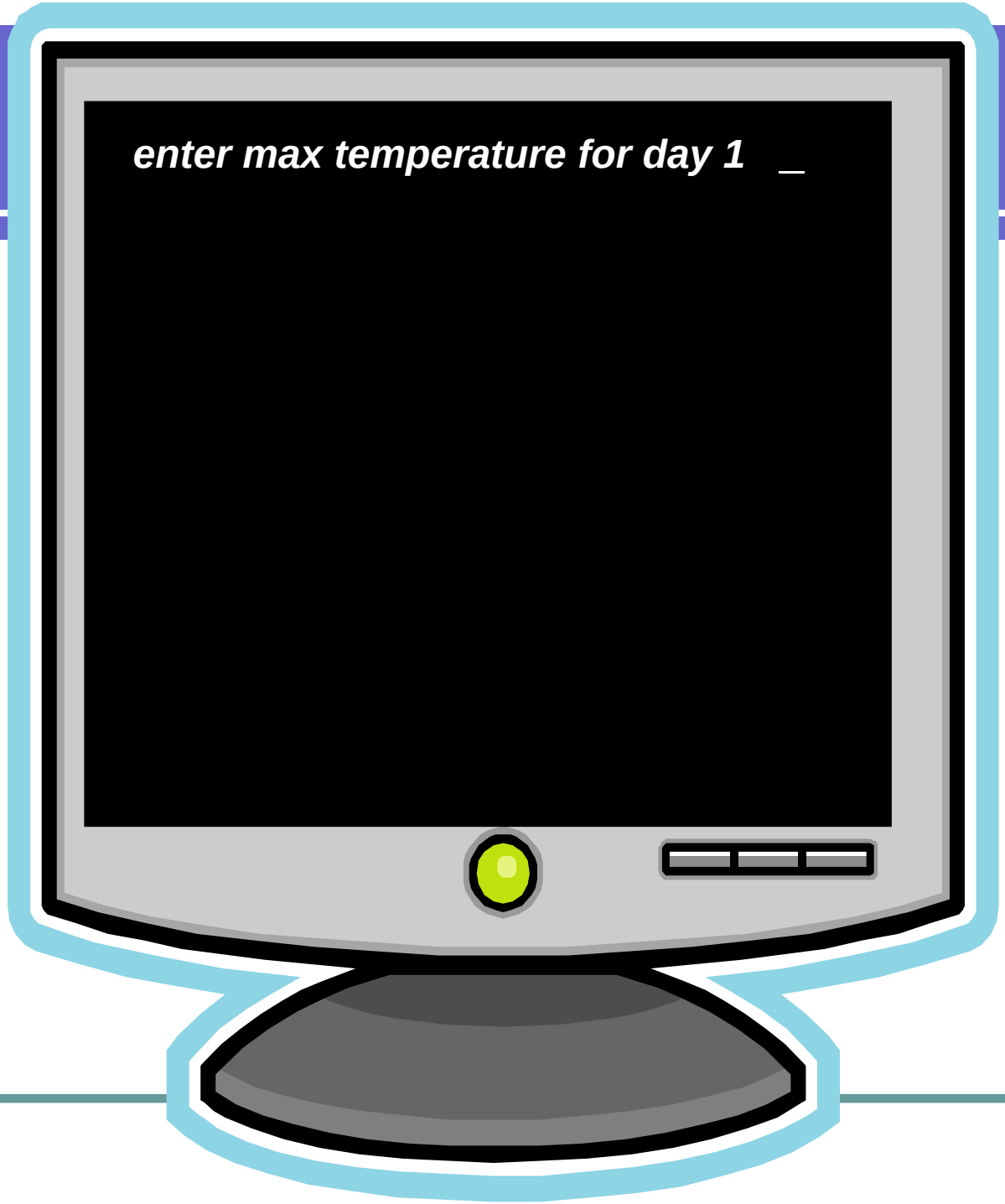
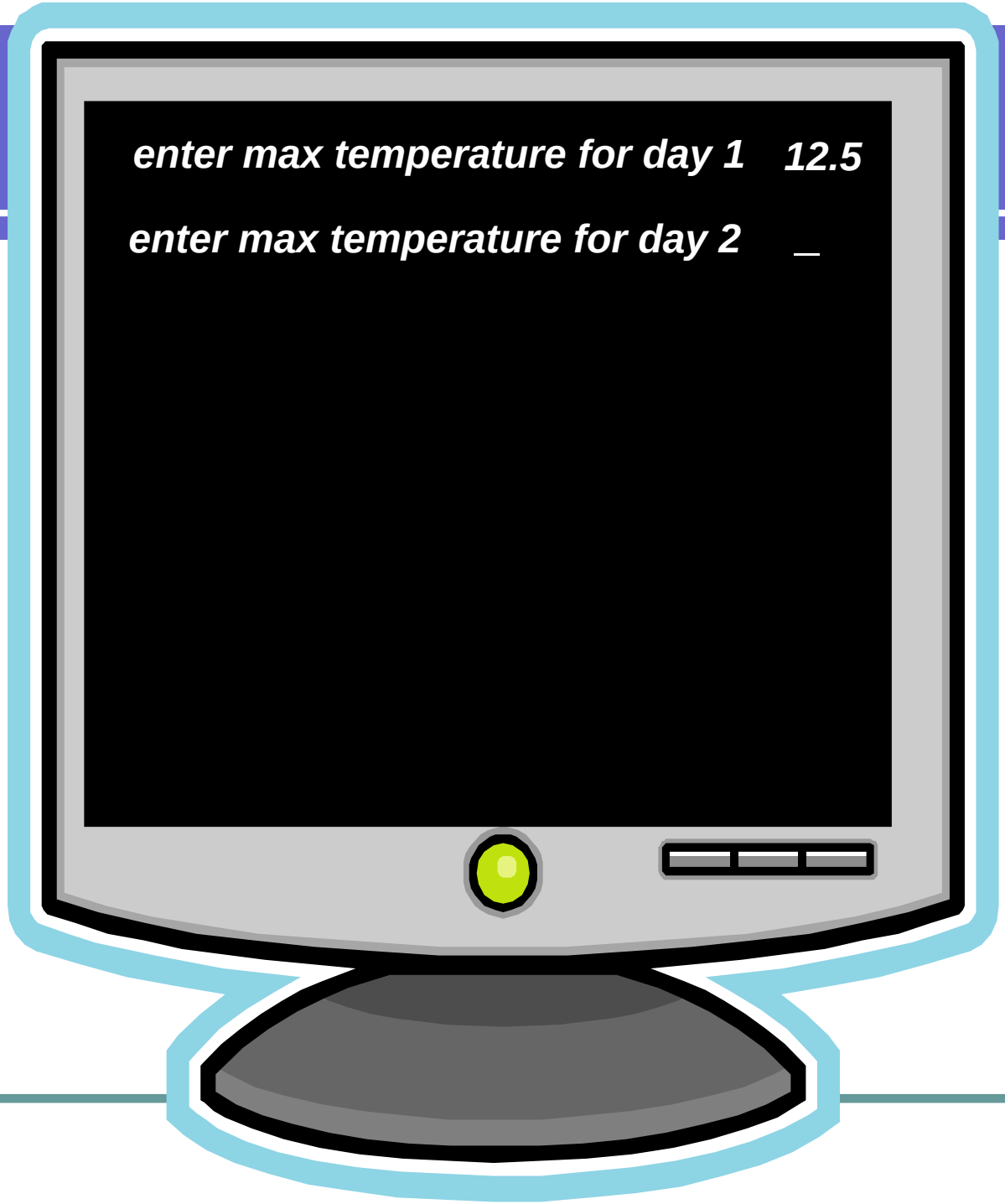
