6. Scenario: You are a cashier at a grocery store and need to calculate the total cost of a customer's

purchase, including applicable discounts and taxes. You have the item prices and quantities in

separate lists, and the discount and tax rates are given as percentages. Your task is to calculate the

total cost for the customer.

Question: Use arithmetic operations to calculate the total cost of a customer's purchase, including

discounts and taxes, given the item prices, quantities, discount rate, and tax rate?

Code:

import numpy as np

import pandas as pd

df = pd.read\_csv(r"C:\Users\jampa\Downloads\customer\_purchase.csv")

prices = df['Price per Item'].to\_numpy()

quantities = df['Quantity'].to\_numpy()

items = df['Item'].to\_numpy()

subtotals = prices \* quantities

subtotal = np.sum(subtotals)

discount\_rate = 10

tax\_rate = 8

discount\_amount = subtotal \* (discount\_rate / 100)

after\_discount = subtotal - discount\_amount

tax\_amount = after\_discount \* (tax\_rate / 100)

total\_cost = after\_discount + tax\_amount

max\_index = np.argmax(subtotals)

top\_item = items[max\_index]

print("Subtotals per item:")

for item, value in zip(items, subtotals):

print(f"{item}: ${value:.2f}")

print(f"\nTotal before discount and tax: ${subtotal:.2f}")

print(f"Discount ({discount\_rate}%): -${discount\_amount:.2f}")

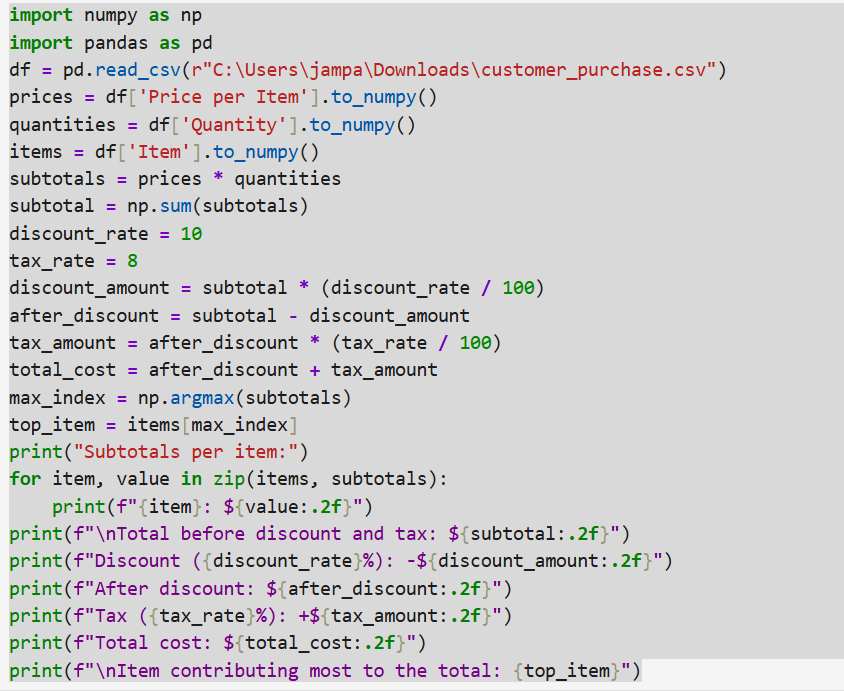
print(f"After discount: ${after\_discount:.2f}")

print(f"Tax ({tax\_rate}%): +${tax\_amount:.2f}")

print(f"Total cost: ${total\_cost:.2f}")

print(f"\nItem contributing most to the total: {top\_item}")

output:



A screenshot of a computer screen

AI-generated content may be incorrect.

Data set:

|  |  |  |  |
| --- | --- | --- | --- |
| Item | Price per Item | Quantity |  |
| Apples | 2.5 | 4 |  |
| Bread | 1.75 | 2 |  |
| Milk | 3 | 1 |  |
| Eggs | 2.25 | 3 |  |