CIS 106 – Loops Part 2

For each problem prepare an IPO chart. Then write the code for each. Save the IPO within this document and upload to your repository. After code is complete upload the files (.py) to your repository. Paste the link to your repository into the assignment completion link in Blackboard.

1. Allow the user to enter a principle amount and interest rate repeatedly (need a loop to control the program execution). Compute the annual interest (principle x rate). Compute ending balance to be principle (beginning balance + interest). Display year, beginning balance and ending balance for each of the 5 years. Display the accumulated interest for the 5 years. Note: the new balance by year (this will be the principle for the following year. Format the output.

Input	Process	Output
response	Get response If “Yes” Proceed with program If “No” End Program	
Prin_amo	Get prin_amo, in_rate in = Prin_amo * in_rate En_bal = prin_amo + in	In_rate En_bal
In_rate	Display in_rate, En_bal	
	Get response If “Yes” Proceed with program If “No” End Program	

2. Fibonacci sequence is a sequence of natural order. The sequence is:
   1, 1, 2, 3, 5, 8 etc
   Use of for loop compute and display first 20 numbers in the sequence. Hint: start with 1 , 1.

Input	process	Output
	A = 1 B = 1	
	In range of (1 , 21, 1) C = a + b	
	Display c	
	A = b B = c	

3. Create a text file that contains employee last name and salary. Read in this data. Determine the bonus rate based on the chart below. Use that rate to compute bonus. For each line display the employee last name, salary and bonus. After the loop display the sum of all bonuses paid out.

Input	Process	Output
Response	Get response If “Yes” Proceed with program If “No” End Program	

Lastname	If salary < 100000
	  Bonus = .20
	If salary < 50000
	  Bonus = .15
	Else
	  Bonus = .10
		Lastname
		Salary
		total

Salary	Total = salary * bonus	
	Display lastname, salary, total	
	Get response If “Yes” Proceed with program If “No” End Program	

4. Create a text file with item, quantity and price. Read through the file one line at a time. Compute the extended price (quantity x price). For each line display the item, quantity, price and extended price. After the loop display the sum of all the extended prices, the count of the number of orders and the average order.

Input	Process	Output
response	Get response If "Yes" Proceed with program If "No" End Program	Item Qty Price extprice
Item	Extprice = qty *price	
Qty	Display item, qty, price, extprice	
price	Get response If "Yes" Proceed with program If "No" End Program	

5. Create a text file with student last name, district code (I or O) and number of credits taken. Compute tuition owed (credits taken x cost per credit). Cost per credit for in district students (district code I) is 250.00. Out of district students pay 500.00 per credit. For each line display student last name, credits taken and tuition owed. After the loop display sum of all tuition owed and the number of students.

Input	Process	Output
response	Get response If "Yes" Proceed with program If "No" End Program	

districtcode	Get districtcode
	If "I"
	  Cpc = 250
	If "O"
	  Cpc = 500
		Lastname
		Noc
		total

noc		
lastname	Total = cpc * noc	
	Display lastname, total, noc	
	Get response If "Yes"	

	Proceed with program If “No” End Program	