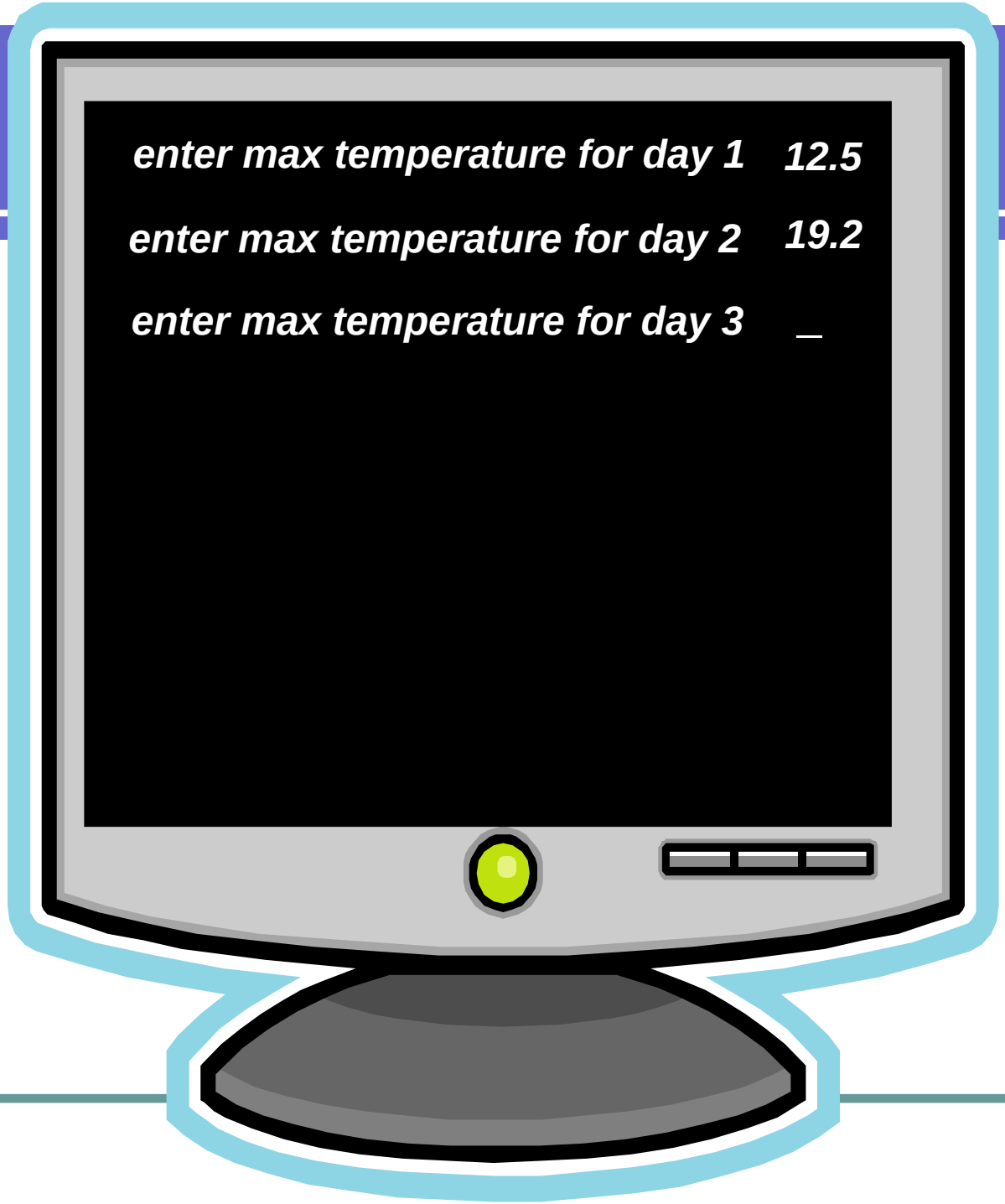
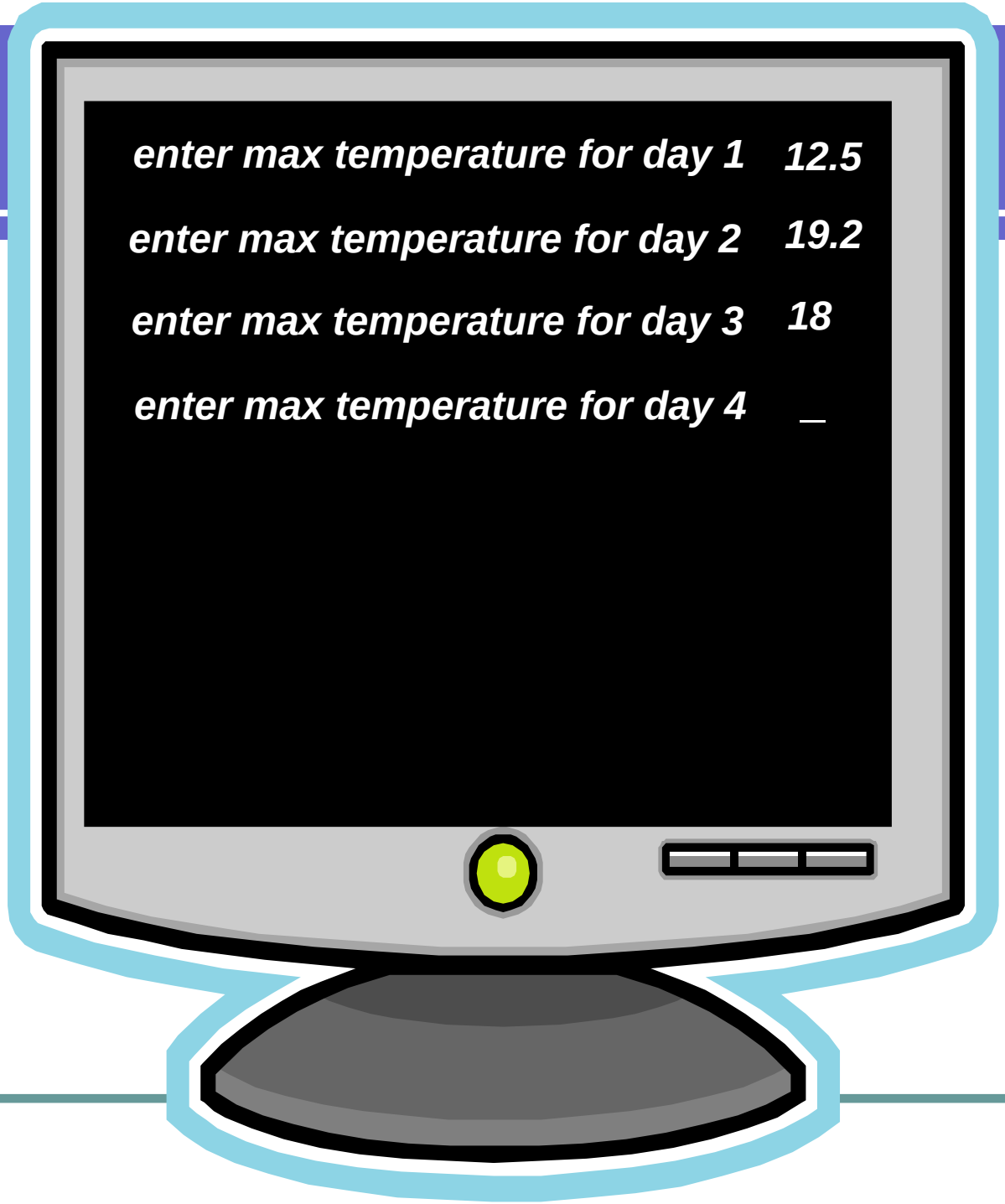
