HIGHER EDUCATION PROGRAMMES

Academic Year 2020:	July - December
Formative Assessment 1:	PRAXIS S3B (HPRXS3B161)
NQF Level, Credits:	6, 15
Weighting:	20%
Assessment Type:	Project
Pass Requirement:	50%
Educator:	S. Maduveko
Examiner:	Ralph Mavhunga
Due Date:	4 September 2020
Total:	70 Marks

Instructions

1. This examination script consists of 5 pages, including the cover sheet. Ensure that you have all the pages.

2. This paper consists of one (1) question.

3. It is based on the following Courseware Materials :
   - Systems Development 2A – HSYD2A161 Boston Study Guide.
   - Systems Analysis and Design 3 – HSAD3161 Boston Study Guide and Textbook.
   - Workflow Management 3 – HWFM3161 Boston Study Guide and Textbook.

4. All questions are compulsory

5. You are required to **upload** the following documents **onto ColCampus**.

   These are:

   - The **Application Program**, including the MySQL database in the zipped folder.
   - A **pdf** of the **User Documentation** containing **Screenshots** of the Application.

   Good Luck!

Requirements:

1. For the context presented below, apply the process and concepts of the Systems Development Life Cycle to produce the necessary documentation for the following:
   - A context diagram
   - Any of the entities that you identified in the context diagram using Case Diagram(s).
2. Develop a software application for the context presented below using Java and MySQL.
3. Test the complete application as per the Rubric Requirements.
4. Produce User Documentation for the application.

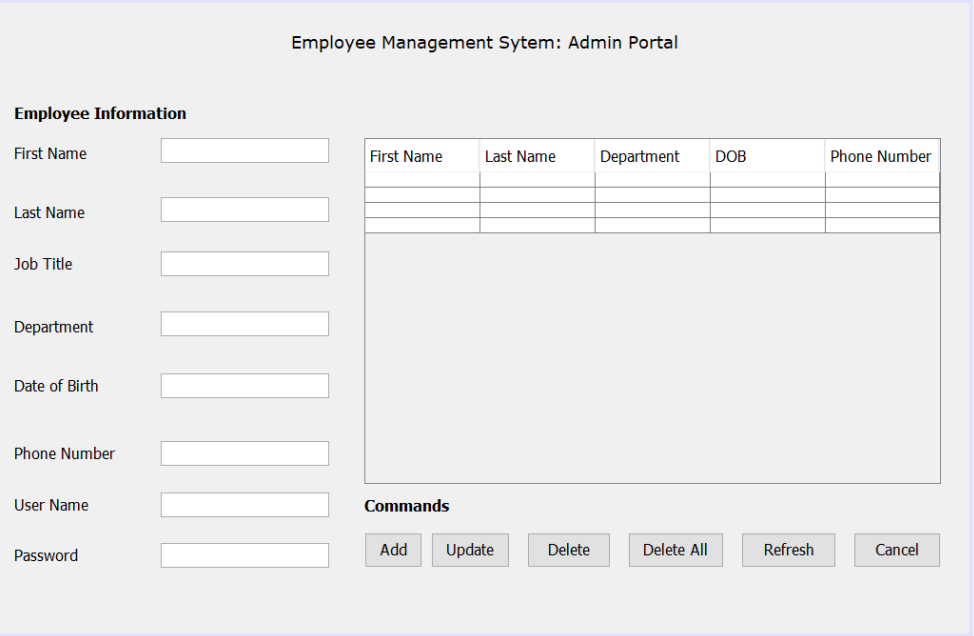
Note: Use the Rubric to guide your development of the application.

Your organisation software development team is developing a supplier management system in Java and MySQL as the database. The system is meant to help the company to manage and streamline its human resources department. As a member of the software development team, you have been tasked by the Team Lead to develop two windows application modules of the employee management system which connect to the system database named Employee.

