Problem Set – More on Functions

1. 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: Last name; Month (Jan–Dec); Sales amount; Yes/No to continue  
Process: Look up forecast % by month; compute next-month sales = sales × (1 + forecast %)  
Output: Next-month sales forecast

1. 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: Length; Width; Height; Yes/No to continue  
Process: Compute surface area = 2·(L·W) + 2·(L·H) + 2·(W·H); compute gallons = area ÷ 50  
Output: Gallons of paint needed

1. 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: Make; Model; EV code (Y/N); MSRP; Yes/No to continue  
Process: Determine discount % (by make/model or EV code); discounted price = MSRP × (1 – discount %); add 7% sales tax; accumulate total MSRP and total final sales  
Output: Out-the-door price; running totals of all MSRPs and all final prices

1. 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: Last name; Miles from downtown Chicago; Yes/No to continue  
Process: Determine ticket price by miles (≥30 → $12; 20–29 → $10; 10–19 → $8; else → $5); accumulate total revenue  
Output: Ticket price per person; total ticket revenue

1. 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: County; Market value of home; Yes/No to continue  
Process: Look up assessed-value % by county; assessed value = market value × assessed %; accumulate total market values and total assessed values  
Output: Assessed value per home; sum of market values; sum of assessed values