***Southwest***

***Software***

***Development***

***Team***

**Second Year Computing Project**

**2011/2012**

**Fully Automated Payroll System**

**Design & Development Team:**

**James Madden: X00086390:**

**Project Manager, Customer Liaison, Software and Database Development, System Testing & Quality Control.**

**Shane Murphy: X00085315:**

**System Design, Software and Database Development, System Testing & Quality Control.**

**Maciej Macierzynski: X00086366:**

**System Design, Software and Database Development, System Testing & Quality Control.**

**1st deliverables due 13/2/2012 - Completed**

**Table of Contents**

[Introduction 2](#_Toc316835139)

[Interviews 2](#_Toc316835140)

[1st Interview, 2](#_Toc316835141)

[Questions for the 1st interview 2](#_Toc316835142)

[2nd Interview 3](#_Toc316835143)

[Conclusion 5](#_Toc316835144)

[System Narrative 5](#_Toc316835145)

[List of Requirements 6](#_Toc316835146)

[Use Case Model 8](#_Toc316835147)

[Use case descriptions 9](#_Toc316835148)

[Class Model 13](#_Toc316835149)

**Table of Figures**

[Fig 1 Use Case Diagram 7](#_Toc316886664)

[Fig 2 Class Diagram 14](#_Toc316886665)

# Introduction

The purpose of this document is to explain in detail the planning, design, and development process for the proposed system. The result shall be a fully functioning payroll system complete with user manual and a full copy of the documentation produced throughout the development of the system.

# Interviews

## 1st Interview,

A structured interview was carried out with an experienced payroll technician to ascertain the requirements for a basic weekly payroll system. A structured interview was employed because we had specific information requirements.

Self employed payroll technician Natalie McCabe agreed to be interviewed and to furnish the team with the requirements for the payroll system. Although Natalie is self employed, she works on her own and pays herself a fixed sum every month, so there is no requirement for a payroll system; she submits a self assessment return to revenue at the end of each year

## 

## Questions for the 1st interview

Q1. What are the required inputs for a basic weekly payroll system?

Answer.

* Employee details (Name, Address, PPS No, DOB, Phone No, Start Date, Cessation Date )
* Pay rates and entitlements (Hourly Rate, Overtime Rates, Bonus, Holidays, Sick Pay)
* Revenue details (Standard Rate Cut Off Point, Tax Credits, Levies, PRSI Type)
* Weekly time sheet (Basic Hours, Overtime Hours, Expenses, Annual Holidays, Bank Holidays, Sick Days)

Q2. What are the required outputs for a basic weekly payroll system?

Answer.

* Weekly Payslip (Name, PPS No, Employee No, Date, Basic Pay, Overtime Pay, Holiday Pay, Bonus Payments, Sick Pay, Expenses, Tax Deductions, PRSI Deductions, Levies, Cumulative)
* Weekly payroll report (Total Payment To Employee’s, Total Tax, Total PRSI, Total Levies, Total Payment to Revenue, Grand Total Cost of Payroll)
* Form P60 Issued annually by the employer to an employee detailing total annual earnings and deductions
* Form P45 Details, Form P45 Issued by Revenue and completed by the employer when an employee leaves the employment or is sacked or made redundant
* Form P30 Details, Form P30 Issued by Revenue each month, completed by the employer and returned to Revenue on a monthly basis complete with a payment of the total deducted Tax, PRSI and levies for the relevant month
* Form P35 Details, Form P35 Issued by Revenue each year, completed by the employer and returned to Revenue at the end of each year complete with a payment of the total deducted Tax, PRSI and levies for the relevant month

## 2nd Interview

Having gathered the requirements for a basic weekly payroll system in the first interview, we conducted a second semi structured interview with a self employed courier Tony Flood, in order to gather the actual user requirements of a self employed user; we employed a semi structured interview because we had specific questions to be answered. The user requested some time to consider some other options which arose during the interview. Tony employs five drivers and between himself and his wife Rose they calculate the weekly payroll manually.

Q1. Do you have any payroll or accounting training or qualifications?

Answer.

No

Q2. How long would it take to do the payroll each week? A good payroll system could save time each week

Answer

By the time we get the time sheets and work out all the hours and overtime, calculate the wages and double check it, maybe two to three hours

Q3. Do you have many errors in the payroll and typically what would they be? We can reduce any errors with an accurate payroll system

Answer

Yes

Q3. Do you use a computer and printer for your business?

