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

Date	13 November 2023
Team ID	Team-591817
Project Name	Transfer learning for identifying the sports
Maximum Marks	4 Marks

Technical Architecture:

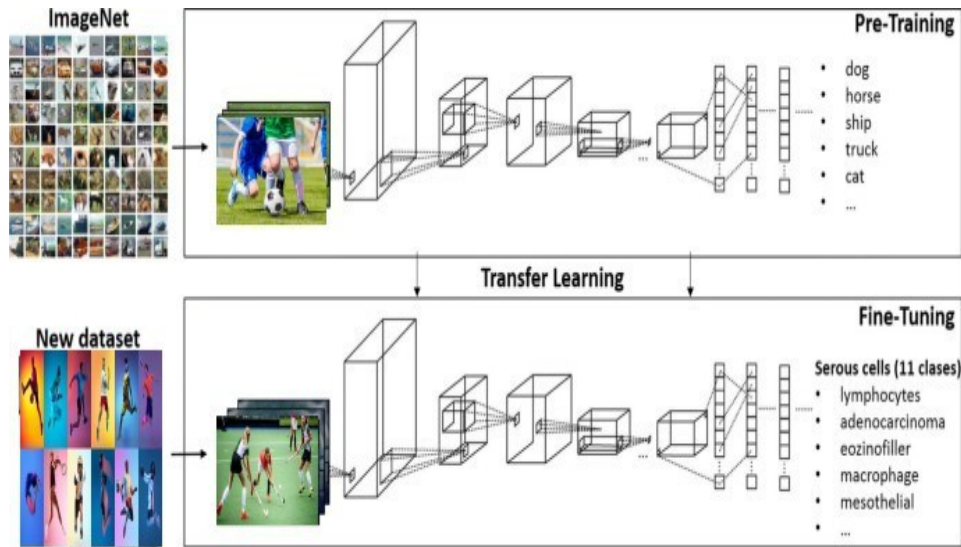The Deliverable shall include the architectural diagram as below and the information as per the table1 & table 2

Table-1 : Components & Technologies:

S.No	Component	Description	Technology
1.	User Interface	The user interacts with Web UI.	HTML, CSS, JavaScript
2.	Transfer Learning Model	EfficientNet B0 is used as the deep learning model to classify the images.	Keras
3.	Tensorflow	Tensorflow is a popular deep learning tool used in deep learning for accessing the pretrained models and image preprocessing.	Python, Tensorflow
4.	Dataset Collection	Collection of existing sports images to fine-tune the pre-trained model for sports identification.	Pandas & sklearn
5.	Data Preprocessing	Resizing, normalization and augmentation to prepare them for training.	NumPy, sklearn, matplotlib
6.	Backend Integration	Flask routes are set up to handle requests from the front-end and interact with the pretrained model for predictions.	Flask
7.	File Storage	Users can upload images from their device storage to the web application for prediction.	Local Filesystem
8.	Deep Learning Model	EfficientNet B0 a Transfer Learning Model is used to predict the images and classify them accordingly.	EfficientNet B0
9.	Infrastructure (Server / Cloud)	The Application Deployment is done on Localhost with the default port 5000.	Localhost

Table-2: Application Characteristics:

S.No	Characteristics	Description	Technology
1.	Open-Source Frameworks	Tensorflow, Keras, EfficientNet B0, Numpy, Pandas, and Flask	Python libraries
2.	Security Implementations	Data Encryption, Secure Model Deployment	e.g. SHA-256, Encryptions, IAM Controls, OWASP etc.
3.	Scalable Architecture	Model Training, Model Serving, Data Storage etc.	Micro Web Application by Flask

S.No	Characteristics	Description	Technology
4.	Availability	Redundancy and Failover, Disaster Recovery	Application Load balancer,Framework
5.	Performance	Web Framework, Model Optimization, Caching and Memoization, Caching and Content Delivery.	Framework, Extensions