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 //status == A and quantity>10000

>10000 B $12 //status == B and quantity>10000

5000 to 10000 C $20 //status == C and quantity>=5000 and <=10000

5000 to 10000 D $22 //status == D and quantity>=5000 and <=10000

Below 5000 Any $30 //quantity<5000

|  |  |  |
| --- | --- | --- |
| Input | Process | Output |
| widgetqty | switch(status) | extprice |
| status //capital letters | case(‘A’)  if(widgetqty>10000)  price=10  else  “does not meet criteria”  break | tax |
|  | case(‘B’)  if(widgetqty>10000)  price=12  else  “does not meet criteria”  break | total |
|  | case(‘C’)  if(widgetqty>=5000 && widgetqty<=10000)  price=20  else  “does not meet criteria”  break |  |
|  | case(‘D’)  if(widgetqty>=5000 && widgetqty<=10000)  price=22  else  “does not meet criteria”  break |  |
|  | default  if(widgetqty<5000)  price=30  else  “does not meet criteria |  |
|  | extprice=widgetqty\*price |  |
|  | tax=extprice\*.07 |  |
|  | total=extprice+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 |
| partnum | if(partnum == 10 && partqty > 1000)  costperunit=1 | partnum |
| partqty | else if(partnum == 99 && partqty > 500)  costperunit=2 | costperunit |
|  | else  costperunit=5 | totalcost |
|  | totalcost=partqty\*costperunit |  |
|  |  |  |
|  |  |  |

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 |
| ticketqty | if(ticketqty >= 25 || locationcode == ‘H’)  priceperticket=30.00 | ticketqty |
| locationcode //capitalized | else if(ticketqty >= 10 || locationcode == ‘L’)  priceperticket = 40.00 | priceperticket |
|  | else  priceperticket = 50.00 | totalcost |
|  | totalcost=ticketqty\*priceperticket |  |
|  |  |  |
|  |  |  |

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

|  |  |  |
| --- | --- | --- |
| Input | Process | Output |
| equipcode | if(equipcode == ‘A’ && daycode == ‘F’)  cost=10.00 | cost |
| daycode | else if(equipcode == ‘A’ && daycode == ‘H’)  cost=15.00 |  |
|  | else if(equipcode == ‘B’ && daycode == ‘F’)  cost=20.00 |  |
|  | else if(equipcode == ‘B’ && daycode == ‘H’)  cost=35.00 |  |
|  | else if(equipcode == ‘C’ && daycode == ‘H’)  cost=40.00 |  |
|  | else if(equipcode == ‘C’ && daycode == ‘F’)  cost=45.00 |  |
|  | else  cost=50.00 |  |

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

|  |  |  |
| --- | --- | --- |
| Input | Process | Output |
| jobcode | if(jobcode==’L’ && hours >40)  payrate=50.00 | grosssalary |
| hours | else if(jobcode==’L’)  payrate=40.00 |  |
|  | else if(jobcode==’J’ && hours>60)  payrate=100.00 |  |
|  | else if(jobcode==’J’)  payrate=75.00 |  |
|  | else if(jobcode==’A’ && hours>40)  payrate=25.00 |  |
|  | else if(jobcode==’A’)  payrate=20.00 |  |
|  | else  cout << “Did not enter valid job code and hours” |  |
|  | grosssalary=payrate\*hours |  |