Answer

Yes

Q4. If you had a payroll system where each week you only had to enter the drivers start time and finish time for each day and any expense they may be claiming, the system would calculate your payroll and print the payslips in minutes rather than hours, would this be a help to you?

Answer

Yes

Q5. Would it help if after completing the payroll each week, you could print off a report of the total cost of your payroll for that week? This report would also include a breakdown of the tax, PRSI and levies deducted for that week.

Answer

Yes

Q6. Would it help if you could also print off the details for your revenue returns, like P60’s, P45’s, P30’s and P35’s?

Answer

Yes

Following a short period of time requested by the user to consider some additional options, we held further discussions with the user where we explained in detail the features of the proposed system which received his approval.

Q7. Would you have any further requirements of the system?

Answer

To be able to email payslips to the employees

# Conclusion

As a result of conducting the first interview with an experienced payroll technician, we now have a very clear picture of the recommended and required inputs, outputs and functions which are required by both the user and revenue.

After considering the information gathered in the second interview which was with the user, it has become clear that in employing such a system in his business we would greatly reduce the time required in processing the weekly payroll, reduce the number of errors while improving the accuracy of the payroll and provide an accurate up to date statement of the cost of the payroll each week, thereby allowing the user to keep the administration costs of the weekly payroll down while providing vital financial decision making information on a weekly basis.

# System Narrative

The payroll system provides the capabilities required by management, revenue, payroll and employee alike, providing effective control over all aspects of the payroll system from new employees to employee terminations.

Each employee is set up on the system with their personal, tax and revenue details, the system then assigns them a unique Employee ID number. These details are stored to a database containing all employees’ details. The user can enter the timesheet details and an admin user can update revenue and employee details for all employees.

An employee who is registered on the database can submit electronic time sheets through the application, specifying start time and end time each day. The system computes the total weekly hours and determines any over-time hours and applies weekend rates, if applicable. Once the employee has submitted their time sheet, they are issued with a pay slip, which they can print out. The system produces weekly and monthly reports on total salaries and taxes paid.

The system also produces a yearly Form P60 for each employee that can be viewed andprinted from the application.Clarification has been sought with regards legislation in respect to these documents, revenue now only supply a template for the Form P60 which the employer prints out**.** Form P45’s are generated when an employees’ employment is terminated. After termination, the employee’s details are cascaded to null and important information relating to the company is retained. Revenue documentation is forwarded to the revenue office, Form P30 and Form P35.

For data protection and privacy a logon is required with a valid username and secure password.

# List of Requirements

* Secure the payroll system with a User Login
* Easy addition of employees
* Update/Edit employee details (Rates of pay, Revenue, Personnel details)
* Input timesheet start/finish times and calculate basic hours, overtime hours and holiday pay, based on this information
* Generate and print off weekly payslips
* Generate and print off total cost of payroll each week
* Generate revenue details (Form P60, Form P45, Form P30 and Form P35)
* The system must be easy and quick to learn
* Provide user training
* Provide user manual
* Provide telephone and email support

# Use Case Model



##### Fig 1 Use Case Diagram

## Use case descriptions

|  |  |
| --- | --- |
| Use Case Element | Description |
| Use Case Number | UC1 |
| Application | Payroll System |
| Use Case Name | Log in |
| Use Case Description | User Logs in |
| Primary Actor | User |
| Precondition | N/A |
| Trigger | N/A |
| Basic Flow | The user logs in with a valid user name and secure password |
| Alternate Flows | Invalid user name or password entered, requires correct user name and password |

|  |  |
| --- | --- |
| Use Case Element | Description |
| Use Case Number | UC2 |
| Application | Payroll System |
| Use Case Name | Complete Time Sheet |
| Use Case Description | User Completes Time Sheets |
| Primary Actor | User |
| Precondition | N/A |
| Trigger | N/A |
| Basic Flow | The user enters the employee’s start/finish times supplied by the employee on a paper time sheet |
| Alternate Flows | If an entry is outside any of the constraints an out of bounds message will be issued |

|  |  |
| --- | --- |
| Use Case Element | Description |
| Use Case Number | UC3 |
| Application | Payroll System |
| Use Case Name | Issue/Print Payslip |
| Use Case Description | User issues and prints payslips |
| Primary Actor | Employer |
| Precondition | UC2 Completed |
| Trigger | UC2 Completed |
| Basic Flow | Once the time sheets are completed the user issues and prints the payslips |
| Alternate Flows |  |

