CIS 106 – Loops Part 2

Do the code for each of the following problems.

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.

Example:

Enter principle amount: 10000.00

Enter interest rate: 0.10

Year	Beginning Balance	Ending Balance
1	$10,000.00	$11,000.00
2	$11,000.00	$12,100.00
3	$12,100.00	$13,310.00
4	$13,310.00	$14,641.00
5	$14,641.00	$16,105.00

Total interest earned: $6,156.00

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.

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
lastname	sumofbonus = 0 get first lastname	
salary	While not at end (eof) get salary If salary >= 100,000 then br = .2 elif salary > 50,000 then br = .15 else br = .1 bonus = salary * br sumofbonus = sumofbonus + bonus display last name display salary display bonus Get next last name	lastname salary bonus sumofbonus
	display sumofbonus	

Salary	Bonus Rate
100,000.00 and up	20%
50,000.00	15%
All other salaries	10%

Example file (create your own data with at least 5 lines:

Adams

50000.00

Baker

75000.00

Smith

45000.00

Etc

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
item	c = 0 totp_ex = 0 Get first item	

qty	while not at end (eof)
	  get qty, price
	
	  ep = qty + price
	  totp+ex = totp_ex + ep
	  c = c + 1
	
	  display item
	  display quantity
	  display price
	  display extprice
	
	  get next item
		item
		qty
		price
		extprice

price	avg = totp_ex / c display total extended prices display number of orders display average order	

Example Data File

Widget

10

50

Hammer

2

10

Saw

4

8

Etc

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
	totaltuition = 0 c = 0	
lastname	Get first lastname	
dcode	While not at end (eof) Get dcode, credits	lastname credits

	If dcode = 'I'
	  costpercredit = 250
	Else
	  costpercredit = 500
	
	tuition = costpercredit * credits
	
	c = c + 1
	totaltuition = totaltuition + tuition
	Display Last Name, Credits, Tuition
	
	Get next lastname
		tuition
		totaltuition
		c

credits		
	Display totaltuition Display c	

Example file

Jones

I

12

Adams

I

10

Baker

O

12

Smith

O

16