10 Prove Assignment: Handling Exceptions

Purpose

Prove that you can write a Python program that handles exceptions, including FileNotFoundError, PermissionError, and KeyError.

Problem Statement

A local grocery store subscribes to an online service that enables its customers to order groceries online. After a customer completes an order, the online service sends a CSV file to the grocery store. The store needs you to write a program that reads the CSV file and prints (to the terminal window) a receipt that lists the purchased items and shows the subtotal, the sales tax amount, and the total.

Assignment

During the prove milestone for the previous lesson, you wrote the part of this program that reads and processes two CSV files, one named `products.csv` that contains a catalog of products and one named `request.csv` that contains a customer's order. During this prove assignment (for lesson 10), you will add code to finish printing a receipt and to handle any exceptions that might occur while your program is running. Specifically, your program must do the following:

1. Print the store name at the top of the receipt.
2. Print the list of ordered items.
3. Sum and print the number of ordered items.
4. Sum and print the subtotal due.
5. Compute and print the sales tax amount. Use 6% as the sales tax rate.
6. Compute and print the total amount due.
7. Print a thank you message.
8. Get the current date and time from your computer's operating system and print the current date and time.
9. Include a `try` block and `except` blocks to handle `FileNotFoundError`, `PermissionError`, and `KeyError`.

Helpful Documentation

- The prove milestone of the previous lesson describes the two CSV files that your program must process.
- The prepare content for this lesson explains how to handle exceptions.
- The `datetime.now()` method from the standard Python `datetime` module will get the current date and time from your computer's operating system. Here is an excerpt from the official documentation for the `datetime.now` method:

> `datetime.now(tz=None)`
> Return the current local date and time.
>
> *tz* is optional, but if it not `None`, it must be `tzinfo` (time zone information) object

These two Microsoft videos explain how to use methods from the standard `datetime` module.

Date data types (8 minutes)

Demonstration: Dates (9 minutes)

The following Python code imports the `datetime` class from the `datetime` module and calls the `datetime.now` method to get the current date and time from a computer's operating system. Then it uses an f-string to format and print the current date and time.

```
 1  # Example 1
 2
 3  # Import the datetime class from the datetime
 4  # module so that it can be used in this program.
 5  from datetime import datetime
 6
 7  # Call the now() method to get the current date and
 8  # time as a datetime object from the computer's clock.
 9  current_date_and_time = datetime.now()
10
11  # Print the current day of the week and the current time.
12  print(f"{current_date_and_time:%A %I:%M %p}")
```

After the computer executes line 9 in the above code, the variable *current_date_and_time* will hold the current date and time. Within the f-string at line 12, the string sequences that begin with the percent symbol (%) are called format codes. The format codes and their meaning are listed in this document. When executed, the previous example code will print the current date and time to the terminal window like this:

```
> python example_1.py
Tuesday 01:23 PM
```

Testing Procedure

Verify that your program works correctly by following each step in this testing procedure:

1. Run your program and verify that it prints a receipt formatted similarly to the one shown below. Your program must print the current date and time with exactly the same formatting as shown below. Also, verify that your program computes the number of items, subtotal, sales tax, and total as shown below.

```
> python receipt.py
Inkom Emporium

wheat bread: 2 @ 2.55
1 cup yogurt: 4 @ 0.75
32 oz granola: 1 @ 3.21
twix candy bar: 2 @ 0.85
1 cup yogurt: 3 @ 0.75

Number of Items: 12
Subtotal: 15.26
Sales Tax: 0.92
Total: 16.18

Thank you for shopping at the Inkom Emporium.
Wed Nov  4 05:10:30 2020
```

Submission

To submit your program, return to I-Learn and do these two things:

1. Upload your program (the .py file) for feedback.
2. Add a submission comment that specifies the grading category that best describes your program along with a one or two sentence justification for your choice. The grading criteria are:
    - 1. Some attempt made

- 2. Developing but significantly deficient
- 3. Slightly deficient
- 4. Meets requirements
- 5. Exceeds requirements