A. Project Name:

Select a suitable name for your project, it is recommended to use “LPA eComms” with development project name as “Lpaecomms”.

B. Web interface design for mobile application

Create the interface for the mobile application with the following requirements

1. User login page – consisting of the following:
   - a dialog window that is centered on the screen
   - a caption on the dialog title bar “User Login”
   - a user name label and text field within the user login dialog
   - a password label and text field with the text field masked within the user login dialog
   - a login button within the user login dialog
2. Main home page – consisting of the following:
   - a page header that is global to all pages
   - a menu system for navigation within the application except for the login page
   - a page body for main home page content
   - a page footer that is global to all pages
3. Stock management page – consisting of the following:
   - a page header that is global to all pages
   - a menu system for navigation within the application except for the login page
   - a page body for stock management page content with the following components:
     - stock id label and text field
     - stock item name label and text field
     - stock item description label and text field
     - stock item on-hand label and text field
     - stock item price label and text field
     - stock item status label and enabled/disabled radio button
     - a save button
     - a search button
     - a close button
   - a page footer that is global to all pages
4. Sales and Invoicing page – consisting of the following minimum components:
   - a page header that is global to all pages
   - a menu system for navigation within the application except for the login page
   - a page body for sales and invoicing page content with the following minimum components:
     - Search invoice record section with search label, text field and search button.
     - Search results list to display all invoices from sales after the search button has been clicked with a Date, Client and amount columns.
     - A total amount row at the bottom of the list that displays the sum of all invoice amounts in the list.
   - a page footer that is global to all pages

C. Desktop application interface design

Create a desktop application interface in Java with the following requirements:

1. Application main parent JFrame with the following minimum components:
   - Menu Bar fixed to the top of the frame and spanning full width from left to right.

- Menu hierarchy on the menu bar as follows:
    - Menu
        - Stock Management
        - Sales and Invoicing
            - Invoices
            - Clients
        - Separator line
        - System Administration
            - User Management.
        - Separator line
        - Exit
    - Help
        - User Guide
        - About
- Maximized main parent JFrame on application launch

2. Stock Management JInternalFrame with the same body content requirements as the mobile application stock management interface.
3. Sales and Invoicing JInternalFrame with the same body content requirements as the mobile application sales and invoicing interface.
4. User Management JInternalFrame with the minimum following components:
    - a User ID label and text field
    - a User name label and text field
    - a First Name label and text field
    - a Last Name label and text field
    - a Group label and user, admin dropdown combo box options
    - a Status label and Enabled, Disabled dropdown combo box options.
    - dropdown combo box options
    - a Save button
    - a Find button
    - a Close button

D. Create centralised database

Using MySQL Database from a centralised server, create the following database and table structure:

1. Database name “LPA_eComms”
2. Create a database table in the “LPA_eComms” database named “lpa_stock” with the following fields:
    - “lpa_stock_ID” with Type “VARCHAR”, length of 20 and set index to primary.
    - “lpa_stock_name” with Type “VARCHAR”, length of 250.
    - “lpa_stock_desc” with Type “TEXT”.
    - “lpa_stock_onhand” with Type “VARCHAR”, length of 5.
    - “lpa_stock_price” with Type “DECIMAL”, length of 7,2.
    - “lpa_stock_status” with Type “CHAR”, length of 1.
3. Create a database table in the “LPA_eComms” database named “lpa_clients” with the following fields:
    - “lpa_client_ID” with Type “VARCHAR”, length of 20 and set index to primary.
    - “lpa_client_firstname” with Type “VARCHAR”, length of 50.

- “lpa_client_lastname” with Type “VARCHAR”, length of 50.
- “lpa_client_address” with Type “VARCHAR”, length of 250.
- “lpa_client_phone” with Type “VARCHAR”, length of 30.
- “lpa_client_status” with Type “CHAR”, length of 1.

