Project Design Phase-II
Data Flow Diagram & User Stories

Date	23 October 2023
Team ID	Team-592597
Project Name	Project - Detecting COVID-19 From Chest X-Rays Using Deep Learning Techniques
Maximum Marks	4 Marks

Data Flow Diagrams:

A Data Flow Diagram (DFD) is a traditional visual representation of the information flows within a system. A neat and clear DFD can depict the right amount of the system requirement graphically. It shows how data enters and leaves the system, what changes the information, and where data is stored.

Example: (Simplified)

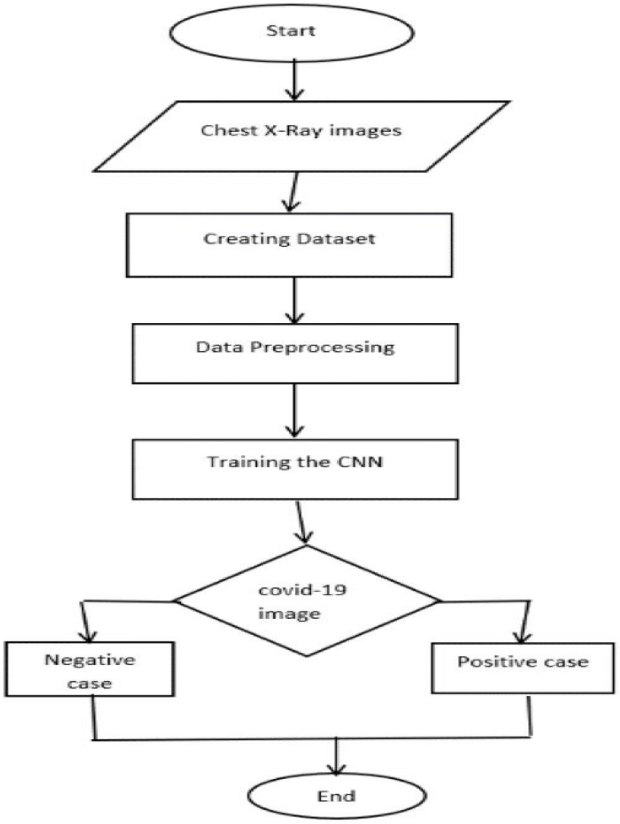
1.Data Acquisition:
Input: Chest X-rays
Output: Raw X-ray images

2.Preprocessing:
Input: Raw X-ray images
Output: Preprocessed images

3.Deep Learning Model Training:
Input: Preprocessed images and COVID-19 labels
Output: Trained deep learning model

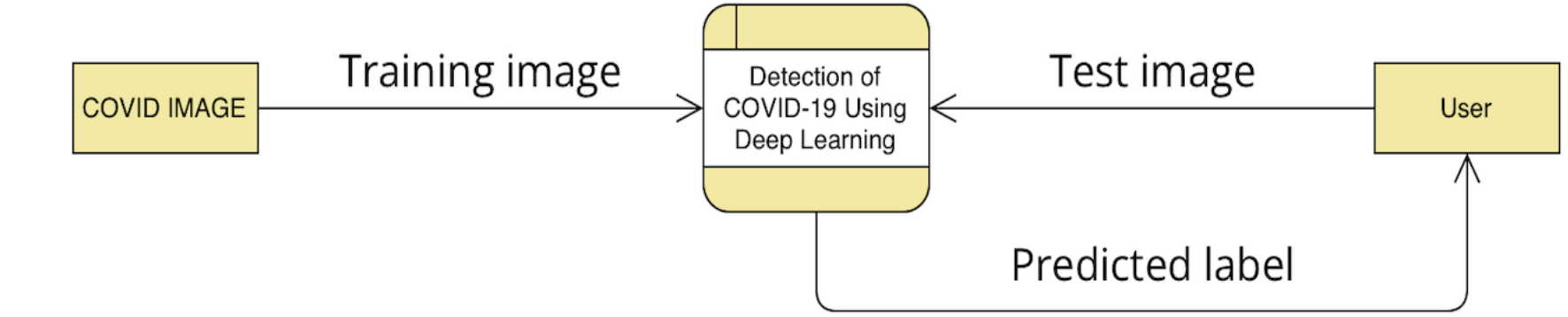
4.Prediction:
Input: New chest X-rays, Trained model
Output: Predicted COVID-19 results

5.Reporting and Storage:
Input: Predicted results
Output: Stored results and reporting to the Radiology Department or other relevant stakeholders.

