

James Naurot  
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Assignment #5

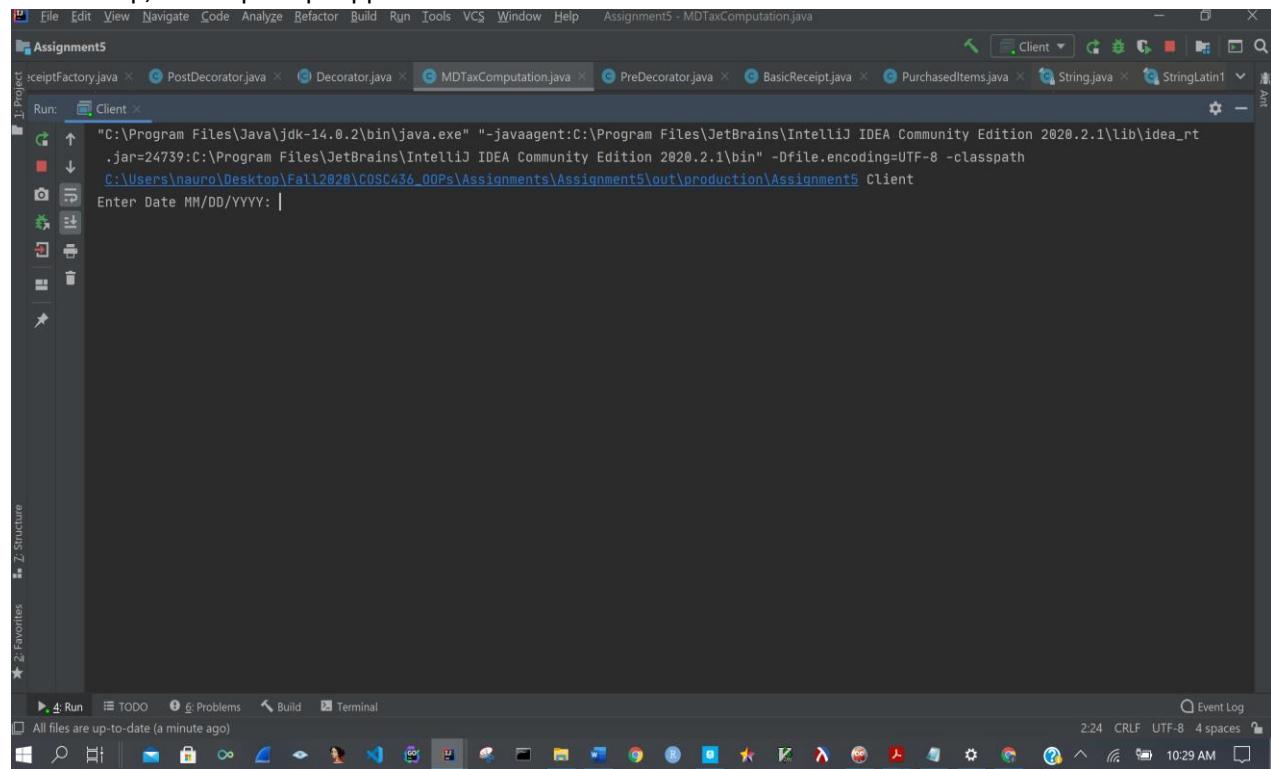
In this assignment, John and James worked together to implement the code the Professor provided. John was primarily responsible for the Decorator classes and James was primarily responsible for the Tax Computation. James looked up the current dates for the “tax holidays” for Massachusetts and Maryland (2020). We communicated/collaborated heavily on the rest of the program.

Store information is in store.cfg

Items are in storeitems.dat

Now for a tour of the program:

On start up, a date prompt appears



After a date is entered, a list of stores from different states appear. The user is prompted to select a store

