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

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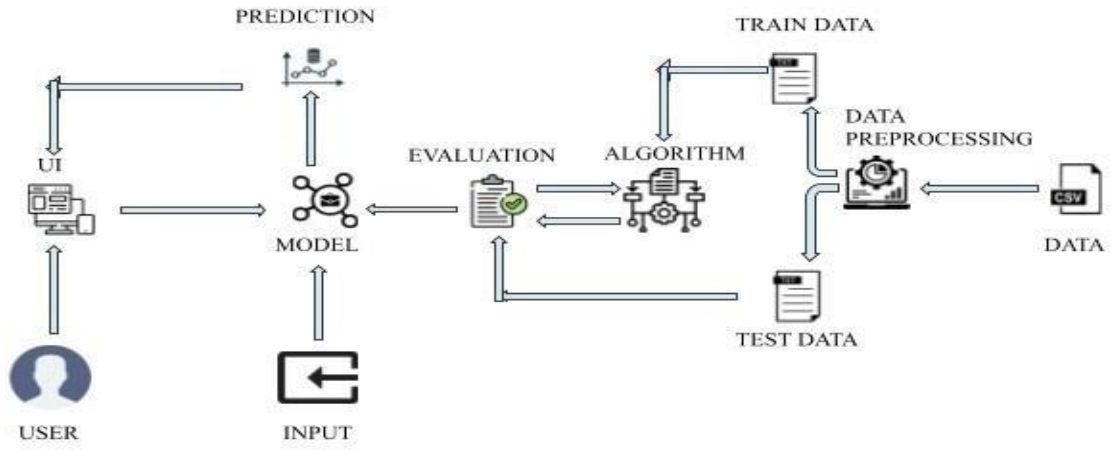
|---|---|
| Team ID | PNT2022TMID11986 |
| Project Name | **Smart Lender – Applicant Credibility Prediction for Loan Approval** |
| Maximum Marks | 4 Marks |

# Technical Architecture:




## Table-1 : Components & Technologies:

| | | | |
|---|---|---|---|
| 1. | User Interface | Users interact with the application with the help of a web UI. | HTML, CSS,Javascript |
| 2. | Building application | Getting user information from UI and feeding it to ML model | Python Flask |
| 3. | Visualizing and analysing data | Reading and understanding the data properly with the help of visualization and analysing techniques | Python pandas, numpy, matplotlib, seaborn |
| 4. | Pre-processing or cleaning data | Handling missing values,<br>Handling categorical data,<br>Handling outliers, Scaling<br>Techniques | Python pandas |
| 5. | Database | Loan Approval dataset. | csv file |

| **S.No** | **Component** | **Description** | **Technology** |
|---|---|---|---|

| | | | |
|---|---|---|---|
| 6. | Cloud Database | Deploying the model on cloud | IBM cloud |
| 7. | Machine Learning Model | Using machine learning model for predicting loan approval | Model building using classification algorithms such as Decision tree, Random forest, KNN, and xg boost |

## 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 |
| 2. | Security Implementations | OpenSSL is a program and library that supports many different cryptographic operations, including: Symmetric key | OpenSSL Encryption |
| | | encryption. Public/private key pair generation. Public key encryption. Hash functions. | |
| 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,<br>MySQL Online |
| 5. | Performance | Long term header expiration.<br>Cacheable AJAX Cookie Free Domain Compress zip components. | AJAX, CDN |