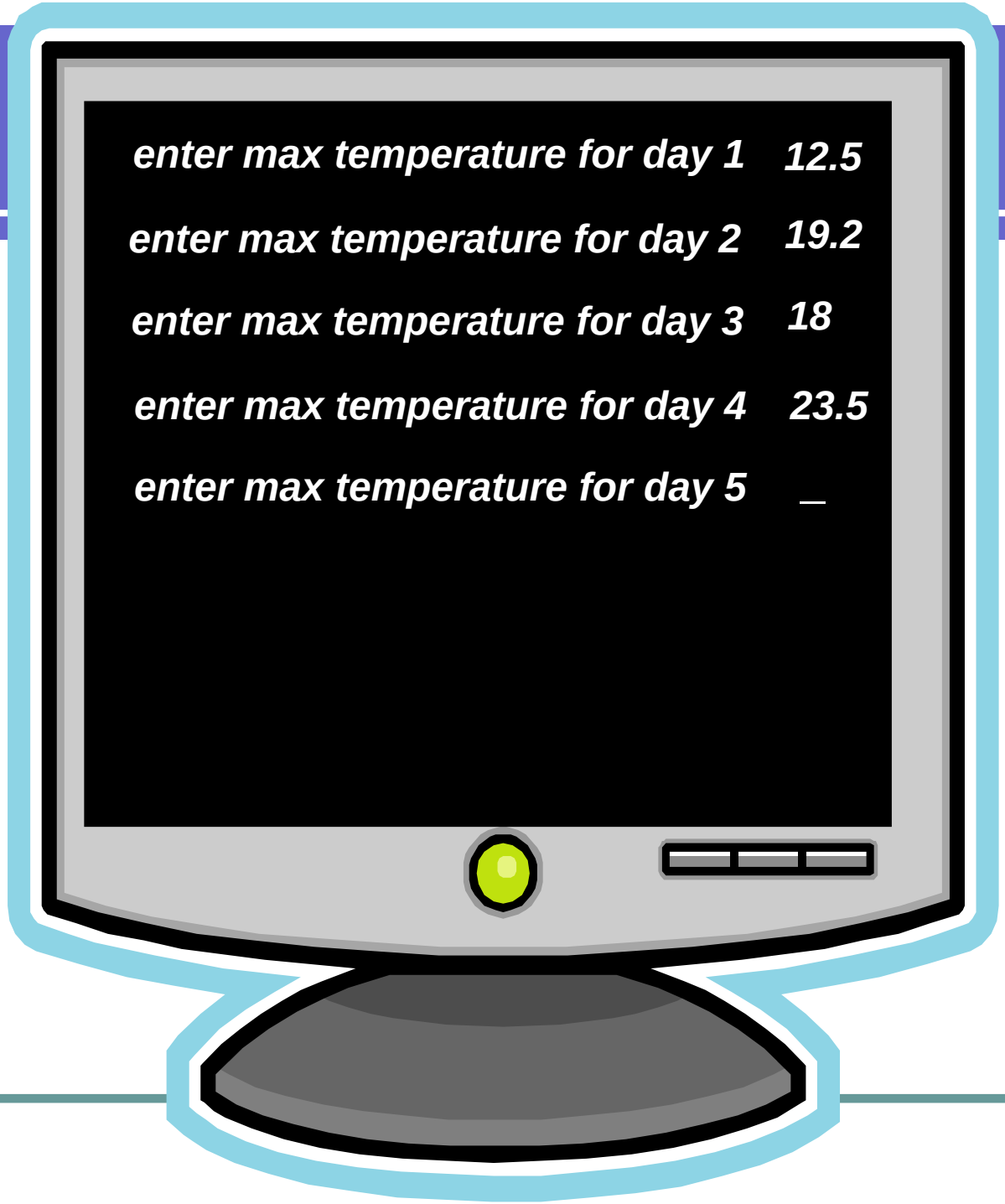
TIME'S UP!!

