



CASE STUDY

Software Testing

EMPLOYEE'S PAYROLL

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A company generates a weekly payroll for every employee and issue them. However, it gets very confusing for the company to calculate all the wages of the employees. As it is very time consuming and inefficient to do it manually. The company needs a program to figure its weekly payroll automatically. The program will ask you to input the number of employees in your company. Then you need to input data consisting of each employee's identification number, name, pay rate, hours worked and holidays in a week. The program should input the data for each employee to calculate the weekly wages, tax deduction and insurance, respectively.

For weekly wages there would be two type of wages one for regular hours and the other for overtime. For regular employees payrate should not exceed more than 70 and should not be less than 30. If there are no overtime, wages are the pay rate times the hours worked.

$$\text{wage} = \text{payrate} * \text{hours}$$

If the working hours are greater than 40 hours, then the wages are 40 times the pay rate, plus the number of overtime hours times 1 ½ times the pay rate. The over time hours are computed by subtracting 40 from the total number of hours worked. However, there are 167 hours in a week so hours worked should not exceed 167 hours. For overtime employees payrate should not exceed more than 50 and should not be less than 20. Here is the formula:

$$\text{wage} = \text{wage} + (\text{hours} - 40) * 1.5 * \text{payrate}$$

If the employee gets absent for more than 2 days in a week then 100 into number of holidays rupees would be deducted from employee's pay. Here is the formula:

$$\text{wage} = \text{wage} - 100 * \text{holidays}$$

After calculating the weekly wage, the next step is to calculate the tax deduction of each employee on weekly bases. To calculate the tax deduction first enter the marital status of the employee then check if the weekly wage of the employee is greater than 10000 only then the employee needs to pay the tax else, they don't need to. If the employee is married, then 15% federal income tax and 18.00 Rs medical insurance deduction. If the employee is single, then 20% federal income tax and 10.00 Rs medical insurance deduction. Here is the formula for married employee:

$$\begin{aligned}\text{wage} &= \text{wage} - 18 \\ \text{tax} &= 0.15 * \text{wage}\end{aligned}$$

For unmarried employee:

$$\begin{aligned}\text{wage} &= \text{wage} - 10 \\ \text{tax} &= 0.20 * \text{wage}\end{aligned}$$

If an employee has applied for insurance, then he must have pay greater than 10000. The company will deduct 1000 rupees from his pay and save his insured money in his account. Insurance will be calculated with the formula:

$$\text{insurance} = \text{wage} - 1000$$

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This is how company wants to calculate its payroll under such limitations and criteria. This would reduce the time and increase the efficiency of the work.

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