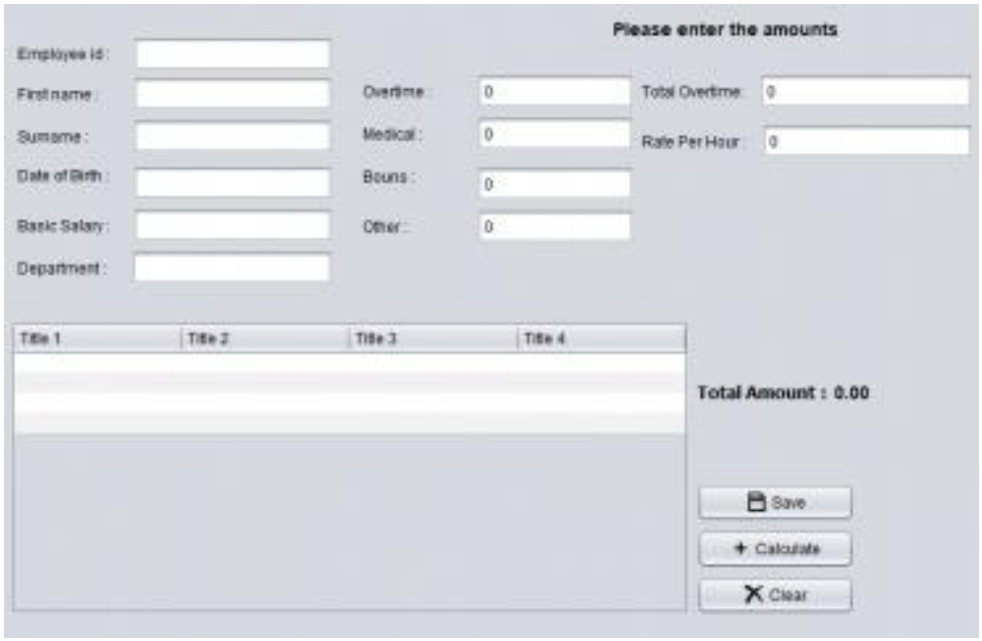
The two modules for the application should be built based on the steps listed below. Each step will build off the code from the previous steps.

Instructions

- Create a Java project in Netbeans IDE, the project name must be BostonEmployeeManagementSystem, and the package must be com.boston.employeeManagement.
- Create a MySQL database with two tables, one to store employee information and the other to store salary information.
- Add three (3) classes to your project that will do the following:
    - One class should have the main method
    - One GUI design to capture employee information



    - One GUI design to calculate employee salary



- Validate the phone number if it's numeric
- Implement try-catch for event handling on all MySQL statements
- Add prepared statements on all insertion buttons
- Implement transactions on all relevant MySQL statements
- Use batch processing on the delete all button to delete all records
- Add prompts to notify users on successful completion of operation and also to notify users if an error occurs
- Use comments to document your code and correct Java variable and method naming convention.
- Create user documentation for the application

Learning Outcome:

The Student should

- Model a functional system, for a familiar context and produce adequate documentation for the system.

Rubric for Application Development:

No	Criteria	Requirements	Total Marks
1	***Documentation*** (4 marks)	***User Manual (4 marks)*** - Documentation indicates correct steps how one starts and operate the system	
2	***Product Revision*** (4 marks)	***Testability (2 marks)***-The effort required to test the program to ensure it performs as per User Manual. ***Comments (2 marks)***- The code should have relevant comments	
3	***Product Operation*** (2 marks)	***Reusability (2 marks)*** - The extent to which the program parts can be reused in other applications (has a functional database).	
4	***Product Transition*** (8 marks)	***Correctness (2 marks)*** - The extent to which a program meets its specifications and fulfils the customer objectives ***Usability (2 marks)*** - The effort required by users to learn, operate and use the program (is it User friendly) ***Integrity (4 marks)*** – Data validation and reporting	
5	***Code - Syntax*** & ***Logic*** (10 marks)	Implementation of the following factors : (1) The naming of variables; ***(3 marks)*** (2)Program compiles and***(2 marks)*** (3) contains no evidence of misunderstanding or misinterpreting the syntax of the language ***(2 marks)*** (4)Has no errors during program flow execution ***(3 marks)***	
6	***Code -User Interaction and Interface - Design of Program*** (4 marks)	Program shows appealing and relevant UI and Computer Interface: (1) Colour & Style***(2 marks)*** (2) GUI control elements (icons, windows, buttons, etc.) ***(2 marks)***	
7	***Code - Database*** (38 marks)	Program can do the following: (1) Connect to the Database ***(3 marks)*** (2) Correct Database name and table structure ***(7 marks)*** (3) The program carries out CRUD functions ***(2 marks)*** (4) Implementation of prepared statements ***(4 marks)*** (5) Batch processing ***(4 marks)*** (6) Implementation of transactions ***(4 marks)*** (7) Event handling capabilities ***(4 marks)*** (8) Can Capture data details (***5 marks)*** (9) Can modify data details. ***(5 marks)***	
Total Marks (70 marks)			