The screenshot shows the IntelliJ IDEA interface with a Java application running in the terminal window. The terminal output is as follows:

```
"C:\Program Files\Java\jdk-14.0.2\bin\java.exe" "-javaagent:C:\Program Files\JetBrains\IntelliJ IDEA Community Edition .jar=24739:C:\Program Files\JetBrains\IntelliJ IDEA Community Edition 2020.2.1\bin" -Dfile.encoding=UTF-8 -classpath C:\Users\nauro\Desktop\Fall2020\COSC436_00Ps\Assignments\Assignment5\out\production\Assignment5 Client  
Enter Date MM/DD/YYYY: 01/01/2020  
Date = 01/01/2020  
Store #1540, 7800 York Road Towson, 410-704-2151, MD [0]  
Store #1318, 8000 York Road Towson, 410-704-3723, MD [1]  
Store #0103, 203 Main Street Newark, 302-831-2792, DE [2]  
Store #0487, 101 Elm Street Rehoboth Beach, 302-830-1469, DE [3]  
Store #3317, 1046 North El Camino Real Encinitas, 760-479-0114, CA [4]  
Store #9716, 18811 Bear Valley Road Apple Valley, 760-961-9539, CA [5]  
Store #8176, 14 Allstate Road Dorchester, 617-445-5361, MA [6]  
Store #4442, 50 Holyoke Street Holyoke, 413-533-4443, MA [7]  
Enter Store Number: |
```

The user is then presented with a list of items and prompted if they wish to purchase that item

The screenshot shows the IntelliJ IDEA interface with a Java application named "Assignment5" running. The terminal window displays the execution command and the application's output. The application prompts for a date and lists several store locations. It then asks for a store number and begins listing purchase items with their prices and Y/N responses.

```
"C:\Program Files\Java\jdk-14.0.2\bin\java.exe" "-javaagent:C:\Program Files\JetBrains\IntelliJ IDEA Community Edition 2020.2.1\lib\idea_rt.jar=24739:C:\Program Files\JetBrains\IntelliJ IDEA Community Edition 2020.2.1\bin" -Dfile.encoding=UTF-8 -classpath C:\Users\nauro\Desktop\Fall2020\COSC436_OOPs\Assignments\Assignment5\out\production\Assignment5 Client  
Enter Date MM/DD/YYYY: 01/01/2020  
Date = 01/01/2020  
Store #1540, 7800 York Road Towson, 410-704-2151, MD [0]  
Store #1318, 8000 York Road Towson, 410-704-3723, MD [1]  
Store #0103, 203 Main Street Newark, 302-831-2792, DE [2]  
Store #0487, 101 Elm Street Rehoboth Beach, 302-830-1469, DE [3]  
Store #3317, 1046 North El Camino Real Encinitas, 760-479-0114, CA [4]  
Store #9716, 18811 Bear Valley Road Apple Valley, 760-961-9539, CA [5]  
Store #8176, 14 Allstate Road Dorchester, 617-445-5361, MA [6]  
Store #4442, 50 Holyoke Street Holyoke, 413-533-4443, MA [7]  
Enter Store Number: 1  
Your store is:  
Store #1318, 8000 York Road Towson, 410-704-3723, MD  
Purchase item: Last Chance Toilet Paper Price 30.0 Y/N: y  
Purchase item: Never-Sure Face Masks Price 15.99 Y/N: y  
Purchase item: 30-day Supply Reese's Peanut Butter Cups Price 119.0 Y/N: y  
Purchase item: Python2 book - "Everything You Already Knew" Price 21.99 Y/N: y  
Purchase item: 52" Television Price 199.97 Y/N: n  
Purchase item: COVID Onesie Price 19.99 Y/N: n  
Purchase item: Lenova 15" Laptop Price 699.0 Y/N: |
```

After the user has made their purchase selections, a receipt is produced

```
File Edit View Navigate Code Analyze Refactor Build Run Tools VCS Window Help Assignment5 - MDTaxComputation.java
Assignment5
ReceiptFactory.java X PostDecorator.java X Decorator.java X MDTaxComputation.java X PreDecorator.java X BasicReceipt.java X PurchasedItems.java X String.java
Run: Client X
1: Project
Run: Client X
Store #8176, 14 Allstate Road Dorchester, 617-445-5361, MA [6]
Store #4442, 50 Holyoke Street Holyoke, 413-533-4443, MA [7]
Enter Store Number: 1
Your store is:
Store #1318, 8000 York Road Towson, 410-704-3723, MD
Purchase item: Last Chance Toilet Paper Price 30.0 Y/N: y
Purchase item: Never-Sure Face Masks Price 15.99 Y/N: y
Purchase item: 30-day Supply Reese's Peanut Butter Cups Price 119.0 Y/N: y
Purchase item: Python2 book - "Everything You Already Knew" Price 21.99 Y/N: y
Purchase item: 52" Television Price 199.97 Y/N: n
Purchase item: COVID Onesie Price 19.99 Y/N: n
Purchase item: Lenova 15" Laptop Price 699.0 Y/N: n
* Happy Holidays from Best Buy *
Best Buy: Store #1318, 8000 York Road Towson, 410-704-3723, MD
Date: 01/01/2020
0100 Last Chance Toilet Paper 30.0
0201 Never-Sure Face Masks 15.99
0343 30-day Supply Reese's Peanut Butter Cups 119.0
0418 Python2 book - "Everything You Already Knew" 21.99
Subtotal: 186.98
Tax: 11.22
Total: 198.20
***** 10% Off Next Visit *****

Again: |
```

