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
month sales	CompNextForecast= define function if statement to find forecast % (1+forecast percent) return forecast perc	sales
response Lname month sales	Main prompt response → while resp is "yes" input Lname, month, sales (Call) Compnextforecast(month, sales)	value

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

l,w,h	def calcsquarefootage(l,w,h) sqft (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) return sqft	sqft
sqft	Main prompt input l,w,h gal=sqft/50 print gal	gal

3. Prompt the user to repeatedly 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
MSRP make model	def Compsaleprice() if make==”” and “” (determine %off)	saleprice
saleprice	Main	ttlMRSP

	while response==yes input make, model, MSRP saleprice=Compsaleprice()	saleprice

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
mi	tprice=Ticketprice(mi) if statement to find tprice return tprice	tprice
tprice	Main prompt user (Yes/No) initialize tprice input Lname, mi tprice=Ticketprice(mi)	ttltprice

5. Prompt the user to repeatedly 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
county mvalue	Assessedvalue def Assessedvalue(county, mvalue): if statement avalue=mvalue*avalueperc return	avalue
avalue	Main prompt user (Yes/No) if yes continue initialize mvalue, avalue input county, mvalue call statement avalue= Assessedvalue(county, mvalue) sum print	ttlmvalues ttlavalues