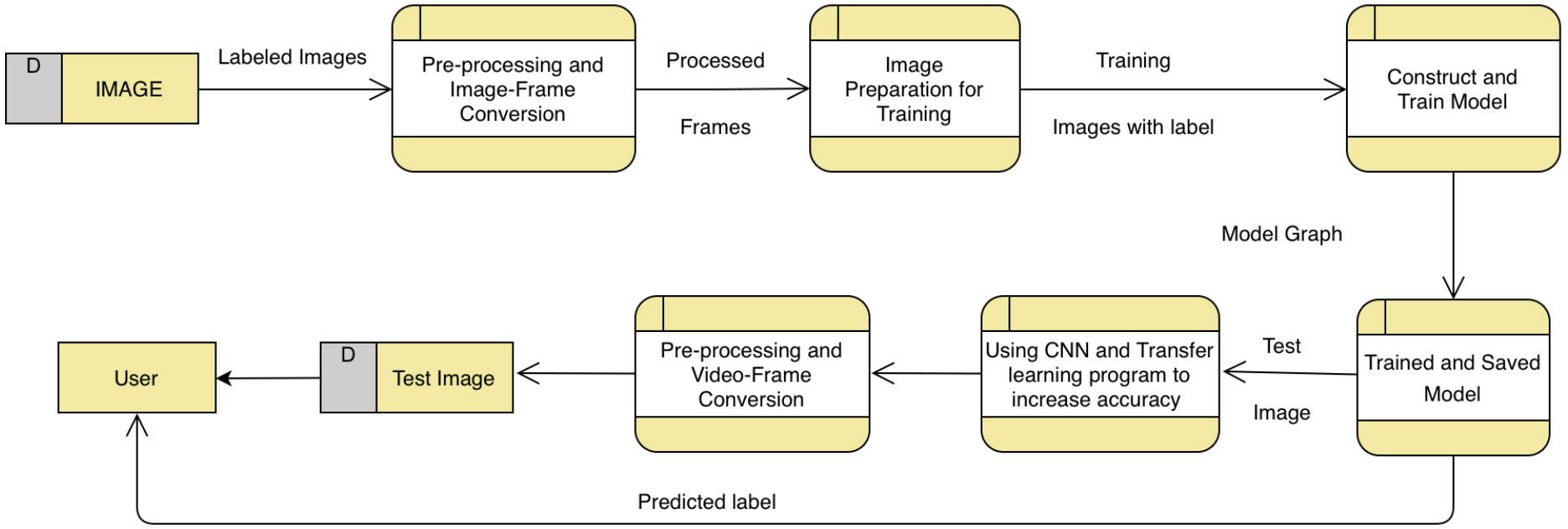


DATA FLOW DIAGRAMS :

1.Level-0



2.Level-1


D
IMAGE
Labeled Images
Pre-processing and Image-Frame Conversion
Processed
Frames
Image Preparation for Training
Training
Images with label
Construct and Train Model
Model Graph
Trained and Saved Model
Test
Image
Using CNN and Transfer learning program to increase accuracy
Pre-processing and Video-Frame Conversion
D
Test Image
User
Predicted label

User Stories

Use the below template to list all the user stories for the product.

User Type	Functional Requirement (Epic)	User Story Number	User Story / Task	Acceptance criteria	Priority	Release
Radiologist	upload a chest X-ray image	USN-1	I want to receive a COVID-19 prediction so that I can quickly and accurately identify potential COVID-19 cases and prioritize their treatment.	I can access my uploaded images	High	Sprint-1
Patient	chest X-ray processed by the system	USN-2	I want to determine if I have COVID-19, enabling early diagnosis and intervention for my health.	I can receive the processed images	Medium	Sprint-1
Hospital Administrator	system to maintain a secure and easily accessible	USN-3	I want the repository of processed X-rays and their corresponding results for auditing, reporting, and quality control purposes.	I can view the repository images for x-rays	Low	Sprint-2
Deep Learning Researcher	labeled chest X-ray datasets	USN-4	I want access to the ability to retrain the deep learning model with new data to continuously improve its accuracy and performance.	I can access the deep learning model	Medium	Sprint-1
Radiology Technician	Pre-process X-ray images, such as resizing and normalization	USN-5	I want the system to ensure that they are in the optimal format for deep learning analysis.	I can access the deep learning analysis	Low	Sprint-1

Healthcare Regulator	comply with data privacy regulations and security	USN-6	I want the system to protect patients' sensitive medical information.	I can secure the patients medical information	High	Sprint-2
Developer	well-documented API	USN-7	I want access system that allows me to integrate the COVID-19 detection system with our hospital's electronic health record (EHR) system for seamless patient management.	I can view detection system and EHR	Medium	Sprint-3
Quality Assurance Specialist	run performance tests and validation	USN-8	I want the ability of the deep learning model to ensure that it meets accuracy and reliability standards.	I can perform testion for the data	High	Sprint-2
Research Institution	collaborate with the system developers	USN-9	I want to investigate and validate the performance and reliability of the deep learning model on a diverse range of chest X-ray datasets.	I can go through the datasets of the image	Low	Sprint-3
Data Scientist	comprehensive set of performance metrics	USN-10	I want access to a metrics and visualizations for evaluating the deep learning model's performance and assisting in the model's continuous improvement.	I can access the metrics data of visualization of deep learning	High	Sprint-1