**CIS 106 – Problem Set 9 – IPO Charts**

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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| **INPUTS** | **PROCESSES** | **OUTPUTS** |
|  | **ComputeSalesForecast** (SalesCurrentMonth, CurrentMonth)  if (CurrentMonth == "December" "January" or "February"):  SalesNextMonth = SalesCurrentMonth \* 1.10  return SalesNextMonth  elif (CurrentMonth == "March" or "April" or "May"):  SalesNextMonth = SalesCurrentMonth \* 1.15  return SalesNextMonth  elif (CurrentMonth == "June" or "July" or "August"):  SalesNextMonth = SalesCurrentMonth \* 1.20  return SalesNextMonth  elif (CurrentMonth == "September" or "October" or "November"):  SalesNextMonth = SalesCurrentMonth \* 1.25  return SalesNextMonth  else: print("Invalid Month") |  |
| CurrentMonth  SalesCurrentMonth | **Main**  SalesNextMonth = 0.0  Do you want to compute the extended price? (Y/N)?  While (Yes)  Input CurrentMonth, SalesCurrentMonth  SalesNextMonth = ComputeSalesForecast (CurrentMonth, SalesCurrentMonth)  display SalesNextMonth  Do you want to compute another month's sales forecast? (Y/N)? | CurrentMonth  SalesCurrentMonth  SalesNextMonth |
|  | Display: Thank you for using the projected sales estimator program! | ThankYou message |

1. Prompt the user to repeatedly do the program (input (Yes or No)). If they response Yes, use 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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| **INPUTS** | **PROCESSES** | **OUTPUTS** |
|  | **Calculate\_paint\_gallons** (length, width, height):  SurfaceArea = 2 \* (length \* height + width \* height + length \* width)  NumberGallons = SurfaceArea / 50  return NumberGallons |  |
| Length  Width  Height | **Main**  Do you want to run the paint estimation program (Y/N)?  while r == "Y" or r == "y":  Input: Length, Width, Height  NumberGallons = calculate\_paint\_gallons(length, width, height)  Display NumberGallons  Do you want to run the paint estimation program (Y/N)? | NumberGallons |
|  | Display: Thank you for using the paint estimation program. | ThankYou message |

1. 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

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| **INPUTS** | **PROCESSES** | **OUTPUTS** |
|  | **CalculateDiscount**(Make, Model, EVCode, MSRP)  if (EVCode == "Y"): Discount = 0.30  elif (Make == "Toyota" and Model == "Rav4" and EVCode == "N"):  Discount = 0.15  elif (Make == "Honda" and Model == "Accord" and EVCode == "N"):  Discount = 0.10  else: Discount = 0.05  DiscountedPrice = MSRP - (MSRP \* Discount)  SalesPrice = DiscountedPrice \* 1.07  return SalesPrice |  |
| Make  Model  EVCode  MSRP | **Main**  TotalMSRPPrice = 0.0  TotalSalesPrice = 0.0  Do you want to compute the MSRP of a car? (Yes or No)?  while r == "Y" or r == "y":  Input: Make, Model, EVCode, MSRP  TotalMSRPPrice = TotalMSRPPrice + MSRP  SalesPrice = CalculateDiscount (Make, Model, EVCode, MSRP)  Display SalesPrice  TotalSalesPrice = TotalSalesPrice + SalesPrice  Do you want to compute the MSRP of a car? (Yes or No)? | SalesPrice |
|  | Display TotalMSRPPrice, TotalSalesPrice | TotalMSRPPrice  TotalSalesPrice |

1. 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 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 Downtown Chicago Ticket Price

30 or more $12

20 to 29 $10

10 to 19 $8

All others $5

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| **INPUTS** | **PROCESSES** | **OUTPUTS** |
|  | **def CalculateFare(Miles):**  if Miles >= 30: Fare = 12, return Fare  elif Miles >= 20: Fare = 10, return Fare  elif Miles >= 10: Fare = 8, return Fare  else: Fare = 5, return Fare |  |
| LastName  Miles | **Main**  SumFares = 0.0  SumPassengers = 0  Do you want to compute the train fare? (Y/N)?  while r == "Y" or r == "y":  Input: LastName, Miles  Fare = CalculateFare (Miles)  Display LastName, Fare  SumFares = SumFares + Fare  SumPassengers = SumPassengers + 1  Do you want to compute the train fare of another passenger? (Y/N)? | LastName  Fare |
|  | Display SumFares, SumPassengers, AverageFare | SumFares  SumPassengers  AverageFare |

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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| **INPUTS** | **PROCESSES** | **OUTPUTS** |
|  | **CalculatedAssessedValue** (County,MarketValue):  if County == "Cook":AssessedValue = MarketValue \* 0.90  elif County == "DuPage": AssessedValue = MarketValue \* 0.80  elif County == "McHenry": AssessedValue = MarketValue \* 0.75  elif County == "Kane": AssessedValue = MarketValue \* 0.60  else: AssessedValue = MarketValue \* 0.70  return AssessedValue |  |
| County  MarketValue | **Main**  SumMarketValues = 0.0  SumAssessedValues = 0.0  Do you want to compute the value of a land parcel? (Y/ N)?  while r == "Y" or r == "y":  Input: County, MarketValue  AssessedValue = CalculatedAssessedValue(County, MarketValue)  Display MarketValue, AssessedValue  SumMarketValues = SumMarketValues + MarketValue  SumAssessedValue = SumAssessedValue + AssessedValue  Do you want to compute the value of another land parcel? (Y/N) | AssessedValue |
|  | Display SumMarketValues, SumAssessedValues | SumMarketValues  SumAssessedValues |