Problem Set – Introduction to Functions.

1. Allow the user to repeatedly enter a quantity and price. Prompt the user on whether they want to do the program (Yes or No). 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 |
| Quantity | def compute total (quantity, price)  Total = quantity x price  If total > 10,0000  Total = total x 0.9  Else total = total  Return total | Quantity |
| Price | Total extended price = 0  Input user’s choice whether they want to do the program (yes/no) | Price |
| User’s choice whether they want to do the program (yes/no) | While the choice is yes  Input quantity  Input price  Total= compute total (quantity, price)  Total extended price= total extended price + total | Total |
|  | Input user’s choice whether they want to do the program (yes/no) | Total extended price |
|  | Print total extended price |  |
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1. Enter players last name, number of hits and at bats at the keyboard. Prompt the user on whether they want to do the program (Yes or No). 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 |
| Last name | def compute batting average (number of hits, at bats at the keyboard)  Batting average= number of hits / at bats at the keyboard  Return batting average | Last name  Number of hits  At bats at the keyboard  Batting average  Count of the number of players |
| Number of hits | Count of the number of players= 0 |  |
| At bats at the keyboard | Input Player’s choice whether they want to do the program? (yes/no) |  |
| Player’s choice whether they want to do the program? (yes/no) | While the choice is yes  Input last name  Input numbers of hits  Input at bats at the keyboard |  |
|  | Batting average =. compute batting average (number of hits, at bats at the keyboard) |  |
|  | Count of the number of. players= Count of the number of players +1 |  |
|  | Print last name  Print batting average |  |
|  | Input Player’s choice whether they want to do the program? (yes/no) |  |
|  | Print number of players |  |

1. Enter the destination city, miles travelled and gallons used for a trip. Prompt the user on whether they want to do the program (Yes or No). 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.

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| Input | Process | Output |
| Destination city | def compute miles per gallon (miles travelled, gallons used)  Miles per gallon = gallons used / miles travelled  Return miles per gallon | Destination city |
| Miles travelled | Number of trips = 0  User choice whether they want to do the program? (yes/no) | Miles |
| Gallons used | While user choice is yes  Input destination city  Input miles travelled  Input gallons used | Miles per gallon |
| User choice whether they want to do the program? (yes/no) | Miles per gallon = compute miles per gallon (miles travelled, gallons used) | The number of entries made |
|  | Number of trips = number of trips + 1  Print destination city  Print miles travelled  Print miles per gallon |  |
|  | User choice whether they want to do the program again? (yes/no) |  |
|  | Print number of trips |  |

1. Allow the employee to enter last name, job code and hours worked. Prompt the user on whether they want to do the program (Yes or No). 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.

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| Input | Process | Output |
| Last name | def compute pay rate (job code)  If job code is L, pay rate is 25.  If job code is A, pay rate is 30  Else, job code is J, pay rate is 50  Return pay rate | Last name |
| Job code | Total of all gross pay= 0  User choice whether they want to do the program? (yes/no) | Gross pay |
| Hours worked | While user’s choice is yes.  Input last name  Input job code  Input hours worked  Pay rate = compute. pay rate (job code)  If hours worked <= 40:  Gross pay= hours worked x pay rate  Else, regular pay= 40 x. pay rate.  Overtime pay= (hours worked – 40) x (1.5 x pay rate)  Gross pay= regular pay + overtime pay  Total of all gross pay= total gross pay + gross pay | Total of all gross pay |
| User choice whether they want to do the program? (yes/no) | Print last name  Print gross pay |  |
|  | User choice whether they want to do the program again? (yes/no) |  |
|  | Print total of all gross pay |  |
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1. Allow the user to enter student last name, credit hours and district code. Prompt the user on whether they want to do the program (Yes or No). 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.

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| Input | Process | Output |
| Student last name | def compute tuition owed (credit hours, district code)  if district code is I, tuition owed is 250 x credit hours.  Elif district code is O, tuition owed is 550 x credit hours.  Else, print you must enter I or O.  Return tuition owed. | Student name |
| Credit hours | Total of all tuition owed= 0 | Tuition owed |
| District code | User’s choice whether they want to do the program? (yes/no) | Total of all tuition owed |
| User’s choice whether they want to do the program? (yes/no) | While user’s choice is yes  Input student last name Input credit hours Input district code tuition owed= compute tuition owed (credits hours, cost per credit) Total of all tuition owed= total of all tuition owed + tuition owed |  |
|  | Print student name  Print tuition owed |  |
|  | User’s choice whether they want to do the program again? (yes/no) |  |
|  | Print total of all tuition owed |  |