Since the subtotal was greater than or equal to \$100.00, a coupon for 10% off next visit is added to receipt. The “Happy Holidays” banner is added to receipt. The store information and date are added to receipt. The appropriate tax for the state is computed and added to the receipt. The date is 1/1/2020 and it’s MD so it’s not a tax holiday. Now we’ll run it again, enter a date that falls within MD tax holiday,

File Edit View Navigate Code Analyze Refactor Build Run Tools VCS Window Help Assignment5 - MassachusettsTax

Assignment5 > src > MassachusettessTax > m computeTax

PostDecorator.java × Decorator.java × MDTaxComputation.java × MassachusettessTax.java × PreDecorat...

Run: Client

Again: y  
Enter Date MM/DD/YYYY: 08/13/2020  
Date = 08/13/2020  
Store #1540, 7800 York Road Towson, 410-704-2151, MD [0]  
Store #1318, 8000 York Road Towson, 410-704-3723, MD [1]  
Store #0103, 203 Main Street Newark, 302-831-2792, DE [2]  
Store #0487, 101 Elm Street Rehoboth Beach, 302-830-1469, DE [3]  
Store #3317, 1046 North El Camino Real Encinitas, 760-479-0114, CA [4]  
Store #9716, 18811 Bear Valley Road Apple Valley, 760-961-9539, CA [5]  
Store #8176, 14 Allstate Road Dorchester, 617-445-5361, MA [6]  
Store #4442, 50 Holyoke Street Holyoke, 413-533-4443, MA [7]  
Enter Store Number: 1  
Your store is:  
Store #1318, 8000 York Road Towson, 410-704-3723, MD  
Purchase item: Last Chance Toilet Paper Price 30.0 Y/N: y  
Purchase item: Never-Sure Face Masks Price 15.99 Y/N: y  
Purchase item: 30-day Supply Reese's Peanut Butter Cups Price 119.0 Y/N: y  
Purchase item: Python2 book - "Everything You Already Knew" Price 21.99 Y/N: y  
Purchase item: 52" Television Price 199.97 Y/N: n  
Purchase item: COVID Onesie Price 19.99 Y/N: n  
Purchase item: Lenova 15" Laptop Price 699.0 Y/N: n  
\* Happy Holidays from Best Buy \*  
Best Buy: Store #1318, 8000 York Road Towson, 410-704-3723, MD  
Date: 08/13/2020  
0100 Last Chance Toilet Paper 30.0

4: Run TODO 6: Problems Build Terminal

Build completed successfully in 3 s 392 ms (2 minutes ago)

Windows Search File Mail Microsoft Edge Eye Task View File Explorer Word Google Chrome Microsoft Edge

purchase the same objects, and see the difference in receipts. The output is continued below

```
Run: Client <--> Store #4442, 50 Holyoke Street Holyoke, 413-533-4443, MA [7]
Enter Store Number: 1
Your store is:
Store #1318, 8000 York Road Towson, 410-704-3723, MD
Purchase item: Last Chance Toilet Paper Price 30.0 Y/N: y
Purchase item: Never-Sure Face Masks Price 15.99 Y/N: y
Purchase item: 30-day Supply Reese's Peanut Butter Cups Price 119.0 Y/N: y
Purchase item: Python2 book - "Everything You Already Knew" Price 21.99 Y/N: y
Purchase item: 52" Television Price 199.97 Y/N: n
Purchase item: COVID Onesie Price 19.99 Y/N: n
Purchase item: Lenova 15" Laptop Price 699.0 Y/N: n
* Happy Holidays from Best Buy *
Best Buy: Store #1318, 8000 York Road Towson, 410-704-3723, MD
Date: 08/13/2020
0100 Last Chance Toilet Paper 30.0
0201 Never-Sure Face Masks 15.99
0343 30-day Supply Reese's Peanut Butter Cups 119.0
0418 Python2 book - "Everything You Already Knew" 21.99
Subtotal: 186.98
Tax Holiday in Maryland
Tax: 0.00
Total: 186.98
***** 10% Off Next Visit *****

Again: |
```

4: Run    TODO    6: Problems    Build    Terminal

Build completed successfully in 3 s 392 ms (4 minutes ago)

You can see that the receipt states that it's a tax holiday in MD and has computed the appropriate tax. Now let's look at rebates.

