Problem Set - Functions Pass By Value ##I explained how I would do the examples at the end. Due to being on 9th assignment on 11th December, I didn’t properly do them##

1. Allow the user to enter a quantity and price, use ctl+z to stop. Use a function to compute the total (quantity times price). The function should be passed the quantity and price and then return the total. In the function, provide a 10% discount if the total is over $10,0000.00. Display quantity, price and total. Sum and display the extended price.

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| --- | --- | --- |
| Input | Process | Output |
|  | CompExtPrice(qty, unitprice)  Extprice = qty\*unitprice  If extprice > 10000  Discamt = extprice \* 0.10  Else  Discamt = 0  newExtPrice = extPrice – discamt  return newExtPrice |  |
| Qty |  | Extprice |
| price | Main  totalExtPrice = 0  Do you want to do this program (Yes or No)  While (Yes)  Input qty, price  Extprice = CompExtPrice(qty,price)  Display qty, price, Extprice  totalExtPrice = totalExtPrice + extprice  Do you want to continue with this program? |  |
|  |  |  |
|  | Display totalExtPrice | totalExtPrice |
|  |  |  |
|  | ##IPO written by teacher. |  |

1. Enter players last name, number of hits and at bats at the keyboard, use ctl+z to stop. Use a function to compute batting average. Pass the hits and at bats to the function. The function should return batting average. Display last name and batting average. Give a count of the number of players entered.

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| --- | --- | --- |
| input | process | output |
|  | Def funcHitsAverage(hits,bats)  FhitsAverage=float(bats)/float(hits)  return FhitsAverage |  |
| name |  |  |
| hits |  |  |
| bats | Players=0  “Do you want to start the program? Yes no”  While yes  Input name, hits, bats  hitsAverage=funcHitsAverage(hits,bats)  Players=players+1  Print name, hitsAverage, players  “Do you want to continue? Yes no” | Name, hitsAverage, players  ##Unsure if you wanted total player count at the end or every loop. I made it for every loop. |

1. Enter the destination city, miles travelled and gallons used for a trip, use ctl+z to stop. Use a function to compute miles per gallon. Pass miles travelled and gallons used to the function. The function should return miles per gallon. Count the number of entries made (number of trips) Display destination city, miles and mpg. At end display the number of entries made.

|  |  |  |
| --- | --- | --- |
| input | process | output |
|  | Def funcMpG(miles,gallon)  MpG=miles/gallon  Return MpG |  |
| city |  |  |
| Miles,gallon | Entries=0  “Do you want to start the program? Yes no”  While yes  Input city, miles, gallon  milesPG=funcMpG(miles,gallon)  entries=entries+1  print city, milesPG  “Do you want to continue? Yes no” | City, milesPG |
|  | “Number of entries: entries” | entries |

1. Allow the employee to enter last name, job code and hours worked, use ctl+z to stop. Use a function to determine the pay rate. Pass to this function the job code and it should return rate of pay. Use Job code L is $25/hr, A is $30/hr and J is $50/hr for respective pay rates. Compute gross pay. Give time and a half for overtime. Display last name and gross pay. Sum and display total of all gross pay.

|  |  |  |
| --- | --- | --- |
| input | process | output |
|  | Def funcPayRate(code,hours)  If code==L or l  Rate=25  Elif code==A or a  Rate=30  Elif code==J or j  Rate=50  If hours>40  FPay=(hours-40)\*rate\*1.5+40\*rate  ##This is 40h work+overtime pay##  Else  FPay=rate\*hours  Return FPay |  |
| Name,code,hours | totalPay=0  “Start the program? Yes no”  While yes  Input name, code, hours  GrossPay=funcPayRate(code,hours)  totalPay=totalPay+GrossPay  print name, GrossPay  “Continue the program? Yes no” | Name, GrossPay |
|  | Print totalPay | totalPay |

1. Allow the user to enter student last name, credit hours and district code, use ctl+z to stop. Use a function to compute tuition owed. Charge In district (code of I) $250 per credit hour. Out of district (code of O) is $550 per credit hour. The function should receive credit hours and district code and return tuition owed. Display student name and tuition owed. Sum and display total of all tuition owed.

|  |  |  |
| --- | --- | --- |
| Input | process | output |
|  | Def funcTuition(credit,code)  newTuition=250\*credit if code==”I” or code==”I” else 500\*credit  Return newTuition |  |
| Name,credit,code | totalTuition=0  “Start the program? Yes no”  While yes  Input name,credit,code  tuition=funcTuition(credit,code)  totalTuition=totalTuition+tuition  print name, tuition  “Continue the program? Yes no” | Name, tuition |
|  | Print totalTuition | totalTuition |

Examples ####I assume these are practice problems##

1. Enter the number of Points and redemption code. For redemption code C then compute value as 2 x rewards points. Redemption code X then they get 3 x rewards points. All other codes get 1.5 x rewards points. Write a function that receives points and redemption codes and computes rewards points. Display points, redemption code and rewards points.

############No IPO or code, I’ll write these with words

Example 1 can be done similarly to Problem 4 where if statements will be used in a function to check for redemption code. Their following actions will be [reward=(CodeMultiplier)\*points] and the rest of the code is similar to the rest of the Problems in this document. ########

1. Enter two numbers and operation code (A, S, M, D). Write a function that receives the two numbers and uses the operation code to perform an operation on the two numbers (A=addition, S=Subtraction, M=Multiplication, D=Division). Check for dividing by 0. If the second number is 0 then set result to -999. Display two number, operation code, result and message if attempt to divide by zero.

Enter the two numbers into the function as Number1 and Number2, use if statements for the operation as in [answer=Number1(ASMD)Number2], but for the D statement, use [answer=-999 if Number2=0 else Number1/Number2]

Then print the numbers, answer and operation. If the division was by 0, use if statements again at the end [if code==”D” and Number2==0 print(“Division by 0 gives -999 by default”)]

1. Allow the user to enter a string. The string can be entered with any case (all upper, all lower of mixed). Write a function that accepts the string and returns all lower case when the original string is all upper or mixed. If the original string is all lower then make the string all upper case. The function should return the new string. Display both the original and new string.

We can check for any upper cases by using [result=any(name.isupper() for name in string)]

If the result if true, turning the string into lower case will be done by print them as print(string.lower()), and make them upper case as print(string.upper())