Session 4 Assignment Problems

- the Basic If Statement Develop an IPO Chart and Python code the following problems. Upload the IPO and code files to Blackboard.

1. Allow a user to enter a quantity of an item. If the quantity is greater than or equal to 1000, the unit price should be $3.00. For quantities under 1000 the unit price is $5.00. Compute extended price to be quantity x unit price. Compute tax to be 7% of the extended price. The total is computed as extended price plus the tax. Display the quantity, unit price, extended price, tax and total.

Input	Process	Output
Qnty of an Item	Extended Proce = Qtny * Unit Price	Qtny
	Tax = 7% * Extended Price	Unit Price
	Total = Tax + Extended Price	Extended Price, Tax Price
	If Qtny >= 1000: Unit Price = $3 Else: Unit Price = $5	Total Price

2. The program asks the user for an item and quantity. Determine the unit price of the item based on the chart below. Compute the extended price to be quantity x unit price. Display the item, unit price and extended price. Note: if the item entered is not A then assume the item is B. No need to check for B. Item A B Unit Price $10.00 $20.00 (Note: assume the user will enter the data correctly. Assume if they enter capital A then $10.00 gets assigned to unit price variable. Any other entry is assumed to be a capital B whether they enter B or not. Therefore, you only need a relational condition for A. This makes the if statement easier and removes data validation from the program which could get quite complex). if item == “A”: Unit_price = 10.00 else: Unit_price = 20.00

Input	Process	Output
Item A/B	Extended Price = Qtny * Unit Price	Item A/B
Qtny	If A: Unit Price = $10 Else: Unit Price = $20	Unit Price
		Extended Price

3. Enter the number of books to order and cost per book. If the order total is over $50.00 shipping is free. If the order total is $50.00 or under charge $25 shipping. Display the order total and shipping charge (note 0 should display for a free shipping charge).

Input	Process	Output
Number of Books Ordered	If OrderTotal > $50: ShippingCost = $0 (Free) Else: ShippingCost = $25	Order Total
Cost per Book		Shipping Charge

4. The warrantee of an appliance depends on the cost of the appliance. For appliances over $1,000 the warrantee cost is 10% of the price. For appliances $1,000 or less the warrantee cost is 5% of the price. The user will enter the name and cost of an appliance. Display name and cost of appliance, the cost of the warrantee and the total (cost of the appliance + warranty).

Input	Process	Output
Appliance Name	APLC < $1000 = Warrantee Cost of 5% Else: Warrantee Cost of 10%	Appliance Cost, and Appliance Name
Appliance Cost	Total = Appliance Cost + Warrantee Cost	Warrantee Cost
		Total

5. Enter the user's last name, number of dependents and gross income. Compute adjusted gross income to be gross income minus dependents times $12000. Next determine an income tax rate. Adjusted gross incomes over $50,000 have a tax rate of 20%. Adjusted gross incomes $50,000 or under have a tax rate of 10%. Once you determine the tax rate, compute income tax to be adjusted gross income times tax rate. If the income tax is less than 0, set the income tax to $100. Display last name, gross income, number of dependents, adjusted gross income, and income tax.

Input	Process	Output
Last Name	AGI = Gross Income - (# of Dependants * 12000)	Last Name
Number of Dependants	If AGI > $50000: IncomeTaxRate is 20% Else: IncomeTaxRate is 10%	Gorss Income,
Gross Income	IncomeTaxRate = AGI * TaxRate	Number of Dependants

	If IncomeTax < 0 IncomeTax = $100	IncomeTax
		Adjusted Gross Income (AGI)