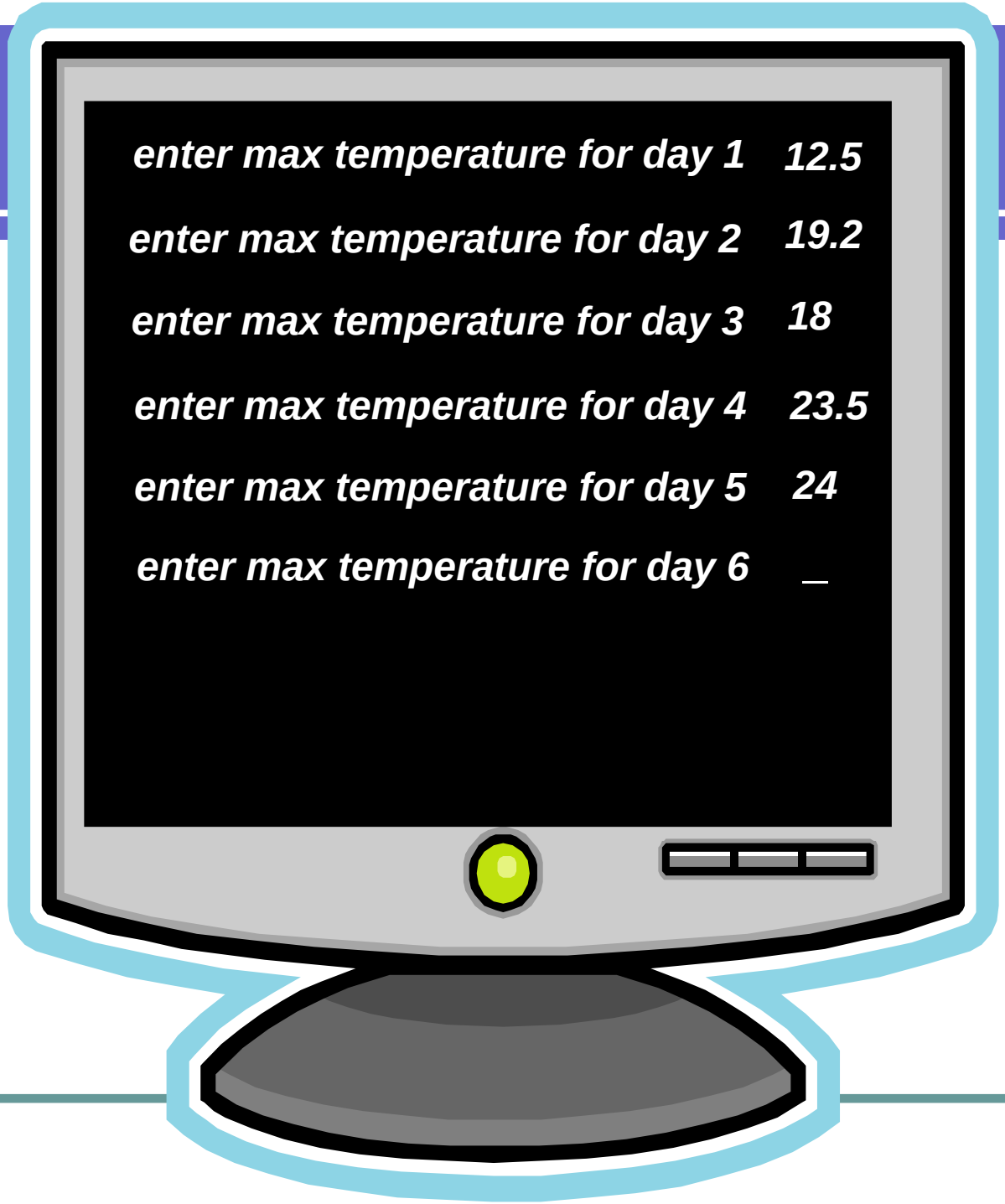

enter max temperature for day 1 _

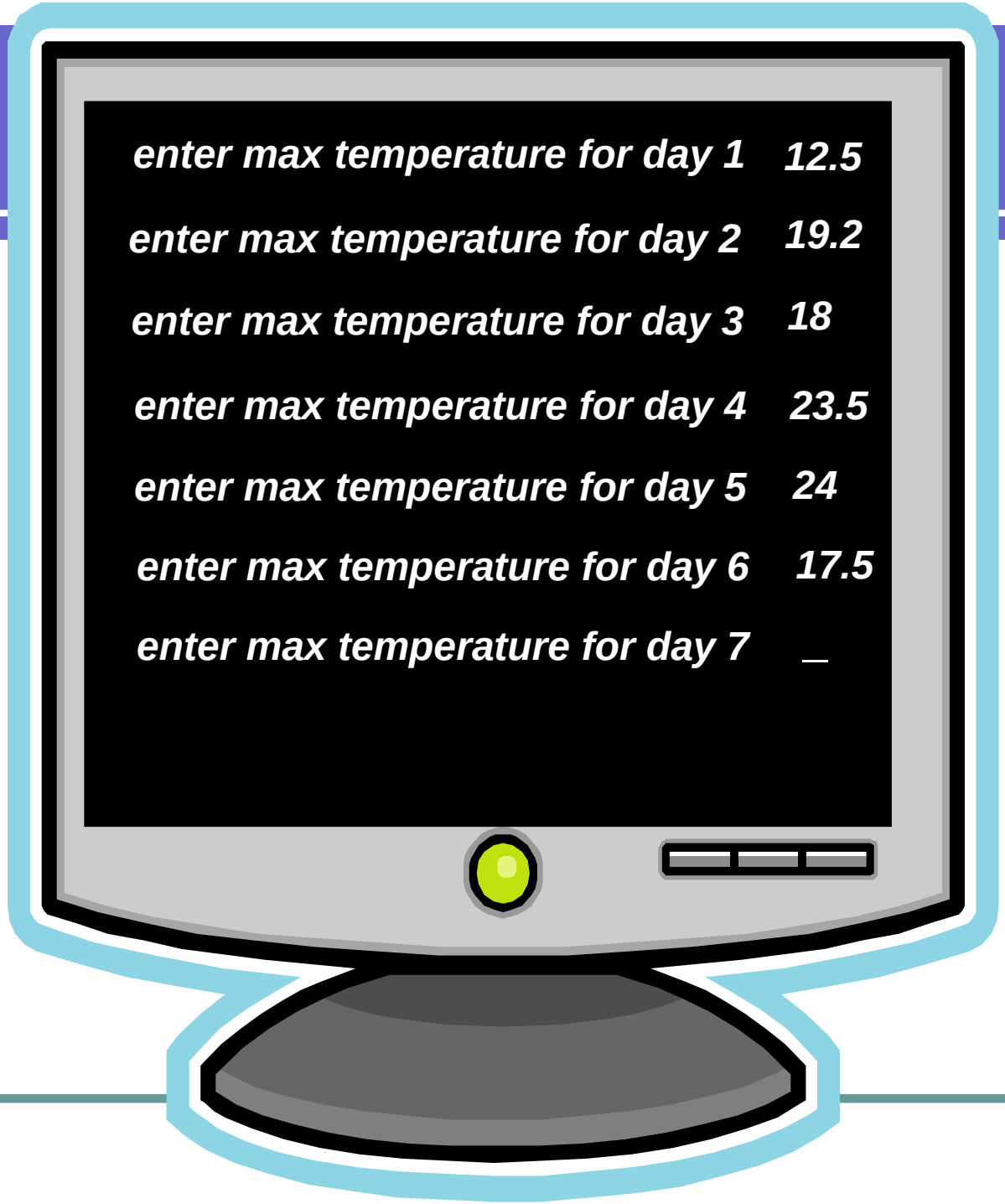

enter max temperature for day 1 12.5
enter max temperature for day 2 _

