Problem Set – More on Functions

1. Prompt the user to repeatedly 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	process	output

(Yes or No)
 	
name
 	
month
 	
sales
	if (month == "jan" or month == "feb" or month == "mar"):
	  return 0.10
	elif (month == "apr" or month == "may" or month == "jun"):
	  return 0.15
	elif (month == "jul" or month == "aug" or month == "sep"):
	  return 0.20
	elif (month == "oct" or month == "nov" or month == "dec"):
	  return 0.25
		next month's sales

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 square footage of the room. The function should receive the length, width and height of the room and return square footage (2 x length x width (floor and ceiling) + 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 room (square footage of the room / 50). Display the number of gallons needed.

input	process	output
(Yes or No) length width height	((2 * length * width) + (2 * length * height) + (2 * width * height))	number of gallons needed

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	process	output

(Yes or No)
 	
make
 	
model
 	
electrical vehicle code (Yes or No)
 	
MSRP
	if make=="Honda" and model=="accord":
	disc=.10
	if make=="Toyota" and model=="Rav4":
	disc=0.15
	if evcode=="Y":
	disc=.30
	else:
	disc=.05
	
	price = fp(msrp, model, evcode, make)*msrp
	b=(msrp*0.07) +msrp
		total msrp
		
		total sales price

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 down town Chicago and determine the ticket price. Return the ticket price. Sum price of all tickets.

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

input	process	output

(Yes or No)
 	
lastname
 	
milesfromchi
	if mileschi >= 30:
	  return 12
	elif 20 <= mileschi < 30:
	  return 10
	elif 10 <= mileschi < 20:
	  return 8
	else:
	  return 5
	
	ticket = calcttp(mileschi)
	  total += ticket
	totalsttp = calcsttp()
		sum price of all tickets

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. (Multiple 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	process	output

(Yes or No)
 	
county
 	
value of home
	if county == 'Cook':
	avp = 0.90
	elif county == 'DuPage':
	avp = 0.80
	elif county == 'McHenry':
	avp = 0.75
	elif county == 'Kane':
	avp = 0.60
	else:
	avp = 0.70
	
	ttlav += assessedval
	ttlmv += marketval
		total assessed value
		
		total market value