



Parshvanath Charitable Trust's  
**A. P. SHAH INSTITUTE OF TECHNOLOGY, THANE**  
(All Programs Accredited by NBA)

**Department of Information Technology**



# **Developing AI-Based Comprehensive Framework for Online Assessments**

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# Introduction

- Problems Identified :
  - Inability to conduct in person exams in situations like pandemic.
  - Malpractices done by students by taking advantage of no proctoring methods during exam.
  - Personal monitoring of students required that takes more time and not easily manageable
  - Problem of Impersonation
  - Student management in terms of marks record and question bank management in terms of setting question paper.

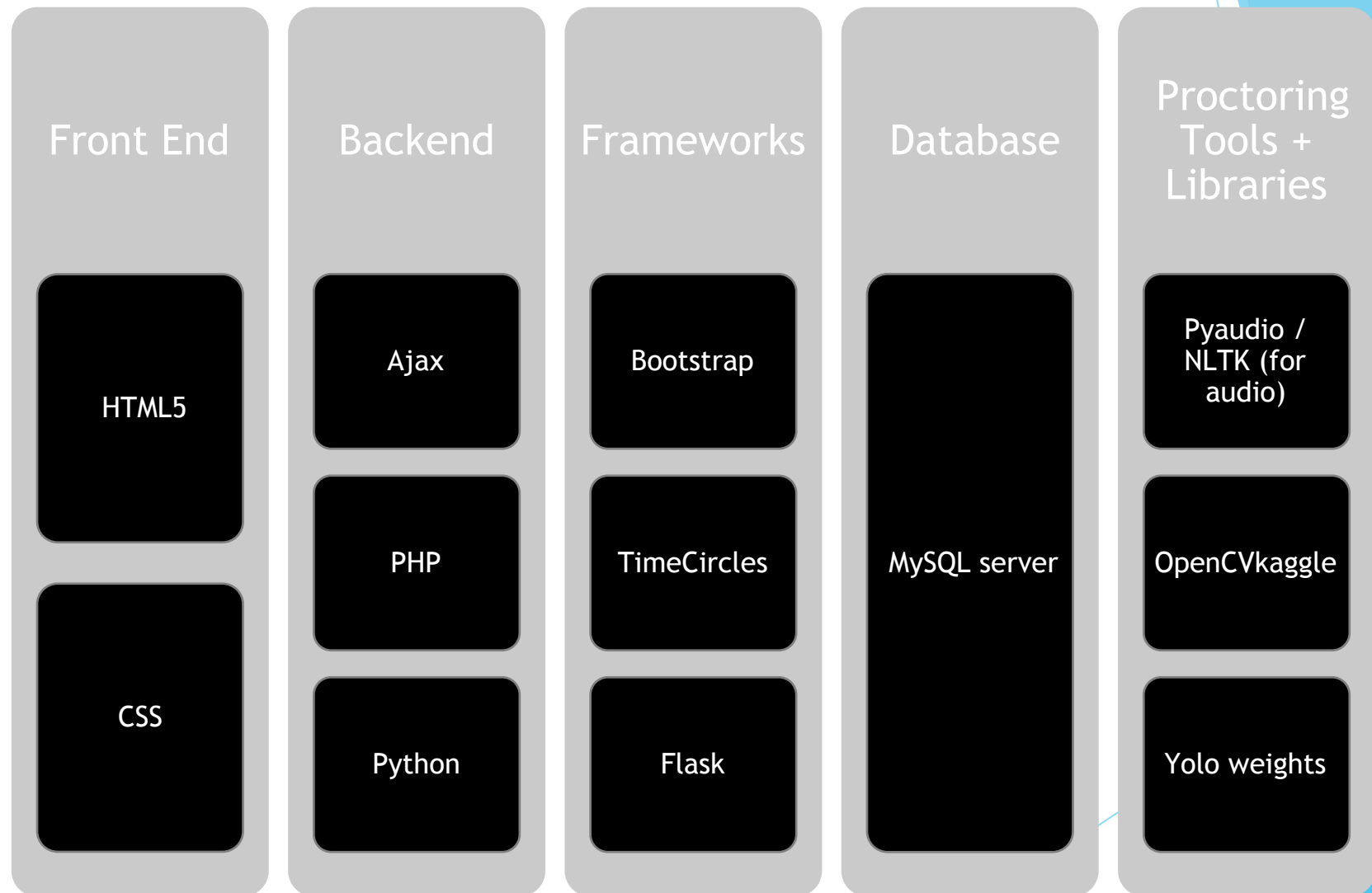
# Introduction

- Solution Proposed :
  - With proctoring enabled the chance of students doing malpractices reduces by a huge amount.
  - The AI and ML based proctoring mechanism will auto detect the malpractices. Hence no need to individually monitor students.
  - For impersonations, live facial validation of actual examinee before the exam.
  - Making use of OTP or secret password based authentication mechanism instead of simple username-password.
  - Enabling webcam and microphone for video & audio detection and tab locking to prevent browsing activities.