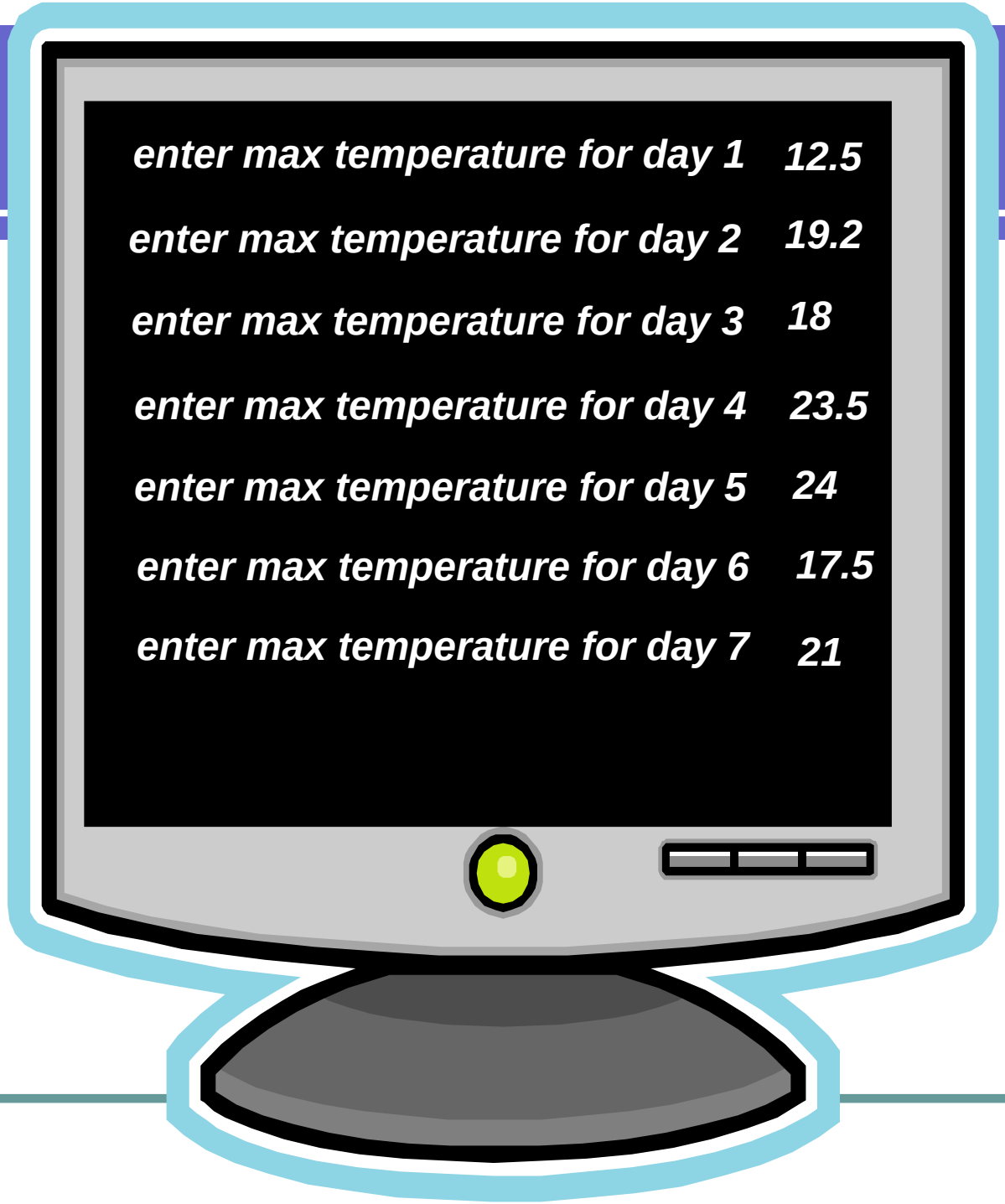

enter max temperature for day 1 12.5
enter max temperature for day 2 19.2
enter max temperature for day 3 _