There is a rebate for item 1406 – which is the Lenova Laptop. We're going shopping in California now on 1/1/2020

File Edit View Navigate Code Analyze Refactor Build Run Tools VCS Window Help Assignment5 - MassachusettsTax.java

Assignment5 > src > C MassachusettsTax > m computeTax

PostDecorator.java × Decorator.java × MDTaxComputation.java × MassachusettsTax.java × PreDecorator.java × BasicReceipt.java ×

Run: Client ×

Again: Y  
Enter Date MM/DD/YYYY: 01/01/2020  
Date = 01/01/2020  
Store #1540, 7800 York Road Towson, 410-704-2151, MD [0]  
Store #1318, 8000 York Road Towson, 410-704-3723, MD [1]  
Store #0103, 203 Main Street Newark, 302-831-2792, DE [2]  
Store #0487, 101 Elm Street Rehoboth Beach, 302-830-1469, DE [3]  
Store #3317, 1046 North El Camino Real Encinitas, 760-479-0114, CA [4]  
Store #9716, 18811 Bear Valley Road Apple Valley, 760-961-9539, CA [5]  
Store #8176, 14 Allstate Road Dorchester, 617-445-5361, MA [6]  
Store #4442, 50 Holyoke Street Holyoke, 413-533-4443, MA [7]  
Enter Store Number: 4  
Your store is:  
Store #3317, 1046 North El Camino Real Encinitas, 760-479-0114, CA  
Purchase item: Last Chance Toilet Paper Price 30.0 Y/N: y  
Purchase item: Never-Sure Face Masks Price 15.99 Y/N: y  
Purchase item: 30-day Supply Reese's Peanut Butter Cups Price 119.0 Y/N: y  
Purchase item: Python2 book - "Everything You Already Knew" Price 21.99 Y/N: y  
Purchase item: 52" Television Price 199.97 Y/N: n  
Purchase item: COVID Onesie Price 19.99 Y/N: n  
Purchase item: Lenova 15" Laptop Price 699.0 Y/N: y  
\* Happy Holidays from Best Buy \*  
Best Buy: Store #3317, 1046 North El Camino Real Encinitas, 760-479-0114, CA  
Date: 01/01/2020  
0100 Last Chance Toilet Paper 30.0

Run TODO Problems Build Terminal

Build completed successfully in 3 s 392 ms (7 minutes ago)



The screenshot shows a Java application running in an IDE. The terminal window displays a receipt for a purchase at Best Buy. The receipt includes the following details:

- Purchase item: Never-Sure Face Masks Price 15.99 Y/N: *y*
- Purchase item: 30-day Supply Reese's Peanut Butter Cups Price 119.0 Y/N: *y*
- Purchase item: Python2 book - "Everything You Already Knew" Price 21.99 Y/N: *y*
- Purchase item: 52" Television Price 199.97 Y/N: *n*
- Purchase item: COVID Onesie Price 19.99 Y/N: *n*
- Purchase item: Lenova 15" Laptop Price 699.0 Y/N: *y*
- \* Happy Holidays from Best Buy \*
- Best Buy: Store #3317, 1046 North El Camino Real Encinitas, 760-479-0114, CA
- Date: 01/01/2020
- 0100 Last Chance Toilet Paper 30.0
- 0201 Never-Sure Face Masks 15.99
- 0343 30-day Supply Reese's Peanut Butter Cups 119.0
- 0418 Python2 book - "Everything You Already Knew" 21.99
- 1406 Lenova 15" Laptop 699.0
- Subtotal: 885.98
- Tax: 66.45
- Total: 952.43
- \*\*\*\*\* 10% Off Next Visit \*\*\*\*\*
- Mail-in Rebate for Item #1406
- Name:
- Address:
- Mail to: Best Buy Rebates, P.O. Box 1400, Orlando, FL
- Again:

At the bottom, it says "Build completed successfully in 3 s 392 ms (12 minutes ago)".

As you can see from the above receipt, the correct tax for California was computed, the rebate was added to the receipt, and, since the purchase was greater than \$100.00, a coupon for 10% off next visit was added to receipt.

