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

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| Input | Process | Output |
| Define function forecast(month, sales) | if month.lower == "january" or "february" or "march":          percent = 0.10      elif month.lower == "april" or "may" or "june":          percent = 0.15      elif month.lower == "july" or "august" or "september":          percent = 0.20      elif month.lower == "october" or "november" or "december":          percent = 0.25      else:          print("Please type in a valid month")        sales = sales \* (1 + percent) | Return sales |
| while True:  user\_input = input("Do you want to run the program? (Yes or No): ") |  |  |
| if user\_input.lower() == "yes"  last\_name = input("Enter your last name. ")          month = input("Enter a month. ")          sales = float(input("Enter the amount of sales. ")) | next\_Month\_sales = forecast(month, sales) | print("Next month's sales will be".format(next\_Month\_sales)) |
| elif user\_input.lower() == "no": |  | print("Leaving Program.") |
| else: |  | print("Please type in 'Yes' or 'No'.") |

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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| def square\_footage(lenght, width, height): | square\_feet = (2 \* lenght \*  width) + (2 \* lenght \* height) + (2 \* width \* height) | return square\_feet |
| while True:      user\_input = input("Do you want to run the program? (Yes/No)")      if user\_input.lower() == 'yes': | length = float(input("Type the length: "))          width = float(input("Type the width: "))          height = float(input("Type the height: ")) | square\_feet = square\_footage(length, width, height)   print(f"The room has {square\_feet} square feet") |
| elif user\_input.lower() == 'no': |  | print("PROGRAM WILL NOW CLOSE. ") |
| else |  | print("Please type Yes or No. ") |

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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| def price(msrp, make, model, electric\_code) | if make.lower() == "honda" and model.lower() == "accord":          percent\_off = 0.10      elif make.lower() == "toyota" and model.lower() == "rav4":          percent\_off = 0.15      elif electric\_code == "yes":          percent\_off = 0.30      else:          percent\_off = 0.05        discount = msrp \* percent\_off      new\_msrp = msrp - discount      tax = new\_msrp \* .07      total = msrp - discount + tax | return total |
| while True:  user\_input = input("Do you want to run the program? (Yes/No)")  if user\_input.lower() == 'yes': | make = input("Enter the make of the vehicle: ")  model = input("Enter the model of the vehicle: ")  electric\_code = input("Enter if vehicle has an electric vehicle code: (Yes/No) ")  msrp = float(input("Enter the MSRP price of the vehicle: "))  sum = price(msrp, make, model, electric\_code) | print(f"The total amount for the vehicle is ${sum}. ") |
| elif user\_input.lower() == 'no' |  | print("PROGRAM WILL NOW CLOSE. ") |
| else |  | Print(Please type yes or no) |

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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| def price(miles): | if miles >= 30:  ticket\_Price = 12.00  elif miles >=20 and miles <=29:  ticket\_Price = 10.00  elif miles >= 10 and miles <= 19:  ticket\_Price = 8.00  else:  ticket\_Price = 5.00 | return ticket\_Price |
| total\_Amount = 0  while True:  user\_input = input("Do you want to run the program? (Yes/No)")  if user\_input.lower() == 'yes': | last\_name = input("Enter your last name: ")  miles = float(input("Enter how many miles away you are from downtown Chicago? "))  amount = price(miles)  total\_Amount += amount | print(f"The price of your train ticket for {last\_name} is ${amount}")  print(f"Total Amount for everybody will be ${total\_Amount}") |
| elif user\_input.lower() == 'no': |  | print("PROGRAM WILL NOW CLOSE. ") |
| else |  | print("Please type Yes or No. ") |

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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| def value(county, market\_Value) | if county.lower() == "cook":  percent = 0.90  elif county.lower() == "dupage":  percent = 0.80  elif county.lower() == "mchenry":  percent = 0.75  elif county.lower() == "kane":  percent = 0.60  else:  percent = 0.70  asessed\_Value = market\_Value \* percent | return asessed\_Value |
| total\_Value = 0  while True:  user\_input = input("Do you want to run the program? (Yes or No): ") | county = input("Enter the name of the county: ")  market\_Value = float(input("Enter the market value of the home: "))  asessed\_Value = value(county, market\_Value)  total\_Value += asessed\_Value | print(f"The markete value of this home located in {county} county is, ${asessed\_Value}")  print(f"The toal value for all the homes is, ${total\_Value}") |
| elif user\_input.lower() == "no" |  | print("Leaving Program.") |
| else |  | print("Please type in 'Yes' or 'No'.") |