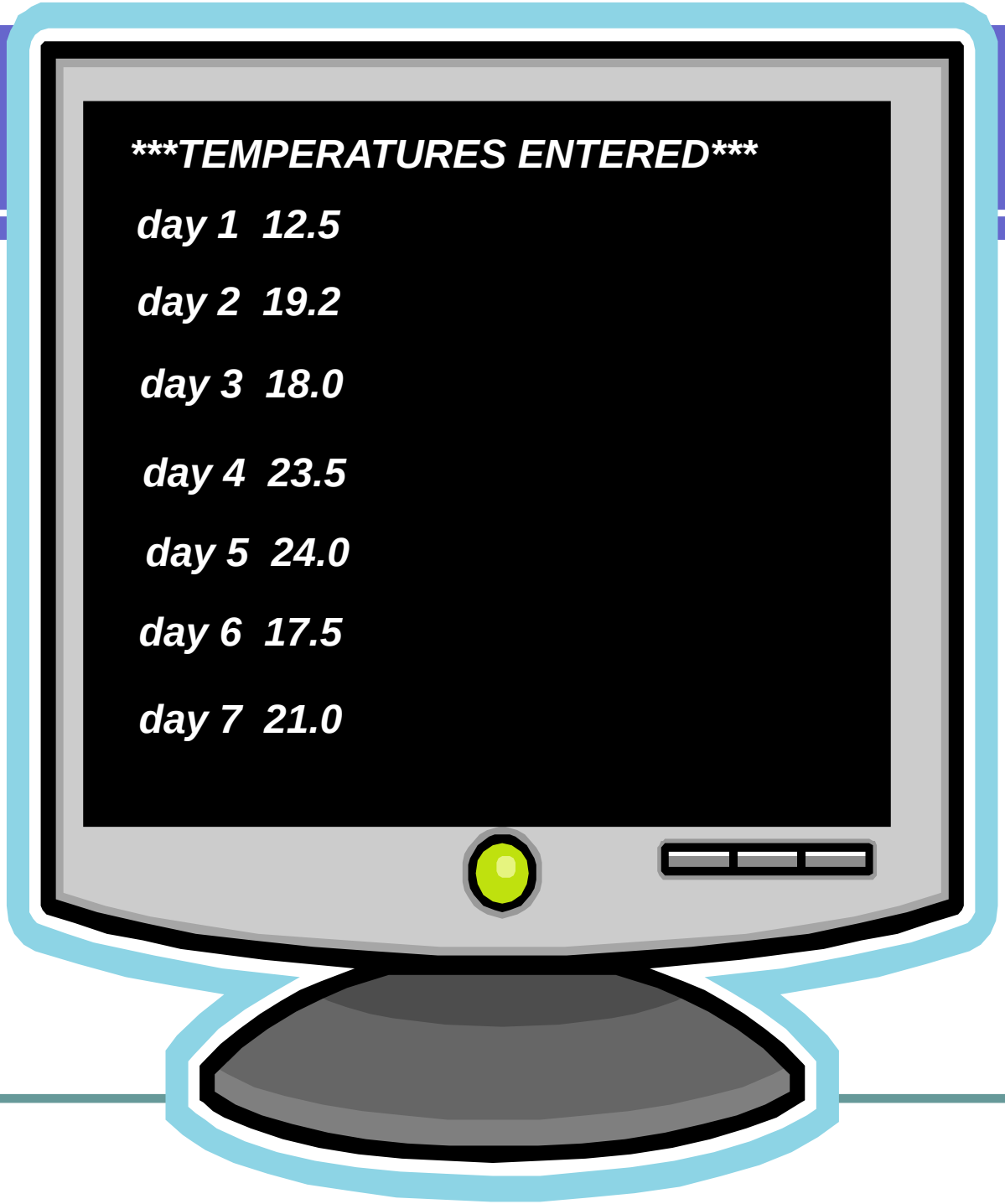

enter max temperature for day 1 12.5
enter max temperature for day 2 19.2
enter max temperature for day 3 18
enter max temperature for day 4 _