Now we're going to make demonstrate Mass Tax computation object working

File Edit View Navigate Code Analyze Refactor Build Run Tools VCS Window Help Assignment5 - MassachusettsTax.java

Assignment5 > src > MassachusettsTax > taxHoliday

PostDecorator.java × Decorator.java × MDTaxComputation.java × MassachusettsTax.java × PreDecorator.java ×

Run: Client

```
Enter Date MM/DD/YYYY: 01/01/2020
Date = 01/01/2020
Store #1540, 7800 York Road Towson, 410-704-2151, MD [0]
Store #1318, 8000 York Road Towson, 410-704-3723, MD [1]
Store #0103, 203 Main Street Newark, 302-831-2792, DE [2]
Store #0487, 101 Elm Street Rehoboth Beach, 302-830-1469, DE [3]
Store #3317, 1046 North El Camino Real Encinitas, 760-479-0114, CA [4]
Store #9716, 18811 Bear Valley Road Apple Valley, 760-961-9539, CA [5]
Store #8176, 14 Allstate Road Dorchester, 617-445-5361, MA [6]
Store #4442, 50 Holyoke Street Holyoke, 413-533-4443, MA [7]
Enter Store Number: 6
Your store is:
Store #8176, 14 Allstate Road Dorchester, 617-445-5361, MA
Purchase item: Last Chance Toilet Paper Price 30.0 Y/N: y
Purchase item: Never-Sure Face Masks Price 15.99 Y/N: y
Purchase item: 30-day Supply Reese's Peanut Butter Cups Price 119.0 Y/N: y
Purchase item: Python2 book - "Everything You Already Knew" Price 21.99 Y/N: y
Purchase item: 52" Television Price 199.97 Y/N: n
Purchase item: COVID Onesie Price 19.99 Y/N: n
Purchase item: Lenova 15" Laptop Price 699.0 Y/N: n
* Happy Holidays from Best Buy *
Best Buy: Store #8176, 14 Allstate Road Dorchester, 617-445-5361, MA
Date: 01/01/2020
0100 Last Chance Toilet Paper 30.0
0201 Never-Sure Face Masks 15.99
```

Run TODO Problems Build Terminal

Build completed successfully in 3 s 152 ms (a minute ago)



The screenshot shows a Java application running in an IDE. The terminal window displays the following output:

```
Run: Client
Store #8176, 14 Allstate Road Dorchester, 617-445-5361, MA [6]
Store #4442, 50 Holyoke Street Holyoke, 413-533-4443, MA [7]
Enter Store Number: 6
Your store is:
Store #8176, 14 Allstate Road Dorchester, 617-445-5361, MA
Purchase item: Last Chance Toilet Paper Price 30.0 Y/N: y
Purchase item: Never-Sure Face Masks Price 15.99 Y/N: y
Purchase item: 30-day Supply Reese's Peanut Butter Cups Price 119.0 Y/N: y
Purchase item: Python2 book - "Everything You Already Knew" Price 21.99 Y/N: y
Purchase item: 52" Television Price 199.97 Y/N: n
Purchase item: COVID Onesie Price 19.99 Y/N: n
Purchase item: Lenova 15" Laptop Price 699.0 Y/N: n
* Happy Holidays from Best Buy *
Best Buy: Store #8176, 14 Allstate Road Dorchester, 617-445-5361, MA
Date: 01/01/2020
0100 Last Chance Toilet Paper 30.0
0201 Never-Sure Face Masks 15.99
0343 30-day Supply Reese's Peanut Butter Cups 119.0
0418 Python2 book - "Everything You Already Knew" 21.99
Subtotal: 186.98
Tax: 14.02
Total: 201.00
***** 10% Off Next Visit *****

Again: |
```

The application runs successfully, displaying a receipt for a store visit on January 1, 2020, with various items purchased and tax applied.

The tax was computed correctly and the appropriate decorators were added to receipt – store info, holiday banner, tax, and coupon

