Project Design Phase-II
Technology Stack (Architecture & Stack)

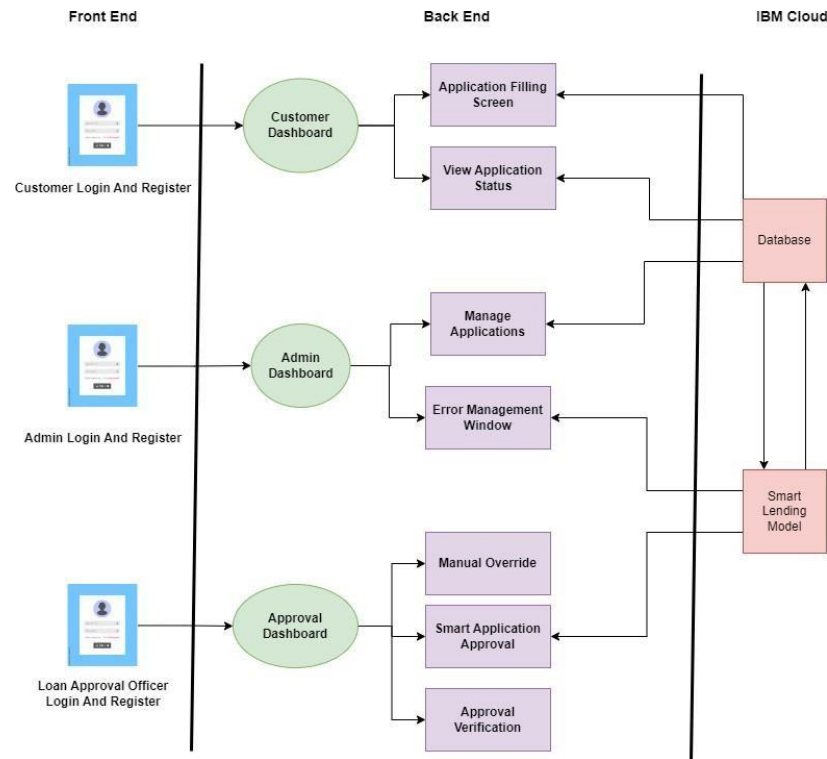| Date	03 October 2022
Team ID	PNT2022TMID53522
Project Name	Project - Smart Lender - Applicant Credibility Prediction for Loan Approval
Maximum Marks	4 Marks

Technical Architecture:

Table-1 : Components & Technologies:

S.No	Component	Description	Technology
1.	User Interface	Customer, Admin and Loan Approval Officers will be able to register login and use the functionalities available to them.	HTML, CSS, Javascript
2.	Application Filing	Available to customers only, this screen allows customers to fill details in an online application for loan approval.	Javascript
3.	View Application Status	View pertinent information relevant to the applications. Can be accessed by admin only.	Javascript
4.	Manage Applications	Ability to modify applications as and when needed. Can be accessed by admin only	Javascript
5.	Error Management Window	Ability to rectify or troubleshoot errors. Can be accessed by admin only.	Javascript
6.	Manual Override	Ability to change loan approval decision manually. Available only to loan approval officer.	Javascript
7.	Smart Application Approval	Performs automated loan approval decision and gives details supporting decision	Javascript, Python
8.	Application Verification	Verification of application and documents provided by applicant	Javascript

9.	Cloud Database	Data Types: String, Number, Float, Int, Bool Configuration:
		<pre>abort-slave-event-count 0
		allow-suspicious-udfs FALSE
		archive ON
		auto-increment-increment 1
		auto-increment-offset 1
		autocommit TRUE
		automatic-sp-privileges TRUE
		avoid-temporal-upgrade FALSE
		back-log 80
		basedir
		/home/jon/bin/mysql-8.0/
		...
		tmpdir /tmp</pre>
			MySQL Online

```
transaction-alloc-block-size        8192
transaction-isolation               REPEATABLE-
READ
transaction-prealloc-size           4096
transaction-read-only               FALSE
transaction-write-set-extraction    XXHASH64
updatable-views-with-limit          YES
validate-user-plugins               TRUE
verbose                             TRUE
wait-timeout                        28800
```

10.	File Storage	Network File System (NFS)	IBM Cloud File Storage
11.	Machine Learning Model	Automated decision making for loan approval and giving details for decision.	CNN, DNN
12.	Infrastructure (Server / Cloud)	Default	Flask

Table-2: Application Characteristics:

S.No	Characteristics	Description	Technology
1.	Open-Source Frameworks	Flask is used to host the website. Scikit, numpy and tensorflow are all open source python machine learning frameworks.	Scikit, Numpy, Tensorflow, Flask
2.	Security Implementations	OpenSSL is a program and library that supports many different cryptographic operations, including: Symmetric key encryption. Public/private key pair generation. Public key encryption. Hash functions.	OpenSSL Encryption
3.	Scalable Architecture	Since the application servers can be deployed on many machines. Also, the database does not make longer connections with every client – it only requires connections from a smaller number of application servers. It improves data integrity.	3 Tier Architecture
4.	Availability	Decentralized storage and distribution along-with web application approach make the service highly available.	IBM Cloud file storage, MySQL Online
5.	Performance	Long term header expiration.	AJAX, CDN

S.No	Characteristics	Description	Technology
		Cacheable AJAX Cookie Free Domain Compress gzip components	

References:

https://c4model.com/

https://developer.ibm.com/patterns/online-order-processing-system-during-pandemic/

https://www.ibm.com/cloud/architecture

https://aws.amazon.com/architecture