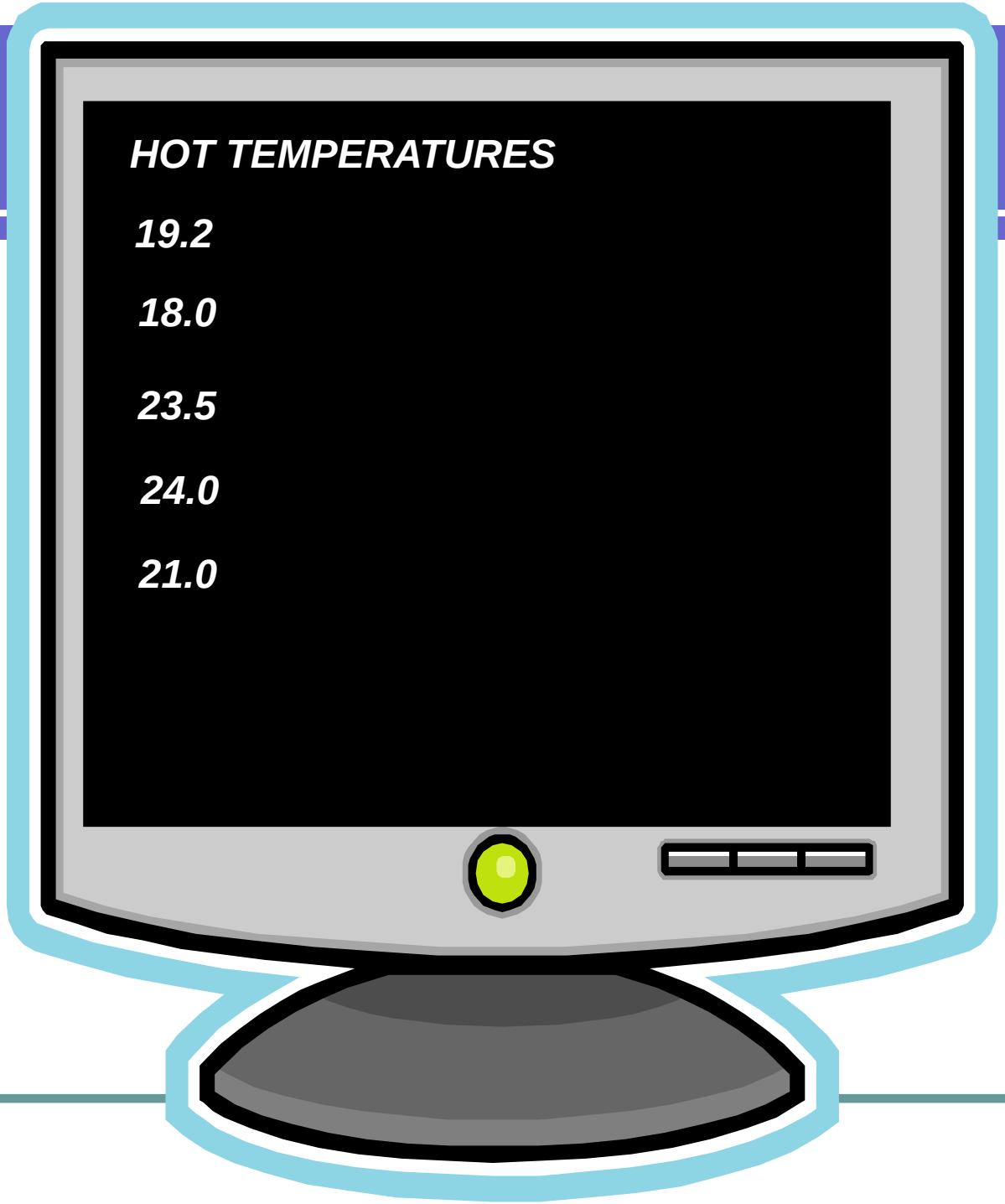

enter max temperature for day 1 12.5
enter max temperature for day 2 19.2
enter max temperature for day 3 18
enter max temperature for day 4 23.5
enter max temperature for day 5 _

