Session 4 Assignment Problems- the Basic If Statement

#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 an extended price plus the tax. Display the quantity, unit price, extended price, tax and total

Input	Process	Output
Quantity	If quantity ≥ 1000 - Unit price = 3.00 Otherwise - Unit price = 5.00	Quantity
	Extended price = quantity × unit price	Unit price
	tax = extended price × 0.07	Extended price
	total = extended price + tax	Tax
		Total

#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 Unit	Price
A	$10.00
B	$20.00

(Note: assume the user will enter the data correctly. Assume if they enter capital
Then $10.00 gets assigned to the 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	If item == "A" - unit_price = 10.00 Else - unit_price = 20.00	Item
Quantity	extended_price = quantity × unit price	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	Order total = number of books × cost per book	Order total
Cost per book	If order_total > 50.00 - shipping = 0 Else -shipping = 25.00	Shipping Charge

#4. The warranty 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	Order total = number of books × cost per book	Appliance name
Appliance cost	If appliance cost > 1000 - warranty cost = appliance cost × 0.10 Else - warranty cost = appliance cost × 0.05	Appliance cost
	Total cost = appliance cost + warranty cost	Warranty cost
		Total cost

#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 to the 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	Adjusted gross income = gross income − (dependents × 12000)	Last name
Dependents	If adjusted gross income > 50000 - tax rate = 0.20 Else - tax rate = 0.10	Gross income

Gross income	Income tax = adjusted gross income × tax rate	Dependents
	If income tax < 0 - income_tax = 100	Adjusted gross income
		Income tax