Project Design Phase-I
Solution Architecture

Date	23rd October 2023
Team ID	Team-592706
Project Name	PoxVisio: A Deep Learning Expedition into Monkeypox Skin Lesions
Maximum Marks	4 Marks

Solution Architecture:

The "PoxVisio" project's solution architecture outlines the strategic path from initial concept to deployment. It focuses on leveraging deep learning technology for early monkeypox diagnosis, addressing regulatory compliance, data security, risk assessment, and scalability, ultimately contributing to global health improvement.

Our solution leverages Convolutional Neural Networks (CNNs) to address the MonkeyPox problem effectively.

- **Conceptual Framework**:
  Begin with a high-level overview of the project, emphasizing the need for early monkeypox diagnosis in regions with limited access to traditional testing methods.

- **Data Collection and Processing**:
  Detail how the "Monkeypox Skin Lesion Dataset (MSLD)" is created through web scraping, including data sources and preprocessing steps. Consider data quality and curation.

- **Team and Skills**:
  Identify the project team, their roles, and necessary skills, such as deep learning expertise, web development, and healthcare domain knowledge.

- **Resources**:
  List the hardware, software, and cloud services required, emphasizing any specialized medical imaging tools.

- **Deep Learning Model**:
  Specify the utilization of the ResNet50 deep learning model for skin lesion classification. Discuss model architecture, training data, and potential pre-trained weights.

- **Training Pipeline**:
  Explain the training process, including hyperparameter tuning, model evaluation, and validation techniques.

- **User Interface (Web App)**:
  Discuss the design and development of a web application for user interaction. Consider features for uploading and analyzing skin lesion images.

- **Scalability**:
  Address how the system can handle a growing user base and data over time. Consider server scalability, load balancing, and cloud resources.

- **Monitoring and Evaluation**:
  Describe how the system's performance will be continuously monitored, with metrics for model accuracy and impact assessment.

- **Deployment and Maintenance**:
  Outline the deployment strategy and how the system will be maintained and updated. Consider version control and continuous integration.

- **Inference and Classification**:
  Describe how the trained model will be deployed for skin lesion classification. This may involve APIs or a custom web application.

- **User Training and Support**:
  Explain how healthcare professionals will be trained to use the system and the support mechanisms in place for troubleshooting and assistance.

Solution Architecture Diagram