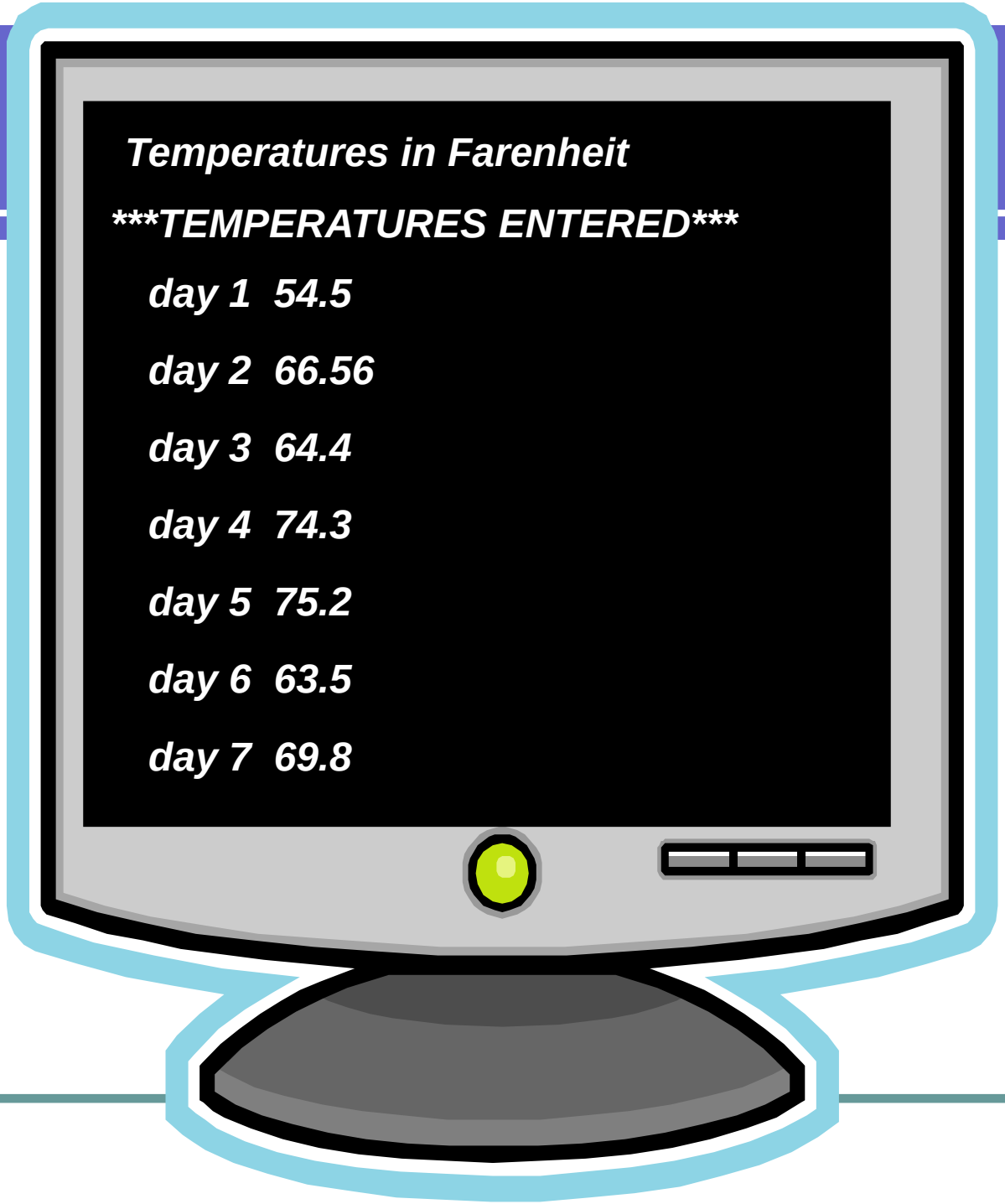

enter max temperature for day 1 12.5
enter max temperature for day 2 19.2
enter max temperature for day 3 18
enter max temperature for day 4 23.5
enter max temperature for day 5 24
enter max temperature for day 6 _


enter max temperature for day 1 12.5
enter max temperature for day 2 19.2
enter max temperature for day 3 18
enter max temperature for day 4 23.5
enter max temperature for day 5 24
enter max temperature for day 6 17.5
enter max temperature for day 7 _


enter max temperature for day 1 12.5
enter max temperature for day 2 19.2
enter max temperature for day 3 18
enter max temperature for day 4 23.5
enter max temperature for day 5 24
enter max temperature for day 6 17.5
enter max temperature for day 7 21


TEMPERATURES ENTERED
day 1 12.5
day 2 19.2
day 3 18.0
day 4 23.5
day 5 24.0
day 6 17.5
day 7 21.0


HOT TEMPERATURES
19.2
18.0
23.5
24.0
21.0


Temperatures in Farenheit
TEMPERATURES ENTERED
day 1 54.5
day 2 66.56
day 3 64.4
day 4 74.3
day 5 75.2
day 6 63.5
day 7 69.8

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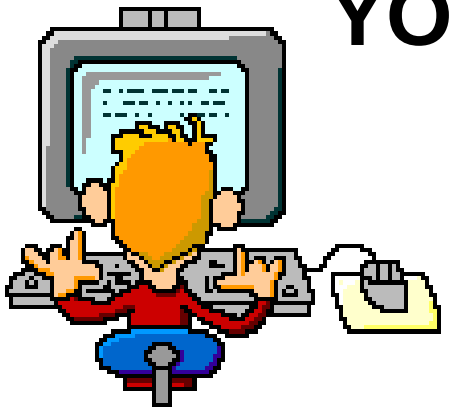
e) Add some Javadoc comments at the top of this program



YOU HAVE 5 MINUTES!!!

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TIME'S UP!!

CD/CN4001: Topic 7 Lab

Upload TemperatureReadingsApp.java file to Moodle via the appropriate submission link.

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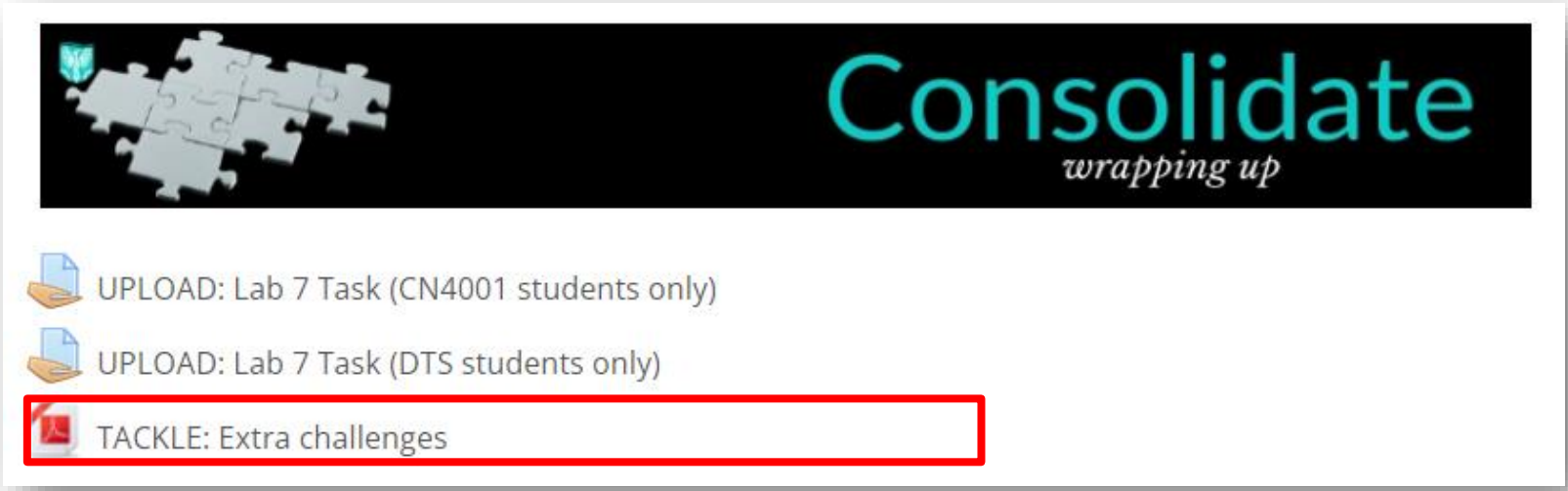

Spend the rest of the time in this practical working on the extra challenges.