Lab 2 Decision Structures and Boolean Logic

1. Time Calculator

Write a program that asks the user to enter a number of seconds and works as follows:

• There are 60 seconds in a minute. If the number of seconds entered by the user is greater than or equal to 60, the program should convert the number of seconds to minutes and seconds.

• There are 3,600 seconds in an hour. If the number of seconds entered by the user is greater than or equal to 3,600, the program should convert the number of seconds to hours, minutes, and seconds.

• There are 86,400 seconds in a day. If the number of seconds entered by the user is greater than or equal to 86,400, the program should convert the number of seconds to days, hours, minutes, and seconds.

Output example

```
Enter number of seconds: 201069
2 days 7 hours 51 minutes 9 seconds
```

Source: Gaddis, T., & Agarwal, R.. Starting out with Python. Pearson

2. Wi-Fi Diagnostic Tree

Figure 1 shows a simplified flowchart for troubleshooting a bad Wi-Fi connection. Use the flowchart to create a program that leads a person through the steps of fixing a bad Wi-Fi connection. Here is an example of the program's output:

Reboot the computer and try to connect.

Did that fix the problem? **no Enter**

Reboot the router and try to connect.

Did that fix the problem? **yes Enter**

Notice the program ends as soon as a solution is found to the problem. Here is another example of the program's output:

Reboot the computer and try to connect.

Did that fix the problem? **no Enter**

Reboot the router and try to connect.

Did that fix the problem? **no Enter**

Make sure the cables between the router and modem are plugged in firmly.

Did that fix the problem? **no Enter**

Move the router to a new location.

Did that fix the problem? **no Enter**

Get a new router.

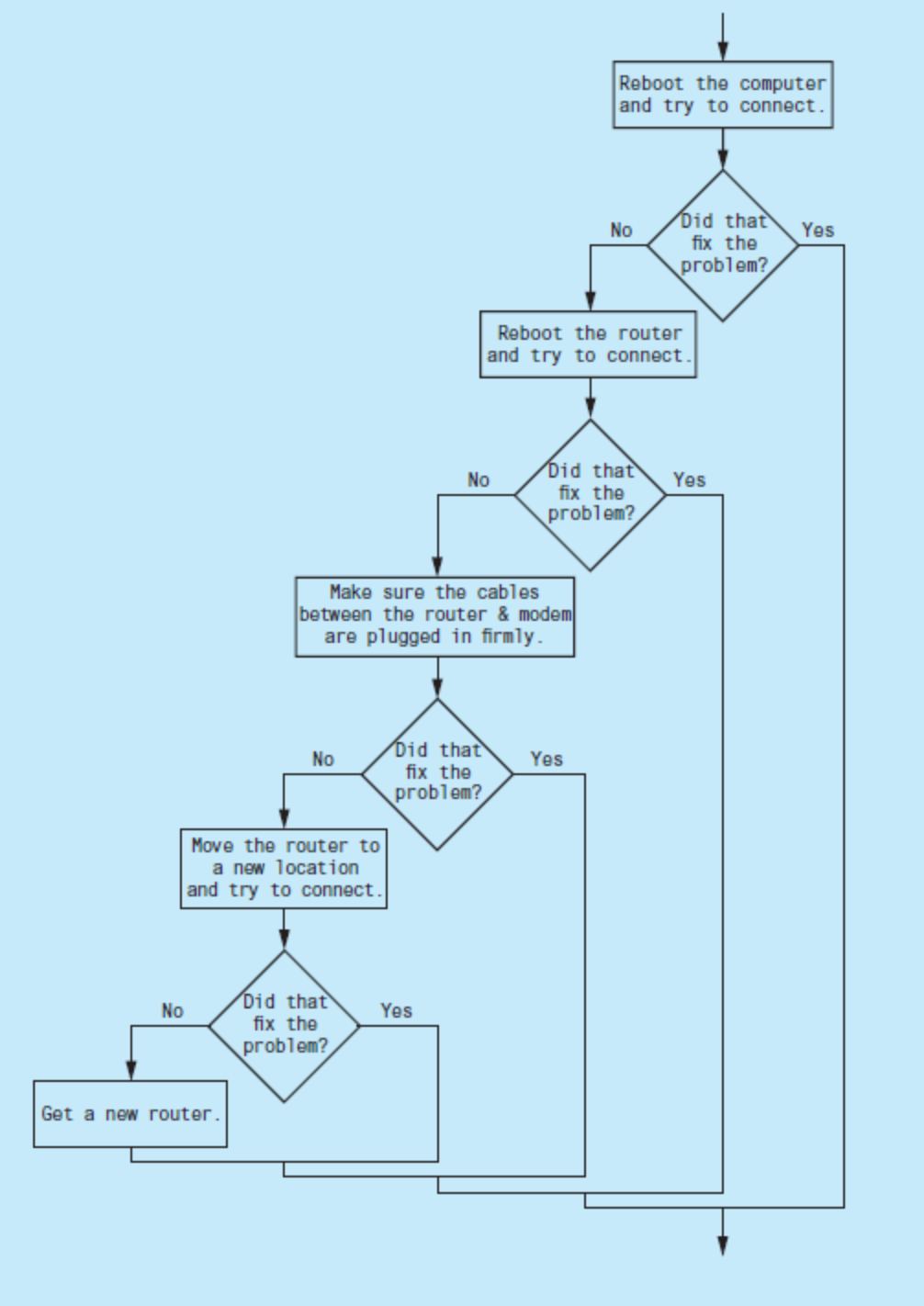

Figure 1 Troubleshooting a bad Wi-Fi connection

Source: Gaddis, T., & Agarwal, R.. Starting out with Python. Pearson

3. Restaurant Selector

You have a group of friends coming to visit for your high school reunion, and you want to take them out to eat at a local restaurant. You aren't sure if any of them have dietary restrictions, but your restaurant choices are as follows:

Joe's Gourmet Burgers—Vegetarian: No, Vegan: No, Gluten-Free: No

Main Street Pizza Company—Vegetarian: Yes, Vegan: No, Gluten-Free: Yes

Corner Café—Vegetarian: Yes, Vegan: Yes, Gluten-Free: Yes

Mama's Fine Italian—Vegetarian: Yes, Vegan: No, Gluten-Free: No

The Chef's Kitchen—Vegetarian: Yes, Vegan: Yes, Gluten-Free: Yes

Write a program that asks whether any members of your party are vegetarian, vegan, or gluten-free, to which then displays only the restaurants to which you may take the group.

Here is an example of the program's output:

Is anyone in your party a vegetarian? **yes Enter**

Is anyone in your party a vegan? **no Enter**

Is anyone in your party gluten-free? **yes Enter**

Here are your restaurant choices:

Main Street Pizza Company

Corner Cafe

The Chef's Kitchen

Here is another example of the program's output:

Is anyone in your party a vegetarian? **yes Enter**

Is anyone in your party a vegan? **yes Enter**

Is anyone in your party gluten-free? **yes Enter**

Here are your restaurant choices:

Corner Cafe

The Chef's Kitchen

Source: Gaddis, T., & Agarwal, R.. Starting out with Python. Pearson