Problem Set - Functions Pass By Value

Create a loop that uses a signal (see previous lesson on loops) to stop. In all the problems user entries are done repeatedly (in a loop) until the signal.

1. Allow the user to enter quantities and prices in a loop. 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 total extended price.

| Input | Process | Output |
| --- | --- | --- |
| Arguments:  Qty, unitprice | Function:  Compute the extended price, quantity times unit price. | Return:  Extended price |
| qty , price from user | Read user input and compute extended price of all items  Sum total of all items | Qty, price, Extprice for each item  totalExtPrice for all items |

1. Enter players last name, number of hits and at bats at the keyboard. 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.

| Input | Process | Output |
| --- | --- | --- |
| Arguments:  # of hits and at bats | Function:  Compute batting average, hits divided by total at bats | Return:  Batting average |
| Player’s last name, # of hits and at bats from user | Read user input and compute batting average  Sum # of players entered | Player’s last name, batting average  # of players entered |

1. Enter the destination city, miles travelled and gallons used for a trip. 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 |
| --- | --- | --- |
| Arguments:  Miles travelled and gallons used | Function:  Compute miles per gallon, total miles divided by total gallons used | Return:  Miles per gallon |
| Destination city, miles travelled and gallons used from user | Read user input and compute mpg  Sum of entries made (number of trips) | Destination city, miles and mpg  # of entries made |

1. Allow the employee to enter last name, job code and hours worked. 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 |
| --- | --- | --- |
| Arguments:  Job code | Function:  Determine the pay rate according to job code | Return:  Pay rate |
| Last name, job code and hours work worked from user | Compute gross pay (give time and a half for overtime) | Last name and gross pay |

1. Allow the user to enter student last name, credit hours and district code. 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 |
| --- | --- | --- |
| Arguments:  Credit hours and district code | Function:  Compute tuition owed according to district code | Return:  Tuition owed |
| Student last name, credit hours and district code from user | Compute tuition owed  Sum total of all tuition owed | Last name and tuition owed  Sum total of all tuition owed |

Examples

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 code and computes rewards points. Display points, redemption code and rewards points.
2. 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.
3. 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.