|  |  |
| --- | --- |
| Use Case Element | Description |
| Use Case Number | UC4 |
| Application | Payroll System |
| Use Case Name | Add Employee |
| Use Case Description | User adds new employee details |
| Primary Actor | Employer |
| Precondition | N/A |
| Trigger | N/A |
| Basic Flow | The user enters new employee details |
| Alternate Flows |  |

|  |  |
| --- | --- |
| Use Case Element | Description |
| Use Case Number | UC5 |
| Application | Payroll System |
| Use Case Name | Update Employee Details |
| Use Case Description | User updates employee details |
| Primary Actor | Employer |
| Precondition | N/A |
| Trigger | N/A |
| Basic Flow | The user updates employee details |
| Alternate Flows |  |

|  |  |
| --- | --- |
| Use Case Element | Description |
| Use Case Number | UC6 |
| Application | Payroll System |
| Use Case Name | Update Revenue Details |
| Use Case Description | Update employee revenue details |
| Primary Actor | Employer |
| Precondition | N/A |
| Trigger | N/A |
| Basic Flow | The user enters updated revenue details for employee’s |
| Alternate Flows |  |

|  |  |
| --- | --- |
| Use Case Element | Description |
| Use Case Number | UC7 |
| Application | Payroll System |
| Use Case Name | Print Weekly Payroll Report |
| Use Case Description | User prints weekly payroll report |
| Primary Actor | Employer |
| Precondition | UC3 completed |
| Trigger | N/A |
| Basic Flow | The user prints off the weekly payroll report |
| Alternate Flows |  |

|  |  |
| --- | --- |
| Use Case Element | Description |
| Use Case Number | UC8 |
| Application | Payroll System |
| Use Case Name | Generate Revenue Reports |
| Use Case Description | Generate revenue reports to complete revenue returns |
| Primary Actor | User/Revenue |
| Precondition | N/A |
| Trigger | N/A |
| Basic Flow | The user generates the revenue reports and completes the revenue returns |
| Alternate Flows |  |

|  |  |
| --- | --- |
| Use Case Element | Description |
| Use Case Number | UC9 |
| Application | Payroll System |
| Use Case Name | Log Out |
| Use Case Description | Log Off the system |
| Primary Actor | User |
| Precondition | N/A |
| Trigger | N/A |
| Basic Flow | The user logs out of the system, the system saves all updated information and closes all database connections, secures the system |
| Alternate Flows |  |

# Class Model

**CLASS IDENTIFICATION FORM**

**2nd Year Project**

**2011/2012**

**Payroll System**

**STAGE 1**

**Iidentify candidate classes by picking all nouns and noun phrases out of requirements specification document;**

**NOUNS AND NOUN PHRASES IDENTIFIED**

|  |  |  |
| --- | --- | --- |
| Employee Details |  |  |
| Revenue Details |  |  |
| TimeSheet |  |  |
| Login |  |  |
| Add New Employee |  |  |
| Update Employee |  |  |
| Payslips |  |  |
| Weekly Payroll Report |  |  |
| Revenue Reports |  |  |
| Employor |  |  |

**STAGE 2**

**Discard inappropriate candidates**

Is it-

* Redundant
* Vague
* Meta-language
* Outside the scope of the system
* An attribute
* An operation

|  |  |  |
| --- | --- | --- |
| **STAGE 1** | **STAGE 2** | **FINAL CLASSES** |
| Employee | **Class** | **Employee** |
| Hourly Rate | Sub Class(Employee) | **Hourly Rate** |
| Salaried | Sub Class(Employee) | **Salaried** |
| Revenue Details | Class | **Revenue Details** |
| Payments | Class | **Payments** |
| Login | Behaviour |  |
| Add New Employee | Behaviour(Employee) |  |
| Update Employee | Behaviour(Employee) |  |
| Payslips | Class | **Payslips** |
| Weekly Payroll Report | Class | **Payroll Report** |
| Revenue Reports | Class | **Revenue Report** |
| Company | Class | **Company** |
|  |  |  |



##### Fig 2 Class Diagram

# Document Process

User logs in by entering a valid username and secure password

User enters timesheet details supplied by the employee on a paper timesheet

System computes total hours, basic pay, overtime pay and deducts tax, PRSI and universal social charge

User prints payslips

User prints weekly payroll report

User enters new employee details

User updates existing employee details

User updates employee’s revenue details

User prints revenue reports, Form P60, Form P45, Form P30 and Form P35

User logs off the system, the system saves all updated data, closes any open database connections and secures the system