4. Create a database table in the “LPA_eComms” database named “lpa_invoices” with the following fields:
   - “lpa_inv_no” with Type “VARCHAR”, length of 20 and set index to primary.
   - “lpa_inv_date” with Type “DATETIME”.
   - “lpa_inv_client_ID” with Type “VARCHAR”, length of 20.
   - “lpa_inv_client_name” with Type “VARCHAR”, length of 50.
   - “lpa_inv_client_address” with Type “VARCHAR”, length of 250.
   - “lpa_inv_amount” with Type “DECIMAL”, length of 8,2.
   - “lpa_inv_status” with Type “CHAR”, length of 1.
5. Create a database table in the “LPA_eComms” database named “lpa_invoice_items” with the following fields:
   - “lpa_invitem_no” with Type “VARCHAR”, length of 20 and set index to primary.
   - “lpa_invitem_inv_no” with Type “VARCHAR”, length of 20.
   - “lpa_invitem_stock_ID” with Type “VARCHAR”, length of 20.
   - “lpa_invitem_stock_name” with Type “VARCHAR”, length of 250.
   - “lpa_invitem_qty” with Type “VARCHAR”, length of 6.
   - “lpa_invitem_stock_price” with Type “DECIMAL”, length of 7,2.
   - “lpa_invitem_stock_amount” with Type “DECIMAL”, length of 7,2.
   - “lpa_inv_status” with Type “CHAR”, length of 1.
6. Create a database table in the “LPA_eComms” database named “lpa_users” with the following fields:
   - “lpa_user_ID” with Type “VARCHAR”, length of 20 and set index to primary.
   - “lpa_user_username” with Type “VARCHAR”, length of 30.
   - “lpa_user_password” with Type “VARCHAR”, length of 50.
   - “lpa_user_firstname” with Type “VARCHAR”, length of 50.
   - “lpa_user_lastname” with Type “VARCHAR”, length of 50.
   - “lpa_user_group” with Type “VARCHAR”, length of 50.
   - “lpa_inv_status” with Type “CHAR”, length of 1.

E. Create database links and access to application interface

Establish a database link and access to the mobile web interface:

1. Create code to allow for storage and retrieval of data from each section of the mobile interface as follows:
   - User to be authenticated from the login page by checking user information supplied from the “lpa_users” table against user input from the login page username and password fields.
   - User must not have access to any page except for login without authenticated access.
   - Once users have logged in access must be given to sections of the application based on group level, ie. Users in the user group only have read access while administrators have read/write access.
   - User management must not be made available to any user including administrators.
   - Users can only update their own account details, this includes administrators.

Establish a database link and access to the desktop application interface:

2. Create code to allow for storage and retrieval of data from each section of the desktop interface as follows:
    - User to be authenticated from a login JInternalFrame by checking user information supplied from the “lpa_users” table against user input from the login frame username and password fields.
    - User must not have access to any section except for login without authenticated access.
    - Once users have logged in access must be given to sections of the application based on group level, ie. Users in the user group only have read access while administrators have read/write access.
    - User management must only be made available for administrators; all other users must NOT have access.
    - Users can only update their own account details, except for administrators which will have full management rights to all user accounts.

F. Entity relationship diagram (ERD):

Draw an entity relationship diagram (ERD) and create a business logic layer for the Mobile and Desktop interfaces. This layer is mainly consisting of a set of code for data object that does basic interactions between the presentation layer and the data access layer.

G. Help and About Documentation:

Create a dialog within the desktop application to show a brief help guide that demonstrates basic operation of the application including author and version control in an about dialog.

