Coaster Manufacturing payroll: Preliminary requirements

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1. Introduction

The client, Coaster Manufacturing, currently uses a combination of paper forms, spreadsheets and a manual process to process their payroll, which leads to delays, errors and, most importantly, incorrect tax amounts deducted and misinformation reported to the Tax Office.

2. Functional requirements

2.1 Fully integrated system

The client has identified the need for a **fully integrated system application** that will ultimately allow employees and/or their managers to:

- login to the system

- submit timesheets for payment

- approve payslips for payment (manager permission only).

Then the system will calculate:

- gross and net payments based on hourly rates

- the correct tax amounts for payments

- the correct superannuation amounts for payments.

2.2 Employee pay calculator application

The client has requested a weekly payment calculator application to calculate an employee's pay, tax and superannuation amounts, given their hourly rate and hours worked, including an output to a csv file.

3. Technical specifications

3.1 Tax schedules

The following weekly tax schedules have been sourced from the Tax Office for this application. The client has confirmed all their current employees:

- are residents
- hold a valid tax number
- earn between $20.33 and $36.88 per hour
- work up to a maximum of 40 hours per week.

Some of their current employees are claiming the tax-free threshold. In this scenario, the following tax schedules can be used:

3.1.1 Schedule 1: Tax-free threshold is not claimed by employee

Table 1: Schedule 1

Weekly earnings (x) less than $	a	b
$88	0.1900	0.1900
$371	0.2348	3.9639
$515	0.2190	−1.9003
$932	0.3477	64.4297
$1,957	0.3450	61.9132

Weekly earnings (x) less than $	a	b
$3,111	0.3900	150.0093
$3,111 and over	0.4700	398.9324

3.1.2   Schedule 2: Employee has claimed the tax-free threshold

Table 2: Schedule 2

Weekly earnings (x) less than $	a	b
$359	–	–
$438	0.1900	68.3462
$548	0.2900	112.1942
$721	0.2100	68.3465
$865	0.2190	74.8369
$1,282	0.3477	186.2119
$2,307	0.3450	182.7504
$3,461	0.3900	286.5965

Weekly earnings (x) less than $	a	b
$3,461 and over	0.4700	563.5196

These schedules can be used to calculate weekly tax owing with the following linear equation of the form **y = ax − b**, where:

- y is the weekly tax amount expressed in dollars
- x is the number of whole dollars of the weekly earnings plus 99 cents
- a and b are the values of the coefficients from the tax schedules above.

3.2 Preliminary classes

The following preliminary classes with some attributes and methods have been proposed for the application design:

Table 3: Preliminary class 1

Person	Login	Employee	Manager	PaySlip
firstName	username	employeeID	employeeID	Employee
lastName	passwordHash	Person	Person	weekNumber
		Login	Login	weekHours
		taxNumber	taxNumber	submittedBy
		taxThreshold	taxThreshold	submittedDate
			permissions	approvedBy

Person	Login	Employee	Manager	PaySlip
				approvedDate
				payGrossCalculated
				taxCalculated
				superCalculated
				payNetCalculated

Table 4: Preliminary class 2

PayCalculator NoThreshold	PayCalculator WithThreshold
hourlyRate	HourlyRate
superRate	superRate
TaxThresholds	TaxThresholds
TaxRatesA	TaxRatesA
TaxRatesB	TaxRatesB
Methods calculatePay()	Methods calculatePay()

PayCalculator NoThreshold	PayCalculator WithThreshold
calculateTax()	calculateTax()
calculateSuperannuation()	calculateSuperannuation()