CIS 121 Introduction to Programming

Problem Set – Nested If and compound relational conditions. For each problem create an IPO chart and c++ code file.

1. The input to the problem is quantity of widgets and customer status. You set the price based upon quantity and status using the table below. Your program should determine the price to charge based on the schedule below. Calculate the extended price. Calculate tax at 7%. Display the extended price, tax amount and total.

Quantity Status Price

>10000 A $10

>10000 B $12

5000 to 10000 C $20

5000 to 10000 D $22

Below 5000 Any $30

|  |  |  |
| --- | --- | --- |
| Input | Process | Output |
| Status | Enter values for quantity and status | Extended: EXTENDED |
| Quantity | If quantity is more than 10000 and status is A, price is 10  If quantity is more than 10000 and status is B, price is 12 | Tax: TAX  Total: TOTAL |
| Price | If quantity is between 5000 and 10000 and status is C, price is 20  If quantity is between 5000 and 10000 and status is D, price is 22 |  |
| Tax, extended price | If none of the requirements above are met, price is 30 |  |
| total | Extended = quantity \* price  Tax = extended \* .07  Total = extended + tax |  |

1. Enter a part number of the following (10, 99, 55, 70, 50). Also enter the quantity. Determine the cost per unit using the table below. Then calculate the total cost. Display the part number, cost per unit and total.

**Part Quantity Cost Per Unit**

* + - 1. > 1000 1.00

1. > 500 2.00

All others All others 5.00

|  |  |  |
| --- | --- | --- |
| Input | Process | Output |
| Part | Allow user to enter values for PART and QUANTITY | Part: PART |
| Quantity | Create if statement:  If part# entered is 10 and the quantity is 1001 or higher, cost per part is $1 | Cost per unit: COST |
| Cost | If part# entered is 99 and the quantity is 501 or higher, cost per part is $2 | Total: TOTAL |
| Total | Anything else will set cost at $5 per unit |  |
|  | Total = cost \* quantity |  |

1. Allow the user to enter number of concert tickets and location code (H, L). The price per ticket depends on the volume and location (see below). Display the number of tickets, price per ticket and the total cost.

Volume is greater than 25 or location is H cost per ticket is $30.00

Volume is greater than 10 (10 to 24) or location is L cost per ticket is $40.00

All other quantities or locations are $50.00

|  |  |  |
| --- | --- | --- |
| Input | Process | Output |
| Volume | Allow user to enter value for VOLUME and CODE | Number of tickets: VOLUME |
| Code | If volume is more than 25 OR code is H, price per ticket = 30 | Price per ticket: PRICE |
| Price | If volume is more than 10 and less than 25, or if code is L, price is 40 | Total: TOTAL |
| Total | Anything else, price is 50 |  |
|  |  |  |

1. Allow the user to enter equipment code of a rental and a code indicating half day or full day. Determine the cost of the rental. Display the rental cost

Equipment Code Day Cost

A F 10.00

A H 15.00

B F 20.00

B H 35.00

C H 40.00

C F 45.00

All others All others 50.00

|  |  |  |
| --- | --- | --- |
| In | Process | Out |
| Equipment code | Allow user to enter values for day and equipment code | Cost : COST |
| Day code | If equipment code is A and day code is F, cost is 10  If A and day code is F, cost is 15 |  |
| Cost | If equipment is B and day is F, cost is 20  If equipment is B and day is H, cost is 35 |  |
|  | If equipment is C and day is F, cost is 45  If equipment is C and day is H, cost is 40 |  |
|  | Anything else, cost is 50 |  |

1. You need to display the gross salary for an employee. They input a job code and Hours. First, determine the rate of pay based on job code and hours (see table below). Next, compute gross pay (hrs \* rate). No overtime pay.

Job Code Hours Rate of Pay

L > 40 50.00

L <=40 40.00

J >60 100.00

J <=60 75.00

A >40 25.00

A <=40 20.00

|  |  |  |
| --- | --- | --- |
| In | Process | Out |
| Job code | Enter value for code and hours | Cross: GROSS |
| Hours | If code is L and hours worked is over 40, rate is 50  If code is L and hours is 40 or less, rate Is 40 |  |
| Rate | If Code is J and hours is more than 60, rate is 100  If code is J and hours is 60 or less, rate is 75 |  |
| Gross | If code is A and hours is more than 40, rate is 25  If code is A and hours is 40 or less, rate is 20 |  |
|  | Gross = hours \* rate |  |