

## Programming Assignment #2: A Payroll Program

### The task:

Write a payroll program that will determine and report the amount of (1) the gross pay, (2) the union due, and (3) the net pay respectively for the hourly worker after the worker provides the information of the number of work hours, the hourly rate, and the age.

Your company pays its hourly workers once a week. **When there are no more than 40 work hours**, an hourly worker's gross pay is simply his/her work hours multiplied by his/her regular hourly pay rate. However, **when there are more than 40 work hours**, each additional work hour after the first 40 work hours of the week is paid at an overtime rate that is 1.5 times of the regular hourly rate (while the first 40 hours are still paid by the regular hourly rate).

An hourly worker who earns less than \$200.0 a week pays \$0.0 for the union due. An hourly worker who earns \$200.0 or more a week must pay either \$5.0 or \$15.0 for the union due, which is deducted from his/her gross pay. For an hourly worker who earns \$200.0 or more a week, if the employee is less than 60 years old, the union dues are \$15.0 per week; otherwise the union dues are \$5.0 per week.

The net pay of an hourly worker is simply the amount after the union due is deducted from the gross pay.

### Examples:

1. For a worker 25 years old working 60 hours with a hourly rate of \$10.0 dollars, your program should report a gross pay of \$700.0, a union due of \$15.0, and a net pay of \$685.0.
2. For a worker 25 years old working 20 hours with a hourly rate of \$7.5 dollars, your program should report a gross pay of \$150.0, a union due of \$0.0, and a net pay of \$150.0.
3. For a worker 65 years old working 50 hours with a hourly rate of \$14.0 dollars, your program should report a gross pay of \$770.0, a union due of \$5.0, and a net pay of \$765.0.
4. For a worker 65 years old working 10 hours with a hourly rate of \$10.5 dollars, your program should report a gross pay of \$105.0, a union due of \$0.0, and a net pay of \$105.0.

### Analysis and Program Design:

Your program should prompt the user to provide the information of (1) his/her age, (2) the number of work hours that week, and (3) his/her regular hourly pay rate respectively. You should read in and store the information in some appropriately declared variables.

There are several important constants related to the calculation: the union dues (\$5.0 for the senior and \$15.0 for people younger than 60 years old), the threshold of weekly earning (\$200.0) requiring the union due, the threshold of work hours (40 hours) requiring overtime pay, and the overtime rate (1.5 times the regular hourly rate).

You need to use conditional statements like *if ... else* in your program to correctly determine the amount of the gross pay, union due, and net pay based on the rules described above and the age, the regular hourly pay rate, and the number of work hours at work.

**The suggested framework of code in your *main* function:**

- Declare appropriate variables of the *double* type and/or the *int* type
- Display guiding instructions to the user and read in the age, work hours, and regular hourly rate
- Compute the gross pay and store it in a variable
- Compute the union due and store it in a variable
- Compute the net pay and store it in a variable
- Display the amount of gross pay, the union due, and the net pay