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Problem Set – More on Functions

Prompt the user to repeatedly to do the program input (Yes or No)). If they respond Yes, go into the loop and prompt them for last name, month and sales. Write a function to compute next month's forecast. Pass to the function month and sales. Determine the forecast percent (see below) and compute next month's sales to be sales x (1+forecast percent). Return next month's sales and display the value.

Month	Forecast Percent
Jan, Feb, Mar	0.10
Apr, May, Jun	0.15
Jul, Aug, Sep	0.20
Oct, Nov, Dec	0.25

Input	Processing	Output

run_program= ("Would you like to start this program? (Yes or No): "). lower()	If Run_program== 'yes':
	  lastname= input("Enter your last name: ").
	  Month= input("Enter the month: ").
	  Sales= float(input("Enter your sales: ")).
	Next_Mon_Sales= Compute_Next_Mon_Sales(Mon, sales).
	print(f "Next month's sales forcast for {lastname}: ${Next_Mon_Sales:. 2f}")
	Else:
	  break.	

	def forecast_percentages(month):
	if month in ['Jan, 'Feb', 'Mar']:
	  return: 0.10
	elif month in ['Apr', 'May', 'Jun']:
	  return: 0.15
	elif month in ['Jul', 'Aug', 'Sep']:
	  return: 0.20
	elif month in ['Oct', 'Nov', 'Dec']:
	  return: 0.25	

	def Calc_Nxt_Mon_Sales(Month, Sales): forecast_Percentage= forecast_percentages(month) return: sales * (1+ forecast_percentage)	

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2. Prompt the user to repeatedly to do the program input (Yes or No)). If they response Yes go into the loop and prompt the user for length, width, and height of a room. Write a function to compute the wall square footage of the room. The function should receive the length, width and height of the room and return wall square footage 2 x length x height (2 of the walls) + 2 x width x height (the other 2 walls). A gallon of paint covers 50 square feet. Compute the number of gallons needed to paint the walls of the room (square footage of the room / 50). Display the number of gallons needed.

Note: the computation can be any algebraic equivalent as long as the computation is correct.

Bonus: Add the following

   a. A function to compute the area of the ceiling or floor (length x width).

   b. Use the function to get the area of the ceiling or wall.

   c. Determine the number of gallons of ceiling paint or floor varnish

   d. Display the number of gallons for the ceiling or floor.

Input	Processing	Output

run_program= ("Would you like to start this program? (Yes or No): ").lower()	If run_program== "Yes":
	  length= float(input("Enter the length of the room: ")).
	  width= float(input("Enter the width of the room: ")).
	  height= float(input("Enter the height of the room: ")).
	
	sqr_footage= calc_wall_sqr_footage(length, width, height).	

	gal_needed= calc_gal_needed(sqr_footage). print(f "you will need {gal_needed:.2f} gallons of paint to cover {sqr_footage:.2f} square feet.").	
	def calc_wall_sqr_footage(length, width, height):	

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	return: 2* (length + width) * height def gal_needed(sqr_footage): return: sqr_footage/50	

3. Prompt the user to repeatedly to do the program (input (Yes or No)). If they response Yes go into the loop and prompt the user for make, model, electric vehicle code (Y or N) and MSRP (sticker price) of an automobile. Write a function to compute the out the door price. Pass to the function the MSRP, make, model and electric vehicle code. Determine the percent off the MSRP then compute the new MSRP and finally add 7% sales tax to the total. Return and display the total. Also sum all MSRP's and sum of all sales price of the cars (MSRP – discount + tax).

To determine percent off MSRP	Percent off MSRP
Honda Accord	0.10
Toyota Rav4	0.15
All electric vehicles	0.30
All other vehicles	0.05

Input	Processing	Output

run_program= ("Would you like to start this program? (Yes or No): ").lower()	def main():
	    Ttl_msrp_Sum= 0
	    Ttl_SalesSum=0
	
	if run_program== "Yes":
	  make= input("Enter the make of the vehicle: ").
	  model= input("Enter the model of the vehicle: ").
	electricV_code= input("Is this an electric vehicle? (Y/N): ").lower()
	msrp= float(input("Enter the MSRP of the vehicle: ")).	

