CIS 121 Introduction to Programming
Sequential code and the 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 extended price plus the tax. Display the quantity, unit price, extended price, tax and total.

Input	Process	Output
Quantity	If Q >= 1000, Unit price is 3 If Q < 1000, Unit price is 5 Extended price = Quantity x Unit price Extended Price x 0.07 = tax Extended Price + tax = Total	Quantity Unit price Extended price 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.

Item	Unit Price
A	$10.00
B	$20.00

Input	Process	Output
Item	If Item A then Unit price is 10 If item b then unit price is 20 Quantity x unit price = Extended price	Item Unit price Extended price
Quantity		

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	If number * cost > Shipping Shipping is 0 If number * cost <= Shipping Shipping is $25 (Number of books * Cost) + shipping = total	Order total Shipping charge
Cost per book		

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
Name of appliance	If appliance is > 1000 Warrantee is 10% If appliance is <= 1000 Warrantee is %5 Cost * .10 = Warrantee Or Cost * .5= warrantee Warrantee + cost = total	Name Cost of appliance Cost of warrantee Total
Cost of appliance		

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	Gross income - (dependents x 12000) = Adjusted gross income If Adjusted > 50000 Then tax rate is 20% If Adjusted < = 50000 then tax rate is 10% Adjusted * tax = income tax If income tax < 0 Set the income tax is 100	
Number of dependents		
Gross income		

Example Programs - In class

1. Input a student's last name and GPA, display the last name, GPA and a message of "Well Done" when the GPA is greater than or equal to 4.0. When the GPA is less than 4.0 display a message "Good Effort".

Input	Process	Output
Last name	If GPA >= 4.0 Then message well done will appear If GPA < 4.0 Then message good effort will appear	Well done or Good Effort
GPA		

2. Allow a user to enter the meal cost. For meals over $25 compute a tip to be 20% of the meal. For meals $25 or under, give a $3.00 tip. Compute the total to be cost of meal plus the tip. Display the meal cost, tip and total.

Input	Process	Output
Meal cost	If meal over > $25 The 20% tip is added If meal < = $25 Then a 3 dollar tip is added Meal + tip = total	Meal cost Tip Total

3. The user enters the type of gasoline of either “regular” or “premium”. The user will also enter the gallons of gas purchased. Premium gas costs $2.75 and regular costs $2.25 per gallon. Compute the total to be gallons purchased times cost per gallon. Display type of gas, gallons purchased, cost per gallon and total.

Input	Process	Output
Type of gasoline	If premium, Cost is 2.75 If Regular, cost is 2.25 Type * number = total	Type of gas Gallons purchased Cost per Total
Number of gallons		

4. Allow a user to enter the base, height and hypotenuse of a triangle. Display a message, “Is a Right Angle” when the hypotenuse is equal to the square root of the sum of the squares of the base and height. Display “not a Right Angle” if this is not the case.

Input	Process	Output
Base	Base^2 + Height^2 = Total If Square root of Total = hypotenuse Then message Is a right triangle will appear If not, then not a right angle will appear	Is a right angle or Not a right angle
Height		
Hypotenuse		

5. Allow the user to enter two numbers. If the first number is greater than the second number display a message “Is Greater” otherwise display a message “Is Not Greater”.

Input	Process	Output
N1	If N1 > N2 Then Is greater will appear If N1 <= N2 Then is not greater will appear	
N2		