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

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| **Input** | **Process** | **Output** |
| Lastname  month  sales | compnextmonthforecast, receive parameters month and sales  Ask if month is equal to “JAN” , or month is equal to “FEB”, or month is equal to “MAR” make **forecastpercent** equal 0,10  Else  Ask if month is equal to “APR” , or month is equal to “MAY”, or month is equal to “JUN” make **forecastpercent** equal 0,15  Else  Ask if month is equal to “JUL” , or month is equal to “AUG”, or month is equal to “SEP” make **forecastpercent** equal 0,20  Else  Ask if month is equal to “OCT” , or month is equal to “NOV”, or month is equal to “DEC” make **forecastpercent** equal 0,25  Else  Return -1  Compute **nextmonthsales** by multiplying **sales** by (1+forecastpercent ) |  |
|  | Main  Do you want to continue?  While yes  Prompt the user to enter the user lastname, month and sales  Call the function **compnextmonthforecast**  and send the parameters month and sales  if **nextmonthsales** is greater than zero, display Next Month Sales  if **nextmonthsales** is less than zero, display “Month Invalid” | **nextmonthsales** |

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.

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| **Input** | **Process** | **Output** |
| Length  Width  height | **compsquarefootage**, receive parameters length, width, and height  Compute **squarefootage** = (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). |  |
|  | Main  Do you want to continue?  While yes  Prompt the user to enter the user length, width, and height  Call the function **compsquarefootage** and send the parameters length, width, and height  Compute gallonsrequired equal to squarefootage divided by 50  Display Gallons Needed | gallonsrequired |

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 (Manufactured Suggested Retail Price) (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

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| **Input** | **Process** | **Output** |
| Make  Model  Ev\_Code  MSRP  Stickerprice | **compoutthedoorprice**, receive parameters MSRP, make, model, ev\_code  Determine the percent off the MSRP  If make equal Honda and model equal Accord, make discountpercent = 0.10  If make equal Toyota and model equal Rav4, make discountpercent = 0.15  If ev-code equal Y, make discountpercent = 0.30  else  make discountpercent = 0.05  Compute discountamount by multiplying MSRP by discountpercent  Compute newMSRP by subtracting discountpercent from MSRP |  |
|  | Main  totalprice=0  msrp\_total = 0  sales\_price\_total = 0  Do you want to continue?  While yes  Prompt the user to enter make, model, ev\_code and MSRP  Call the function **compoutthedoorprice**  and send the parameters MSRP, make, model, ev\_code  Compute Taxamount by multiplying newMSRP by 0.07  Compute totalprice by summing taxamount to the newMSRP  Compute msrp\_total by summing MSRP to the msrp\_total  Compute sales\_price\_total by summing totalprice  to the sales\_price\_total  Display the Total Price | Totalprice |
|  | Display the Total MSRP of all car  Display the Total Sales Price of all cars | msrp\_total  sales\_price\_total |

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

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| **Input** | **Process** | **Output** |
| Lastname  miles | **comptrainTicketPrice**, receive parameters miles  Determine the tickect price  If miles greater than or equal to 30, make ticketPrice  = 12  If miles greater than or equal to 20, and miles less than or equal to 29, make ticketPrice = 10  If miles greater than or equal to 10, and miles less than or equal to 19, make ticketPrice = 8  else  make ticketPrice = 5 |  |
|  | Main  Do you want to continue?  While yes  Prompt the user to enter lastname and miles  Call the function **comptrainTicketPrice**  and send the parameter miles  Compute totalticketPrice equal to totalticketPrice plus trainTicketPrice  Display Ticket Price | trainTicketPrice |
|  | Display the price of all tickect | totalticketPrice |

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

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| **Input** | **Process** | **Output** |
| County  marketValue | **compAssessedValue**, receive parameters county and marketValue  Determine the assessed Value  If county equal Cook, make assessedValuePercent = 0.90  If county equal Dupage, make assessedValuePercent = 0.80  If county equal McHenry, make assessedValuePercent = 0.75  If county equal Kane, make assessedValuePercent = 0.60  else  make assessedValuePercent = 0.70  compute assessedValue by multiplying marketValue by assessedValuePercent |  |
|  | Main  totalMarketValues=0  totalAssessedValues=0  Do you want to continue?  While yes  Prompt the user to enter county and marketValue  Call the function **compAssessedValue** and send the parameter county and marketValue  Compute totalMarketValues equal to totalMarketValues  plus marketValue  Compute totalAssessedValues equal to totalAssessedValues plus assessedValue  Display Assessed Value | assessedValue |
|  | Display Total Market Values  Display Total Assessed Values | totalMarketValues  totalAssessedValues |