PROJECT 1

Cluster 4

Testing and Documentation

TECHNICAL DOCUMENTATION

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Client and developers

Client: Barnhill Fastener Company

Developer: Philip Bryan Datoon

Purpose of the project

Generally, the purpose of the project is to accurately calculate net pay of the factory workers of the client based on their skill level, number of hours worked in a week, and appropriate insurance and retirement options for their skill category.

Functional requirements

The functional requirements are presented in the following table:

Functions	Details
Entering data	1. A form will be displayed on the screen to type in details along with specific swing components: • skill level (combo box) • number of hours worked in a week (text box) • insurance options (check boxes) • retirement plan option (radio buttons) 2. Each swing component must follow the initial state: • skill level combo box – enabled • number of hours worked – initial text should be 0 • insurance combo box – disabled • retirement check box – disabled 3. All details must be validated and state will change as to following cases: • the maximum number of hours worked should be 168, as there are only 168 hours in a week • any zero and lesser number of hours, and null or characters in number of hours text field will be invalidated • insurance check boxes must be enabled if and only if the skill level of the worker is either 2 or 3 • retirement plan radio buttons will be enabled if and only if the skill level of the worker is 3 • an error message on a JLabel component will be displayed for any invalid input

Displaying data	1. As all the data required are entered, the application should calculate net pay accurately.
	2. Before displaying any data, program will check if deduction does not exceed the gross pay. If it does, a label with red texts will appear, indicating the error message.
	3. Otherwise, program will then displays appropriate data specifically: • the hours worked; • the hourly pay rate; • the regular pay for 40 hours; • the overtime pay; • the total of regular and overtime pay; • the total itemized deductions; and • the net pay
	4. All will be displayed in a single JLabel component.
Reset form	The application will include a reset form button, which functions to clear all information onto the form, as well as the label component used in displaying the data.

User interface

Sample test data and results expected

Function	Sample input	Expected result
Selecting null skill level	index = −1	An error message should be displayed.
Selecting skill level 1	index = 0	No combo boxes should be enabled.
Selecting skill level 2	index = 1	Only the three insurance combo boxes should be enabled.
Selecting skill level 3	index = 2	All combo boxes should be enabled.
Entering number of hours worked	hoursWorked = 0	Input is not valid. An error message should be displayed.
	hoursWorked = −1	
	hoursWorked = 'a'	
	hoursWorked = 0.0	
	hoursWorked = 168.01	
	hoursWorked = 0.01	Program must accept the input, and then proceed to performing calculations.
	hoursWorked = 1	
	hoursWorked = 1.0	
	hoursWorked = 167.99	
Selecting insurance options	Medical insurance selected	Total deduction: $ 23.50
	Medical and dental insurances selected	Total deduction: $ 44.50
	All insurances selected	Total deduction: $ 61.50
	Dental insurance selected	Total deduction: $ 21.00
	Dental and long-term disability insurances selected	Total deduction: $ 38.00
	Medical and long-term disability insurances selected	Total deduction: $ 40.50
Selecting retirement plans or superannuation (applicable to Skill Level 3 only)	hoursWorked = 35	Net pay: $ 945.00 Superannuation: $ 28.35
	No insurances selected	
Overdeduction	skillLevel = 2 (Level 3)	Program must display necessary details, yet an error message will appear indicating deduction is larger than the gross pay.
	hoursWorked = 1	
	All insurances selected	
	Retirement plan selected	

Other detailed specifications

Objective

Generally, the objective of the project is to produce an application that would accurately calculate net pay of the factory workers of the client based on specific factors with the use of Java programming language, specifically JFrame and other Swing GUI components.

Limitations

There limitations to be considered for this project:

1. It will not hold any databases that connect to the application and store information.
2. It will be developed and will be tested in Windows 7 operating system.