# Objectives

1. To set up proctoring mechanism to stop malpractices in exam. To create a system that validates each user well before the exam using facial recognition and validation.
2. To perform object tracking (person tracking) throughout the exam.
3. To allow the examiner to alert warnings or end the exam if students found performing malpractices.
4. To provide a platform for the teachers to set the questions and get detailed reporting.
5. To provide tab locking features to not allow students to navigate away from exam screen.
6. To send attendance and mis activity report details to teacher's.

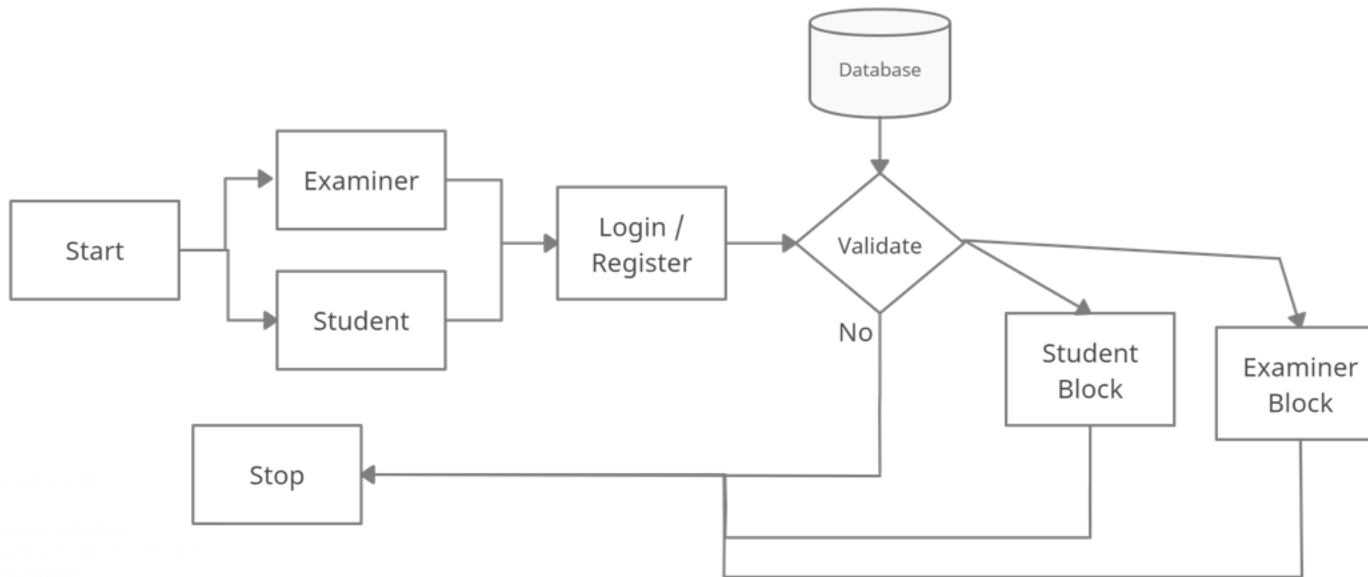
# Technology Stack



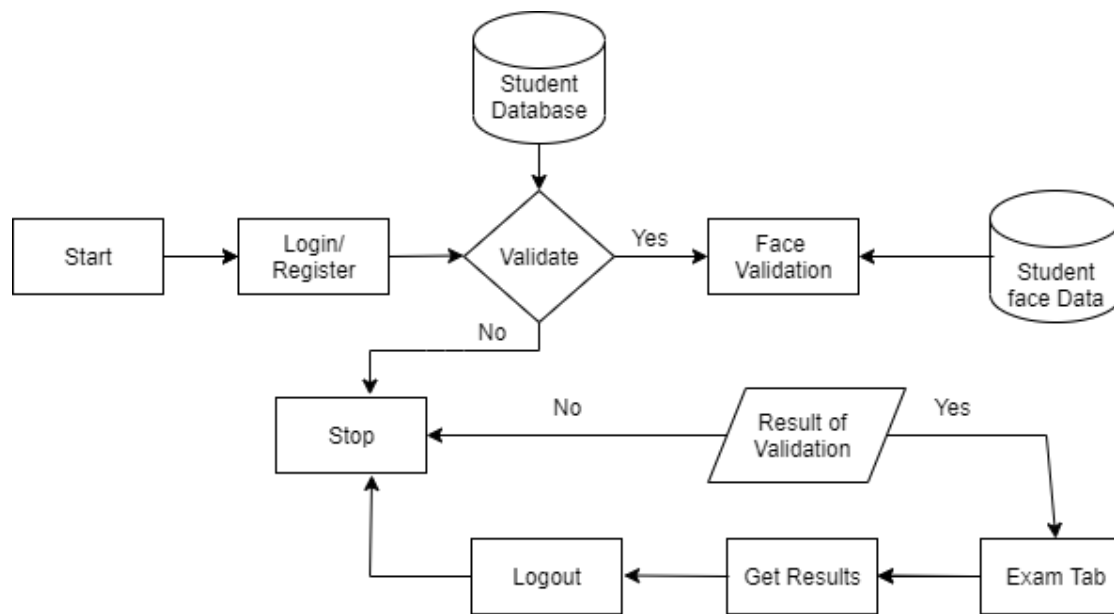
## Review Suggestions

- Ability to save the exam in progress in case of power or internet interruptions.
- Make a downloadable version of application (to be downloaded from website using link)

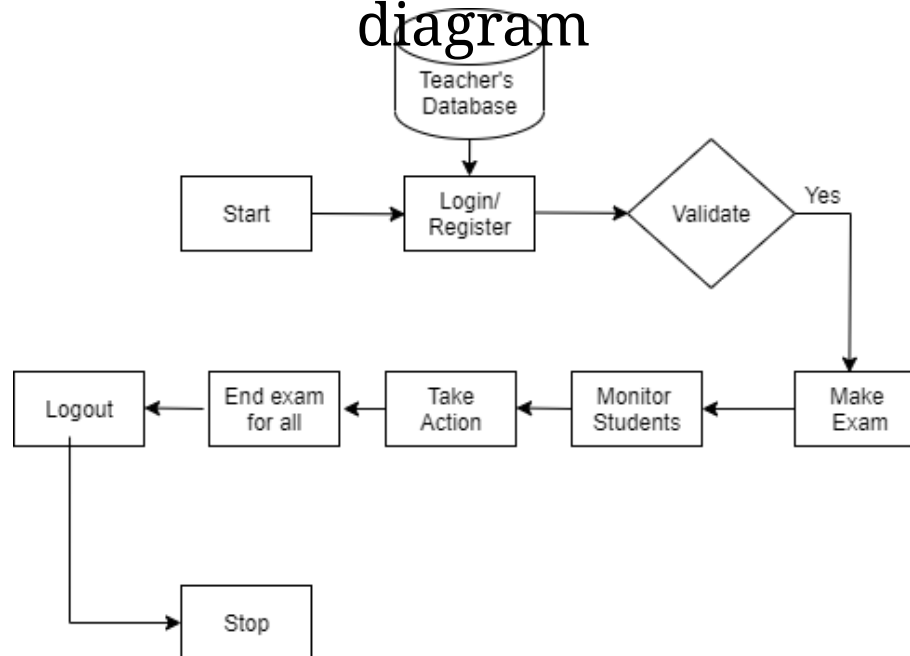
# Proposed System Architecture







Student's End block  
diagram



Teacher's End block  
diagram

# Prototype Design Demonstration

- <https://swapnilsapre.proto.io/player/index.cfm?id=45612231-f54e-4cb9-af6e-216ff5e0fdd5>

# Implementation Status

- Pose setup, face recognition and validation partially done (objective 1)
- Object tracking in progress (objective 2)
- Setting up a dashboard for teachers to set up question paper in progress (objective 4).

## Status of Paper Draft & Targeted Conference

- Paper completed , approved by guide and submitted in following conferences

1. 3rd International Conference on Advances in Distributed Computing and Machine Learning (ICADCML)-2022

More Details : <https://www.icadcml.in/#proc>

2. 3rd International Conference on Deep Learning, Artificial Intelligence and Robotics, (ICDLAIR) 2021

More Details : <https://icdlair2021.iaasse.org/index.html>

3. International Conference On Big Data, Machine Learning and Applications

More Details : <http://bigdml.nits.ac.in/>

## Status of Paper Draft & Targeted Conference

- Paper completed , approved by guide and submitted in following conferences
  4. 2nd International Conference on Ubiquitous Computing and Intelligent Information Systems [ICUIS 2022]
  5. 4th International Conference on Computer Networks, Big Data and IoT ICCBI 2021.

More Details : <http://icocbi.com/2021/submission.html>

Thank You...!!