Programming Challenge # 3:

ABC distributer is supplying gadgets under contact to XYZ. The contract between the ABC and XYZ is simple and easy to ad mister but is considered to be more of a gambler's contract.

ABC Obligations/Conditions:

- Sign a 3-months contract renewable at the end of each 3- month period.
- Pay XYZ $100,000, non refundable, at start up and continue to pay $ 100,000 non refundable every 3 months there after.
- Select 10 gadgets from XYZ's inventory to sell.
- ABC can set the selling price of each gadget and retain all funds generated from sales.
- Report, weekly, to XYZ only the number of gadgets sold of each type. Report of income generated from sales is not required.

XYZ in turn will:

- Over stock the initial number of gadgets selected by ABC.
- Ship weekly replacement gadgets sold, as reported by ABC.
- Refund or charge an additional amount to ABC calculated at the end of each week. The amount is based on the formula (one calculation for gadgets):
  - $f = k*n - 500$, where
  - f is the refund or charge,
  - n is the number of units sold, and
  - k is a compliance factor based on n (number sold in a given week)
    - 0..10, k =1.5
    - 11..25 k =2.0
    - 26..50 k=2.5
    - Over 50 k=3.0

Input Data: Gadgets sold in first week of operation (Data below is also available in the text file **All.txt** to be read as input in your code)

Gadget Code	Selling $Price/unit	Units Sold/week
A	18	52
B	25	45
C	12	75
D	20	44
E	65	44
F	29	25
G	8	50
H	33	13
I	23	150
J	45	100

Output Data:

Note: Currency Values
- State answers to 2-decimal places ($ signs optional)
- For integer values decimal places are optional

Output #1: Total number of gadgets sold
Output #2: Average selling price
Output #3: Total sales income
Output #4: Income from gadget least profitable
Output #5: Code of the gadget most profitable
Output #6: Week's refund or charge to ABC
Output #7: Week's Net Income
Output #8: List of gadget code(s) producing a loss
Output #9: Net Income that would be produced by dropping product(s) that generated negative income
Output #10: List (no spaces or other delimiters between characters) of gadget codes ranked from least to most profitable (no products dropped)
Output #11: The **Lower and Upper Projected Net Incomes** earned by ABC at the end of the 3-month period (assume that the projected week's Net Income (Output #7) can vary by +5% /-15% for the remaining weeks). Use the **average number of weeks in a 3-month** period
Output #12: The **encrypted string** using data from Output #10. The encryption is carried out using a modified Caesar Cypher, where
- key = 2*p – 5, and p is the character position in the string that is currently being encrypted

Solution will be on projects at the end of the first week of 2021.

Please use Projects if you need clarification or help. Help can be offered by anyone! Solution will be posted in the new year.

Happy Coding,
Jim Briante