**Loan Application**

**Note:** The case study is to gauge how participants can solve a case study by applying their knowledge from what they learnt during the training, participants can take help of google if they want but must not discuss with other participants while solving

The use case is to allow customers to apply for loans and check their application status, below is the use case diagram where there will be two types of users

1. Customer: Who needs to register first if he/she is a new customer & must login to use the services like
   1. View Loans
   2. Apply Loan
   3. See Loan Status (Pending, Approved, Rejected)
2. Loan Officers: Who will have predefined credentials (doesn’t need to register) to login to use the following services like
   1. See Loan Applications
   2. Update Loan Applications (Approve, Reject)
   3. View Credit Scores

**Customer Use Case Diagram**

View Loans

Apply Loan

Loan Status

**Loan Officer User Case Diagram**

View Loan Applications

Update Loan Applications

View Credit Scores

**Business Requirement:**

1. **Customer:** 
   1. Registration (**10 points**):

A Customer must able to create an account by registering his/her details like firstname, lastname, email-id, password, pan, phone, all fields are mandatory and application must show appropriate user defined error messages if input is not provided to any fields,

**Note;** After the successful registration customer must be redirected to the login page automatically

**Validations needs to be done for the following fields as below:**

Firstname: Minimum 3 characters

Lastname: Minimum 1 character

Email Id: Valid email id with . and @

Password: Strong passwords with atleast 8 characters having 1 digit, 1 uppercase, 1 lowercase & special characters mandatorily

Pan: Required

Phone: 10 digits phone number

* 1. Login: Customer must able to login by entering valid email-id & password, show an appropriate use defined error messages if credentials are wrong or if there are any validation errors like email-id or password are empty.

Once the Customer Logs in he/she must able to use below services

* + 1. View Loans (**10 points**):

Customer must see various types of loans offered like Housing Loan, Educational Loan, Gold Loan, Personal Loan, Car Loan, Business Loan and etc.

* + 1. Apply For Loan (**10 points**):

A customer can apply for a loan using the view loans service where there should be a clickable UI like a button beside each loan type so that he/she can click to apply, once applied the status of the loan will become Pending.

* + 1. See Loan Status (**5 points**):

A customer can see the loan status here like Pending, Approved or Rejected, if no loans are applied it will be empty

1. **Loan Officers:** 
   1. Login: A Loan officer must able to login by entering employee-id and password, show an appropriate use defined error messages if credentials are wrong or if there are any validation errors like email-id or password are empty.

Once the Loan Officers Logs in he/she must able to use below services

* + 1. View Applications(**5 points**):

Here officer must able to see all the loan applications each will show the loan-id, loan-type, customer-id, customer-name, customer-phone, customer-pan

* + 1. Update Loan Applications(**5 points**):

Here officer can update each loan application to either Approve or Reject, these two options can be a drop-down, selecting any one of these option must reflect to the customer loan application status

* + 1. View Credit Scores(**5 points**):

Here officer can see the credit scores by entering the customer PAN details, the score helps the Loan officer to either approve or reject the loans

**Note:** There must a Credit Score table with predefined values having Customer PAN and Scores

**Few points to consider:**

* Mandatory and non mandatory field identification should be clearly visible
* Login logs (success and failure) needs to be captured (**10 points**)
  + store in DB
* Audit Log needs to be captured (**10 points**)
  + What has changed by who and when
  + There should be view to see Audit Log
* All Exception should be captured (**10 points - optional**)
  + Exception should be stored in DB
  + There should be view to see Audit Log
* Include uploading some document (PAN / Aadhar etc) as a part of loan application process. (**10 points - optional**)
  + Store file / image on file server
  + Admin should able to see this document
* Password / Mobile No / Aadhar no should be encrypted and stored inside DB(**10 points**).

**Implementations:**

* Design the appropriate Tables, Models, Dao’s, Services & Controllers
* Use the TDD approach
* Create Custom exceptions and store in a Collection so that an API can always show what exception is occurred – like when the customer / officers enters wrong credentials to login, or when the customer tries to apply for another loan when the current loan is still in pending.
* Create API’s for all the services provided by the Loan Application
* Create UI’s that interacts with the services provided by the Loan Application
* Develop the Single Page Application at the front-end

**Tables & their relationship**

