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Script started on Tue 21 Feb 2012 11:44:26 PM CST
\033]0;georgia@georgia-MT6017: ~/cplusplus\007georgia@georgia-MT6017:~/cplusplus$ p
wd
/home/georgia/cplusplus
\033]0;georgia@georgia-MT6017: ~/cplusplus\007georgia@georgia-MT6017:~/cplusplus$ C
PP --version
This is CPP version 1.219 executing under perl v5.12.4 and compiling with:

g++ (Ubuntu/Linaro 4.6.1-9ubuntu3) 4.6.1
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\033]0;georgia@georgia-MT6017: ~/cplusplus\007georgia@georgia-MT6017:~/cplusplus$ c
at payroll.info
Name: Jakob Hansen
Class: CSC121 - Evening Section
Lab: Payroll'r'us

Levels attempted:

2 - For just getting the basic instructions down.

+1 - For repeatability

+.5 - For tallying up all the totals

Program Description:

A program that will calculate gross pay, net pay, taxes, healthcare and union
dues based on hours worked and number of children. The totals throughout the
course of the program's run are totalled up and printed once the program is
ended.

\033]0;georgia@georgia-MT6017: ~/cplusplus\007georgia@georgia-MT6017:~/cplusplus$ c
at payroll.cpp
#include <iostream>
#include <climits>
#include <cctype>
#include <cmath>

using namespace std;

double moneyRounder(double money) // rounds monetary values appropriately
{
    money = floor(money/.01 + .5) * .01;
    return money;
}

int main(void)
{
    const double pay_rate = 16.78;
    const double social_security = 0.06;
    const double fed_income_tax = 0.14;
    const double state_income_tax = 0.05;
    const short union_dues = 10;
    short counter = 0,
           children,
           healthcare,
           tot_healthcare = 0;
    double gross_pay,
           hours_worked,
           tot_hours = 0,
           tot_gross_pay = 0,
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net_pay,
tot_net_pay = 0,
cur_ss_deduct,
tot_ss_deduct = 0,
cur_fit_deduct,
tot_fit_deduct = 0,
cur_sit_deduct,
tot_sit_deduct = 0;

char yes_no;

cout << "\n\tWelcome to the Payroll Calculation Program!\n\n"
<< "I, the program, will be asking you a few yes/no questions.\n\n"
<< "If you mean to answer \"Yes, program\", press Y and hit Enter.\n\n"
<< "If not, press whatever you want and see what happens, I guess.\n\n"
<< "Are you ready to start some DATA ENTRY MADNESS? ";
cin >> yes_no;

cin.ignore(INT_MAX, '\n');

while ( toupper(yes_no) == 'Y' )
{
    cout << "\nPlease Enter Hours Worked This Week: ";
    cin >> hours_worked;
    cout << "\nHow Many Children Does the Employee Have? ";
    cin >> children;

    if (hours_worked > 40)
    {
        gross_pay = (pay_rate * 40.0)
        + ((hours_worked - 40)
        * (pay_rate * 1.50));
    }
    else
    {
        gross_pay = pay_rate * hours_worked;
    }

    if (children > 3)
    {
        healthcare = 35;
    }
    else
    {
        healthcare = 0;
    }

    if (children > 5)
    {
        cout << "\n\t\tHoly crap, that's a lot of kids.\n";
    }

    net_pay = gross_pay - cur_ss_deduct - cur_fit_deduct - cur_sit_deduct
    - union_dues - healthcare;

    net_pay = moneyRounder(net_pay);

    cur_ss_deduct = moneyRounder(gross_pay * social_security);

    cur_fit_deduct = moneyRounder(gross_pay * fed_income_tax);

    cur_sit_deduct = moneyRounder(gross_pay * state_income_tax);

    cout << "\nHere's the pay-stub:\n"
<< "\n
Hours: " << hours_worked
<< "\n
Gross Pay: $" << gross_pay
<< "\n
Social Security Deduction: $" << cur_ss_deduct
<< "\n
Federal Income Tax Deduction: $" << cur_fit_deduct
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<< "\n          State Income Tax Deduction: $" << cur_sit_deduct
<< "\n Union Dues(Uh, except in Wisconsin): $" << union_dues
<< "\n          Healthcare Insurance Deduction: $" << healthcare
<< "\n          Net Pay: $" << net_pay << "\n"
<< "\nWould you like to enter more DATA? ";

counter = counter + 1;

tot_hours = tot_hours + hours_worked;

tot_gross_pay = tot_gross_pay + gross_pay;

tot_net_pay = tot_net_pay + net_pay;

tot_ss_deduct = tot_ss_deduct + cur_ss_deduct;

tot_fit_deduct = tot_fit_deduct + cur_fit_deduct;

tot_sit_deduct = tot_sit_deduct + cur_sit_deduct;

tot_healthcare = tot_healthcare + healthcare;

cin >> yes_no;

