Question6:

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?

Answer:

Code:

import numpy as np

import pandas as pd

df = pd.read\_csv(r"D:\datasets\question3.csv")

# Convert columns to NumPy arrays

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

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

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

# subtotals

subtotals = prices \* quantities

subtotal = np.sum(subtotals)

# Define discount and tax rates

discount\_rate = 10

tax\_rate = 8

# discount and after-discount amount

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

after\_discount = subtotal - discount\_amount

# tax and total cost

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

total\_cost = after\_discount + tax\_amount

#item contributing most to the total

max\_index = np.argmax(subtotals)

top\_item = items[max\_index]

# subtotals per item

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}")

# highest contributing item

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

Output:



