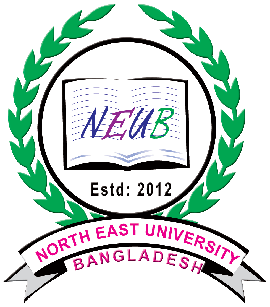
North East University Bangladesh

Department of Computer Science and Engineering

Course Title: Deep Learning Lab

Course Code: CSE-460



**Project Proposal**

**Chicken-Disease-Classification Using Deep Learning**

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***Project Name: Chicken-Disease-Classification Using Deep Learning***

**1. Project Overview:** This project focuses on building an end-to-end chicken disease classification system using deep learning. The goal is to identify whether a chicken has been affected by diseases like Coccidiosis using images of chicken feces (FAL) .Also using Transfer Learning with TensorFlow to classify the images as either "healthy" or "Coccidiosis affected."

**2. Objective:** To create an image classification model that will classify chicken feces images into categories such as:

* Healthy
* Coccidiosis Affected

The project will demonstrate how to implement a complete deep learning pipeline, including the stages of training, evaluation, prediction, and deployment using cloud platforms such as AWS or Azure with a focus on CI/CD deployment.

**3. Methodology:**

* **Data Collection:** Images of chicken feces affected by Coccidiosis and healthy feces will be used to train the model. Approximately 200 images will be collected for each category.
* **Model Implementation:** Using pre-trained models (Transfer Learning), we will fine-tune the model to classify chicken feces images. Libraries like TensorFlow/Keras will be used for model development.
* **Pipeline Design:** A clear, modular pipeline will be built for:
  + Data ingestion and preprocessing
  + Model training
  + Model evaluation
  + Prediction pipeline
* **MLOps Integration:** We will utilize tools such as DVC (Data Version Control) for managing the dataset and pipeline tracking. GitHub Actions will be used for continuous integration and continuous deployment (CI/CD).
* **Deployment:** The model will be deployed on AWS or Microsoft Azure cloud platforms. We will also create a simple user app that allows users to upload an image and get predictions.

**4. Project Phases:**

1. **GitHub Setup and Project Structure:**
   * Set up a GitHub repository for version control.
   * Establish a project template that can be reused for future projects.
2. **Project Setup and Installation:**
   * Install required libraries and dependencies (TensorFlow, DVC, etc.).
   * Create a structured directory for code management.
3. **Data Preprocessing and Pipeline Setup:**
   * Preprocess the image data (resize, normalization).
   * Design data pipelines using DVC for version control and tracking.
4. **Model Training and Evaluation:**
   * Use Transfer Learning to fine-tune pre-trained models on the dataset.
   * Implement evaluation metrics like accuracy and loss.
5. **Prediction and User Interface:**
   * Build a user-friendly web interface that allows users to upload chicken feces images and receive disease predictions.
6. **Docker and CI/CD Integration:**
   * Create a Docker image for easy deployment.
   * Set up continuous integration and deployment with GitHub Actions to deploy to AWS or Azure.
7. **Cloud Deployment:**
   * Deploy the model to AWS or Azure for real-time inference.

**5. Expected Outcomes:** By completing this project, i will:

* Gain hands-on experience in building an end-to-end deep learning pipeline.
* Learn how to deploy deep learning models on cloud platforms.
* Understand how to integrate MLOps tools like DVC and GitHub Actions for seamless collaboration and deployment.

**6. Conclusion:** This project will not only provide insights into chicken disease classification but also offer practical experience in deploying deep learning models using modern DevOps practices. Completing this project will equip participants with the skills required to tackle real-world deep learning challenges and improve their chances of securing jobs in the AI/ML industry.