cin.ignore(INT_MAX, '\n');
}

cout << "\nOh well, thanks anyway...\n\n\tOh Wait!\n\n"
<< "Here are the totals from your data entry frenzy:\n\n"
<< "\tYou have entered the data for " << counter << " employees.\n"
<< "\n          Total Hours: " << tot_hours
<< "\n          Total Gross Pay: $" << tot_gross_pay
<< "\n          Total Social Security Deduction: $" << tot_ss_deduct
<< "\n          Total Federal Income Tax Deduction: $" << tot_fit_deduct
<< "\n          Total State Income Tax Deduction: $" << tot_sit_deduct
<< "\n          Total Healthcare Insurance Deduction: $" << tot_healthcare
<< "\n          Total Net Pay: $" << tot_net_pay
<< "\n\t\t\t\t\tBye!\n\n";

return 0;
}

\033]0;georgia@georgia-MT6017: ~/cplusplus\007georgia@georgia-MT6017:~/cplusplus$ C
PP ./payroll.cpp
./payroll.cpp***
./payroll.cpp: In function â\200\230int main()â\200\231:
./payroll.cpp:105:27: warning: conversion to â\200\230short intâ\200\231 from
â\200\230intâ\200\231 may alter its value [-Wconversion]
./payroll.cpp:119:41: warning: conversion to â\200\230short intâ\200\231 from
â\200\230intâ\200\231 may alter its value [-Wconversion]

\033]0;georgia@georgia-MT6017: ~/cplusplus\007georgia@georgia-MT6017:~/cplusplus$ .
/payroll.out

Welcome to the Payroll Calculation Program!

I, the program, will be asking you a few yes/no questions.

If you mean to answer "Yes, program", press Y and hit Enter.

If not, press whatever you want and see what happens, I guess.

Are you ready to start some DATA ENTRY MADNESS? y

Please Enter Hours Worked This Week: 38
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How Many Children Does the Employee Have? 6

Holy crap, that's a lot of kids.

Here's the pay-stub:

          Hours: 38
          Gross Pay: $637.64
          Social Security Deduction: $38.26
          Federal Income Tax Deduction: $89.27
          State Income Tax Deduction: $31.88
          Union Dues(Uh, except in Wisconsin): $10
          Healthcare Insurance Deduction: $35
          Net Pay: $592.64

Would you like to enter more DATA? y

Please Enter Hours Worked This Week: 57

How Many Children Does the Employee Have? 2

Here's the pay-stub:

          Hours: 57
          Gross Pay: $1099.09
          Social Security Deduction: $65.95
          Federal Income Tax Deduction: $153.87
          State Income Tax Deduction: $54.95
          Union Dues(Uh, except in Wisconsin): $10
          Healthcare Insurance Deduction: $0
          Net Pay: $929.68

Would you like to enter more DATA? y

Please Enter Hours Worked This Week: 58

How Many Children Does the Employee Have? 6

Holy crap, that's a lot of kids.

Here's the pay-stub:

          Hours: 58
          Gross Pay: $1124.26
          Social Security Deduction: $67.46
          Federal Income Tax Deduction: $157.4
          State Income Tax Deduction: $56.21
          Union Dues(Uh, except in Wisconsin): $10
          Healthcare Insurance Deduction: $35
          Net Pay: $804.49

Would you like to enter more DATA? y

Please Enter Hours Worked This Week: 20

How Many Children Does the Employee Have? 1

Here's the pay-stub:

          Hours: 20
          Gross Pay: $335.6
          Social Security Deduction: $20.14
          Federal Income Tax Deduction: $46.98
          State Income Tax Deduction: $16.78
          Union Dues(Uh, except in Wisconsin): $10
          Healthcare Insurance Deduction: $0
          Net Pay: $44.53

Would you like to enter more DATA? n
```

Oh well, thanks anyway...

Oh Wait!

Here are the totals from your data entry frenzy:

You have entered the data for 4 employees.

Total Hours: 173
Total Gross Pay: \$3196.59
Total Social Security Deduction: \$191.81
Total Federal Income Tax Deduction: \$447.52
Total State Income Tax Deduction: \$159.82
Total Healthcare Insurance Deduction: \$70
Total Net Pay: \$2371.34
Bye!

\033]0;georgia@georgia-MT6017: ~/cplusplus\007georgia@georgia-MT6017:~/cplusplus\$ c
at payroll.tpq

1. How many branches do you have in your program? Are any nested inside each other (physically or virtually)? (The answer may change depending on your choice of options to implement...)

If you don't use a while loop to continue repeating the program, you need two - one branch for the double time condition, and another for the children condition. I put another branch in my program to make people with lots of children feel embarrassed I guess. If you use the while loop you need 3 branches minimum, and the conditional statements unfold within the while loop.

2. How many tests are necessary to completely test all paths of execution? (The answer may change depending on your choice of options to implement...)

1 test for the non-overtime condition, 1 for the overtime condition, 1 for the no children condition and 1 for the > 3 children condition. The while loop needs to be happen at least twice to check that the addition of the input values happens correctly. So 5.

3. What data types are number of children and number of hours worked?

Well initially I decided both of them were going to be shorts, but then I realized that sometimes I work partial hours and changed hours to a double.

\033]0;georgia@georgia-MT6017: ~/cplusplus\007georgia@georgia-MT6017:~/cplusplus\$ e
xit
exit

Script done on Tue 21 Feb 2012 11:46:31 PM CST