H. eCommerce web site

Create an eCommerce web site to allow the sales of the LPA’s products with the following requirements:

1. Main home page-consisting of thefollowing:
    - a page header that is global to all pages
    - a menu system for navigation within the application
    - a page body for main home page content
    - a page footer that is global to all pages
2. Product catalog page-consisting of the following:
    - a page header that is global to all pages
    - a menu system for navigation within the application
    - a page body for the listing of the products the following minimum components:
        - Product name
        - Product description
        - Quantity
        - Product price
        - Add to cart button
    - A search option to allow listing of filtered products
    - A page footer that is global to all pages
    - Create code to add products to a cookie when the add to cart button is clicked
3. Customer registration page-consisting of the following:
    - a page header that is global to all pages
    - a menu system for navigation within the application
    - a page body for the listing of the products the following minimum components:

        - a First name label and text field
        - a Last name label and text field
        - an address label and text field
        - a Phone Number label and text field
        - a Username label and text field
        - a Password label and text field
        - a Confirm Password label and text field
        - a Register button
        - a Cancel button
    - a page footer that is global to all pages
4. Customer login page-consisting of the following:
    - a page header that is global to all pages
    - a menu system for navigation within the application
    - a page body with the following minimum components:
        - a dialog window that is centered on the screen
        - a caption on the dialog title bar “Customer Login”
        - a user name label and text field within the customer login dialog
        - a password label and text field with the text field masked within the user login dialog
        - a login button within the customer login dialog
    - a page footer that is global to all pages
5. Checkout page-consisting of the following:
    - a page header that is global to all pages
    - a menu system for navigation within the application
    - a page body with the following minimum components:
        - a table to list products added to the cart with the following minimum columns:
            - Product Code (lpa_stock_ID)
            - Product Name (lpa_stock_name)
            - Price (lpa_stock_price)
            - QTY with field to change quantity
            - Amount
            - Total row at the bottom of the table to sum values in the amount column
    - A remove button
    - A confirm button
    - a page footer that is global to all pages
6. Checkout Payment page-consisting of the following:
    - a page header that is global to all pages
    - a menu system for navigation within the application
    - a page body with the following minimum components:
        - a First name label and text field
        - a Last name label and text field
        - an address label and text field
        - a Phone Number label and text field
        - a Payment option label and drop down select with (PayPal, VISA, MasterCard, Direct deposit)
        - a Pay Now button
        - a Cancel button

- a page footer that is global to all pages

If customer has logged in then all the above fields should be filled in automatically, except for the payment option, else, redirect the customer to the customer login page.

7. Checkout complete page-consisting of the following:
   - a page header that is global to all pages
   - a menu system for navigation within the application
   - a page body with the following minimum components:
     - a message displaying that the payment is successful and the order is now complete
     - a close button
   - a page footer that is global to all pages

   This page needs to clear the cart cookie and save all invoice data to the invoices and invoice items tables in the LPA database

I. Mobile application design (Integration of eWebstore project with Android)

Create the android mobile application with the following requirements:

1. Design a logo for the application that represents the "LPA eComms" application
2. Create a new android development project with a suitable name, "Lpamapp" is recommended
3. Using the android WebView library build an interface shell for the mobile web interface designed in the intermediate phase of the project and use the webserver address as the URL where the web interface is located.
4. Create a splash screen activity for the application with a 5 second delay before loading the main activity (WebView page)
5. Compile (Build) the application Optimise the Web interface with the following requirements
6. Create code in JQuery to modify the page format for mobile interfaces based on the width of the screen resolution in portrait or landscape
7. Disable any default zooming feature

J. Log file:

Create code for a logging and exception handling system in the web interface with the following requirements:

1. Create code in PHP to capture the following information:
   - System errors
   - System activity (e.g User login, page access)
2. Create code in PHP to read in an existing log file or create one if it does not exist then write/append log information to a file name "lpalog.log" in a "log" directory of the web application

K. Implement encrypted login

implement password encryption as follows:

1. Create code in PHP to hash the password string with salt using Blowfish algorithm:
   - Password must be stored in the database in an encrypted string
2. Create code in PHP to verify password hash:
   - Password must be retrieved from database in an encrypted string

L. Finalisation of project development:

As the development life cycle, has now reached the final stage, operate the system with live data and make any necessary maintenance adjustments before the beta stage release (Submit project for assessment).