Now for Mass. A regular (no tax holiday) receipt

```
Run: Client
Store #8176, 14 Allstate Road Dorchester, 617-445-5361, MA [6]
Store #4442, 50 Holyoke Street Holyoke, 413-533-4443, MA [7]
Enter Store Number: 6
Your store is:
Store #8176, 14 Allstate Road Dorchester, 617-445-5361, MA
Purchase item: Last Chance Toilet Paper Price 30.0 Y/N: y
Purchase item: Never-Sure Face Masks Price 15.99 Y/N: y
Purchase item: 30-day Supply Reese's Peanut Butter Cups Price 119.0 Y/N: y
Purchase item: Python2 book - "Everything You Already Knew" Price 21.99 Y/N: y
Purchase item: 52" Television Price 199.97 Y/N: n
Purchase item: COVID Onesie Price 19.99 Y/N: n
Purchase item: Lenova 15" Laptop Price 699.0 Y/N: n
* Happy Holidays from Best Buy *
Best Buy: Store #8176, 14 Allstate Road Dorchester, 617-445-5361, MA
Date: 01/01/2020
0100 Last Chance Toilet Paper 30.0
0201 Never-Sure Face Masks 15.99
0343 30-day Supply Reese's Peanut Butter Cups 119.0
0418 Python2 book - "Everything You Already Knew" 21.99
Subtotal: 186.98
Tax: 14.02
Total: 201.00
***** 10% Off Next Visit *****

Again: |
```

Now for the same store in Mass but during the tax holiday.

Run: Client

```
↑ Store #4442, 50 Holyoke Street Holyoke, 413-533-4443, MA [7]
↓ Enter Store Number: 6
Your store is:
Store #8176, 14 Allstate Road Dorchester, 617-445-5361, MA
Purchase item: Last Chance Toilet Paper Price 30.0 Y/N: y
Purchase item: Never-Sure Face Masks Price 15.99 Y/N: y
Purchase item: 30-day Supply Reese's Peanut Butter Cups Price 119.0 Y/N: y
Purchase item: Python2 book - "Everything You Already Knew" Price 21.99 Y/N: y
Purchase item: 52" Television Price 199.97 Y/N: n
Purchase item: COVID Onesie Price 19.99 Y/N: n
Purchase item: Lenova 15" Laptop Price 699.0 Y/N: n
* Happy Holidays from Best Buy *
Best Buy: Store #8176, 14 Allstate Road Dorchester, 617-445-5361, MA
Date: 08/30/2020
0100 Last Chance Toilet Paper 30.0
0201 Never-Sure Face Masks 15.99
0343 30-day Supply Reese's Peanut Butter Cups 119.0
0418 Python2 book - "Everything You Already Knew" 21.99
Subtotal: 186.98
Tax Holiday in Massachusetts
Tax: 8.93
Total: 195.91
***** 10% Off Next Visit *****

Again: |
```

Run: Run TODO Problems Build Terminal

All files are up-to-date (3 minutes ago)

The tax during the tax holiday is different, although the same items were purchased. Unfortunately, the Reese's Peanut butter cups are subject to tax.

Lastly (but the First State), we'll look at Delaware.

The screenshot shows a Java application running in an IDE. The terminal window displays a receipt for Best Buy purchases. The receipt includes items like Face Masks, Peanut Butter Cups, a Python book, and a Lenovo laptop. It shows a subtotal of \$885.98, no tax, and a total of \$885.98. A 10% off coupon is mentioned. The receipt ends with a prompt to mail it to Best Buy Rebates, P.O. Box 1400, Orlando, FL.

```
Purchase item: Never-Sure Face Masks Price 15.99 Y/N: y
Purchase item: 30-day Supply Reese's Peanut Butter Cups Price 119.0 Y/N: y
Purchase item: Python2 book - "Everything You Already Knew" Price 21.99 Y/N: y
Purchase item: 52" Television Price 199.97 Y/N: n
Purchase item: COVID Onesie Price 19.99 Y/N: n
Purchase item: Lenova 15" Laptop Price 699.0 Y/N: y
* Happy Holidays from Best Buy *
Best Buy: Store #0487, 101 Elm Street Rehoboth Beach, 302-830-1469, DE
Date: 02/14/2020
0100 Last Chance Toilet Paper 30.0
0201 Never-Sure Face Masks 15.99
0343 30-day Supply Reese's Peanut Butter Cups 119.0
0418 Python2 book - "Everything You Already Knew" 21.99
1406 Lenova 15" Laptop 699.0
Subtotal: 885.98
Tax: 0.00
Total: 885.98
***** 10% Off Next Visit *****
Mail-in Rebate for Item #1406
Name:
Address:

Mail to: Best Buy Rebates, P.O. Box 1400, Orlando, FL

Again: |
```

The date was added to the receipt. We purchased item 1406 (Lenovo Laptop), so the rebate was added to receipt. The holiday banner and store info was added to receipt. The correct Tax computation object was used. The coupon for 10% off next visit was added as well since the total was  $\geq \$100.00$