

## Simple Payroll Program (P3)

Functions 1

```
#include <fstream>    // for file streams for input/output
#include <iomanip>    // for formatting manipulators
#include <string>    // for string variables
using namespace std;

// Reads the employee's pay data from the input file.
void GetData(ifstream& In, string& EmpID, double& HWorked, double& HRate,
            double& FITrate, double& SITrate, double& Insrate);

// Calculates employee's gross pay amount:
double Gross(double HWorked, double HRate);

// Calculate employee's tax withholding amounts:
double FIT(double Gross, double FITRate);
double FICA(double Gross);
double SIT(double Gross, double SITRate);
double FMED(double Gross);

// Prints out the employee's pay stub.
void WriteResults(string EmpID, double Gross, double FIT, double FICA,
                double FMED, double SIT, double Ins, double Net);

// . . . continues . . .
```

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## Simple Payroll Program (P3)

Functions 2

```
void main() {

    ifstream In("PayData.txt"); // Open the input file.

    string EmployeeID; // employee's ID number
    double HoursWorked, // hours employee worked this pay period
           HourlyRate, // employee's hourly pay rate
           FITrate, // FIT rate
           SITrate, // SIT rate
           InsPremium; // insurance premium

    double GrossPay, // employee's gross pay amount (hours * rate)
           FITWithheld, // FIT withholding amount
           FICAWithheld, // FICA withholding amount
           FMEDWithheld, // FMED withholding amount
           SITWithheld, // SIT withholding amount
           NetPay; // net pay amount (gross - all
                 // deductions)

    GetData(In, EmployeeID, HoursWorked, HourlyRate, FITrate,
           SITrate, InsPremium);

    In.close();

    // . . . continues . . .
```

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## Simple Payroll Program (P3)

Functions 3

```
// Calculate the gross pay for this period:
GrossPay = Gross(HoursWorked, HourlyRate);

// Calculate the deductions for this period:
FITWithheld = FIT(GrossPay, FITRate);
FICAWithheld = FICA(GrossPay);
SITWithheld = SIT(GrossPay, SITRate);
FMEDWithheld = FMED(GrossPay);

// Calculate the net pay for this period:
NetPay = GrossPay - FITWithheld - FICAWithheld - SITWithheld -
        FMEDWithheld - InsPremium;

WriteResults(EmployeeID, GrossPay, FITWithheld, FICAWithheld,
            FMEDWithheld, SITWithheld, InsPremium, NetPay);
}

// . . . continues . . .
```

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## Simple Payroll Program (P3)

Functions 4

```
////////////////////////////////////// GetData()
//
// GetData() reads the employee's payroll data from the input file.
//
// Input/Output parameter:
// In      input stream
//
// Output parameters:
// EmpID   employee's ID string
// HWorked # of hours employee has worked in this period
// HRate   hourly pay rate for employee
// FITrate rate for computing FIT withholding
// SITrate rate for computing SIT withholding
// Insrate amount of insurance premium
//
// Preconditions:
// In has been opened on a properly formatted input file.
//
// Postconditions:
// The specified data has been read and stored in the corresponding
// parameters.
//
// Called by: main()
// Calls:    none
```

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## Simple Payroll Program (P3)

Functions 5

```

void GetData(ifstream& In, string& EmpID, double& HWorked, double& HRate,
            double& FITRate, double& SITRate, double& Insrate) {

    const char Delimiter = '|'; // label separator in pay data file

    In.ignore(255, '\n'); // ignore the header line
    In >> EmpID; // read employee ID
    In.ignore(255, Delimiter); // ignore everything through hours worked
    // label

    // Read employee's pay data:
    In >> HWorked; // Read the # of hours worked this period.
    In.ignore(255, Delimiter); // Advance to the next value.
    In >> HRate; // Read the hourly pay rate.
    In.ignore(255, Delimiter); // Advance to the next value.
    In >> FITRate; // Read the FIT rate.
    In.ignore(255, Delimiter); // Advance to the next value.
    In >> SITRate; // Read the SIT rate.
    In.ignore(255, Delimiter); // Advance to the next value.
    In >> Insrate; // Read the insurance premium amount.

    return;
}

```

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## Simple Payroll Program (P3)

Functions 6

```

//////////////////////////////////// NOTE!!
// Function header comments omitted to save space in notes.
//
double Gross(double HWorked, double HRate) {

    return (HWorked * HRate);
}

double FIT(double Gross, double FITRate) {

    return (Gross * FITRate / 100.0);
}

double FICA(double Gross) {

    const double FICARate = 1.45;

    return (Gross * FICARate / 100.0);
}

```

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## Simple Payroll Program (P3)

Functions 7

```

//////////////////////////////////// WriteResults()
//
// WriteResults() writes the employee's payroll stub to the output file.
//
// Input parameters:
// EmpID    employee's ID string
// Gross    employee's gross pay amount for this period
// FIT      FIT withholding for this period
// FICA     FICA withholding for this period
// FMED     FMED withholding for this period
// SIT      SIT withholding for this period
// Ins      insurance premium for this period
// Net      employee's net pay amount for this period
//
// Preconditions:
// Each of the function parameters has been assigned the correct value.
//
// Postconditions:
// A pay stub, formatted as specified, has been printed to the output file
// "PayStub.txt".
//
// Called by: main()
// Calls:    none
//

```

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## Simple Payroll Program (P3)

Functions 8

```

void WriteResults(string EmpID, double Gross, double FIT, double FICA,
                 double FMED, double SIT, double Ins, double Net) {

    ofstream Out("PayStub.txt"); // Open the output file.
                                // Enable floating-point output formatting.

    Out << fixed << showpoint;

    // Write the header information to the output file:
    Out << "Programmer: Bill McQuain" << endl;
    Out << "CS 1044 Project 3 Fall 2000" << endl;
    Out << endl;

    // Mark the beginning of the pay stub:
    Out << "-----" << endl;

    // Write out the pay stub:
    Out << "Pay data for: " << EmpID << endl;
    Out << endl;

    // . . . continues . . .
}

```

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## Simple Payroll Program (P3)

Functions 9

```
Out << "Gross pay: " << setw(8) << setprecision(2) << Gross << endl;
Out << endl;

Out << "Tax deductions:   FIT      FMED      FICA      SIT" << endl;
Out << endl;
Out << setw(21) << setprecision(2) << FIT
  << setw( 9) << setprecision(2) << FICA
  << setw(10) << setprecision(2) << FMED
  << setw( 9) << setprecision(2) << SIT
  << endl;
Out << endl;
Out << "Other deductions: Health Ins" << endl;
Out << setw(28) << setprecision(2) << Ins << endl;
Out << endl;

Out << "Net pay: " << setw(8) << setprecision(2) << Net << endl;

// Mark the end of the pay stub:
Out << "-----" << endl;

// Close the output file:
Out.close();
return;
}
```