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

##Unsure whether I should use month in number or worded format, the latter seems more complicated and inflexible. Will try with worded ##

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| --- | --- | --- |
| input | process | Output |
|  | Def seasonForecast(month)  If month==2 or month ==1 or month==12  Forecast=0.1  Elif month 3 and 4 and 5  Forecast 0.15  Elif month 6 and 7 and 8  Forecast 0.2  Elif month 9 and 10 and 11  Forecast 0.25  Return forecast  ##Months such as 3,6,9,12 will give the next seasons worth of forecast percentage, which is why their value is with the next seasons if statement. Additionally, I could calculate the next months sales forecast by putting seasonForecast(month,sales) and statement action as (1+Forecast)\*sales## |  |
| reply  Name, month,sales | Reply=input(“Start the program? Yes no?”)  While reply = yes  Input name, month, sales  nextMonthSales=seasonForecast(month)\*sales+sales  print name, nextMonthSales | Name, nextMonthSales |
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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 |
| gallon=”{:.2f}”.format(paintGallon)  ##Is a format that I wanted to try, was unnecessary due to the print being limited to two decimals with f”{:.2f}”## | Def f2RoomCalc(length,width,height):  footage=2\*(length\*height+width\*height+length\*width)  paintGallon=footage/50    gallon=”{:.2f}”.format(paintGallon)  return gallon |  |
| reply  Length,width,height | Reply=input(“Start the program? Yes no?”)  While reply = yes  Input length,width,height  Gallon=f2RoomCalc(length,width,height)  Print “Gallons of paint needed:”,Gallon) | Gallons of paint needed ‘Gallon’ |
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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

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| --- | --- | --- |
| input | Process | output |
|  | Def fMSRPCalc(make,model,code,price)  if code== Y  discount 0.3  elif make Honda and model Accord  discount 0.1  elif make Toyota and model Rav4  discount 0.15  else  discount 0.05    discountPrice=price\*discount  newPrice=price-discountPrice  tax=newPrice\*0.07  return discountPrice,newPrice,tax |  |
| Response  Make,model,code,price | totalMSRP=0  response=input “Compute the price? Yes no”  while yes  input make,model,code,price  discountPrice,newPrice,tax=fMSRPCalc(make,model,code,price)  print discount, newPrice+tax  response=input “Compute the price? Yes no” | Discount  newPrice+tax |
|  | Print totalMSRP | totalMSRP |

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 |
|  | Def fMilesCalc(miles)  if miles>=30:  Price=12  Elif miles>=20  Price=10  Elif miles>=10  Price = 8  Else  Price=5  Return price |  |
| Reply  Name,miles | totalPrice=0  reply=input “Check the ticket price? Yes no”  while yes  input name, miles  price=fMilesCalc(miles)  print name,price | Name, price |
|  | Print totalPrice | totalPrice |

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.

##”Sum and display all market values and assessed values.” I tried finding a way to save all the County’s and their assessed values into an array or a list, depending on their methods. Unfortunately, I couldn’t so I will just sum up the total market market values and the sum of all assessed values into two rows.##

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 |
|  | Def fAssessed(county,marketValue)  If county==”Cook”  Percent=0.9  Elif county==DuPage  Percent 0.8  Elif county== McHenry  Percent 0.75  Elif county==kane  Percent 0.6  Else  0.7  Assessed=percent\*marketValue  Return assessed |  |
| Reply  County, marketValue | totalMarket=0  totalAssessed=0  response=input “Compute the price? Yes no”  while yes  input county, marketValue  assessed=fAssessed(county,marketValue)  totalMarket=totalMarket+marketValue  totalAssessed=totalAssessed+assessed  print county,marketValue,assessed | County,marketValue  ,assessed |
|  | Print totalMarket  Print totalAssessed | totalMarket  totalAssessed |