**IPO chart:**

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| --- | --- | --- |
| Input: | Processing: | Output: |
| User input for whether they want to calculate the out-the-door price of an automobile (Yes or No).  If the response is "Yes," the program prompts for:  User input for the make of the automobile.  User input for the model of the automobile.  User input for whether it's an electric vehicle (Y or N).  User input for the MSRP (sticker price) of the automobile. | The program defines a function calculateOutTheDoorPrice to calculate the out-the-door price for the automobile. It determines the percent off MSRP based on the provided make, model, and electric vehicle code. Then it calculates the discount, new MSRP, sales tax, and total price.  The program uses a while loop to repeatedly prompt the user for input:  If the user's response is "No," the loop ends.  If the user's response is "Yes," the program proceeds to collect car information.  For each "Yes" response, the program calculates the out-the-door price and displays it.  The program accumulates the total MSRP and total sales price for all cars.  If the user provides an invalid response, the program informs the user.  The program repeats this process until the user responds with "No." | For each "Yes" response, the program displays the make, model, and out-the-door price for the automobile.  After processing all cars, the program displays the total MSRP of all cars and the total sales price of all cars.  If the user provides an invalid response, the program informs the user.  The program ends with a message when the user responds with "No." |

**Code:**

def calculateOutTheDoorPrice(make, model, electricVehicleCode, msrp):

percentOffMsrp = 0.05

if make == "Honda" and model == "Accord":

percentOffMsrp = 0.10

elif make == "Toyota" and model == "Rav4":

percentOffMsrp = 0.15

elif electricVehicleCode == "Y":

percentOffMsrp = 0.30

discount = msrp \* percentOffMsrp

newMsrp = msrp - discount

tax = 0.07 \* newMsrp

total = newMsrp + tax

return total

totalMsrp = 0

totalSalesPrice = 0

while True:

response = input("Do you want to calculate the out-the-door price of an automobile? (Yes/No): ").strip().lower()

if response == "no":

break

elif response == "yes":

make = input("Enter the make of the automobile: ").strip()

model = input("Enter the model of the automobile: ").strip()

electricVehicleCode = input("Is it an electric vehicle (Y/N)? ").strip().upper()

msrp = float(input("Enter the MSRP (sticker price) of the automobile: "))

outTheDoorPrice = calculateOutTheDoorPrice(make, model, electricVehicleCode, msrp)

print(f"Make: {make}")

print(f"Model: {model}")

print(f"Out-the-Door Price: ${outTheDoorPrice:.2f}\n")

totalMsrp += msrp

totalSalesPrice += outTheDoorPrice

else:

print("Invalid response. Please enter 'Yes' or 'No'.")

print(f"Total MSRP of all cars: ${totalMsrp:.2f}")

print(f"Total Sales Price of all cars: ${totalSalesPrice:.2f}")

print("Program ended.")