

Students:

Section 3.20 is a part of 1 assignment: **CSC108 CH03.11-3.20 P3B**

This assignment's due date has passed. Activity will still be recorded, but will not count towards this assignment (unless the due date is changed). See [this article](#) for more info.

Includes:

PA

Due: 02/25/2025, 11:59 PM EST

## 3.20 C++ example: Salary calculation with branches

zyDE 3.20.1: Calculate salary: Calculate overtime using branches.

The following program calculates weekly salary and assumes work-hours-per-week limit of 40.

Overtime refers to hours worked per week in excess of some weekly limit, such as 40 hours. Some companies pay time-and-a-half for overtime hours, meaning overtime hours are paid at 1.5 times the hourly wage.

Overtime pay can be calculated with pseudocode as follows (assuming a weekly limit of 40 hours):

```
weeklyLimit = 40
if weeklyHours <= weeklyLimit
    weeklySalary = hourlyWage * weeklyHours
else
    overtimeHours = weeklyHours - weeklyLimit
    weeklySalary = hourlyWage * weeklyLimit + (overtimeHours * hourlyWage * 1.5)
```

1. Run the program and observe the salary earned.
2. Modify the program to read user input for weeklyHours. Run the program again.

Load default template...

```
1 #include <iostream>
2 using namespace std;
3
4 int main() {
5     int hourlyWage;
6     int weeklyHours;
7     int weeklySalary;
8     int overtimeHours;
9     const int WEEKLY_LIMIT = 40;
10
11     cout << "Enter hourly wage: " << endl;
12     cin >> hourlyWage;
13
14     // FIXME: Get user input value for weeklyHours
15     weeklyHours = 40;
16
17
18     if (weeklyHours <= WEEKLY_LIMIT) {
```

10 42

Run

Feedback?

zyDE 3.20.2: Determine tax rate.

Income tax is calculated based on annual income. The tax rate is determined with a tiered approach: Income above a particular tier level is taxed at that level's rate.

1. Run the program with an annual income of 120000. Note the tax rate and tax to pay.
2. Modify the program to add a new tier: Annual income above 50000 but less than or equal to 100000 is taxed at the rate of 30%, and annual income above 100000 is taxed at 40%.
3. Run the program again with an annual income of 120000. What is the tax rate and tax to pay now?
4. Run the program again with an annual income of 60000. (Change the input area below the program.)
5. Challenge: What happens if a negative annual salary is entered? Modify the program to print an error message in that case.

Note: The calculation is inaccurate to how taxes are formally assessed and is a simplification for educational purposes only.

Load default template...

```
1 #include <iostream>
2 using namespace std;
3
4 int main() {
5     int annualSalary;
6     double taxRate;
7     int taxToPay;
8
9     cout << "Enter annual salary: " << endl;
10    cin >> annualSalary;
11
12    // Determine the tax rate from the annual salary
13    // FIXME: Write code to address the challenge question above
14    if (annualSalary <= 20000) {
15        taxRate = 0.10;
16    }
17    else if (annualSalary <= 50000) {
18        taxRate = 0.20;
```

120000

Run

Feedback?

How was this section?  |  Provide section feedback

### Activity summary for assignment: CSC108 CH03.11-3.20 P3B

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96 / 96 points

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