	Ttl_msrpSum += msrp	
	Ttl_prce= Calc_out_the_door_prc(msrp, make, model, electricV_code) Ttl_Sum += Ttl_prce print(f "Out_the_door_price for the {make} {model}: ${Ttl_prce:.2f}"). else: break print(f " Total sum of all MSRPs: ${Ttl_msrpSum:.2f}"). print(f " Total sum of all sales prices: ${Ttl_SalesSum:.2f}").	

	def discount_per(make, model, electricV_code):
	    if make== "Honda" and model == "Accord":
	      return: 0.10
	  elif make== "Toyota" and model== "Rav4":
	      return: 0.15
	  elif electricV_code== "Y":
	      return: 0.30
	  else:
	      return: 0.05	

	def Calc_out_the_door_prc(msrp, make, model, electricV_code): discount_per= get_discount_per(make, model,	

	electricV_code) discount_prce= msrp * (1- discount_per) Ttl_prce= discounted_prce * 1.07 return: Ttl_prce	

4. Prompt the user to repeatedly to do the program input (Yes or No)). If they response Yes go into the loop and prompt the user for last name and miles from downtown Chicago. Write a function to compute the train ticket price. Pass to the function the miles from downtown Chicago and determine the ticket price. Return the ticket price. Sum price of all tickets.

Miles from Downtown Chicago	Ticket Price
30 or more	$12
20 to 29	$10
10 to 19	$8
All others	$5

Input	Processing	Output

run_program= ("Would you like to start this program? (Yes or No): ").lower()	def Calc_ticket_prce(miles):
	    if miles >= 30:
	        return: 12
	    elif 20 <= miles < 30:
	        return: 10
	    elif 10 <= miles < 20:
	        return: 8
	    else:
	        return: 5	

	def main():
	    Tttl_prce_sum= 0
	    while true:
	
	    run_program= input("Would you like to run the program? (Yes/No): "). lower()
	
	    if run_program== "Yes":
	        last_name = input("Enter yout last name: ").
	        miles= float(input("Enter the miles from downtown chicago: ")).	

	Tkt_prce= Calc_ticket_prce(miles) Ttl_prce_sum += Tkt_prce print(f "Ticket price for {last_name}: ${Tkt_prce:.2f}"). else: break Print(f "Total sum of all ticket prices: ${Ttl_prce_sum:.2f}").	

5. Prompt the user to repeatedly to do the program input (Yes or No)). If they response Yes go into the loop and prompt the user for county and market value of a home. Write a function to compute the assessed value. Pass to the function the county and market value. The function will determine the assessed value percent then compute and return the assessed value. (Multiply the market value by assessed value percent. Sum and display all market values and assessed values.

County	Assessed Value Percent
Cook	0.90
DuPage	0.80
McHenry	0.75
Kane	0.60
All others	0.70

Input	Processing	Output

run_program= ("Would you like to start this program? (Yes or No): ").lower()	def
	Get_assessed_value_per(county):
	   if county== "Cook":
	     return: 0.90
	    elif county== "Dupage":	

| | ```
       return: 0.80
   elif county== "Mchenry":
       return: 0.75
   elif county== "Kane":
       return 0.60
   else:
       return: 0.70
``` | |
| | ```
def Calc_assessed_val(county,
market_value):
    assessed_val_per=
get_assessed_value_per(county)
    return market_value *
assessed_val_per
``` | |
| | ```
def main():
    total_market_val_sum= 0
    total_assessed_val_sum=0

   while true:
        run_program= input("would
you like to run the program?
(Yes/No): "). lower()

        if run_program== "Yes":
            county= input ("Enter the
name of the county: ").
            market_value=
float(input("Enter the market value
of the home: ")).
            total_market_val_sum +=
markey_value
            assessed_value=
calc_assessed_val(county,
market_value).
            total_assessed_val_sum +=
assessed_value

        print(f "Assessed value for
the home in {county}:
${assessed_value:.2f}").
        else:
            break
   print(f"Total sum of all market
values:
${total_market_val_sum:.2f}").
   print(f "Total sum of all assessed
values:
${total_assessed_val_sum:.2f").
``` | |