TEAM NAME: YOUR NEIGHBOUR

USER KYC VERIFICATION PLATFORM

STGI HACKATHON 2024

PROBLEM STATEMENT

Design a comprehensive KYC (Know Your Customer) verification platform that ensures user authenticity through advanced image verification. The platform should capture a live image of the user, verify it against a provided ID document, and check a second image against a database for potential matches.

CAPTURE LIVE IMAGE

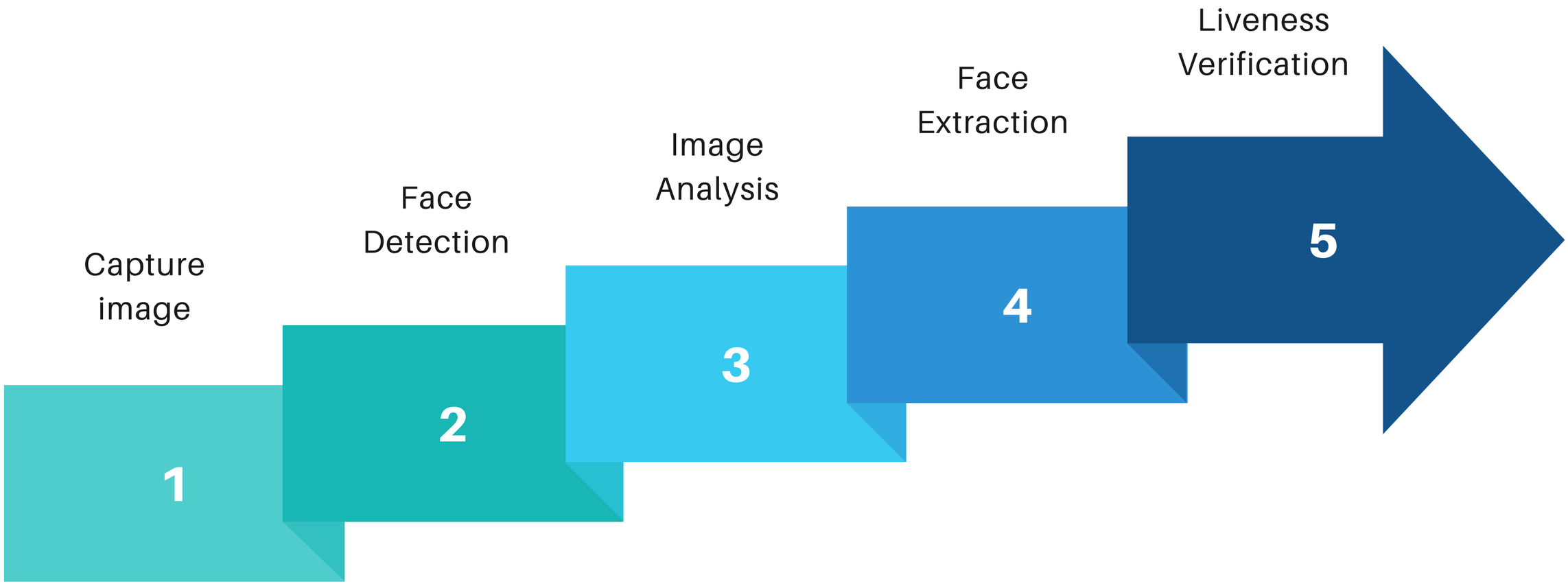
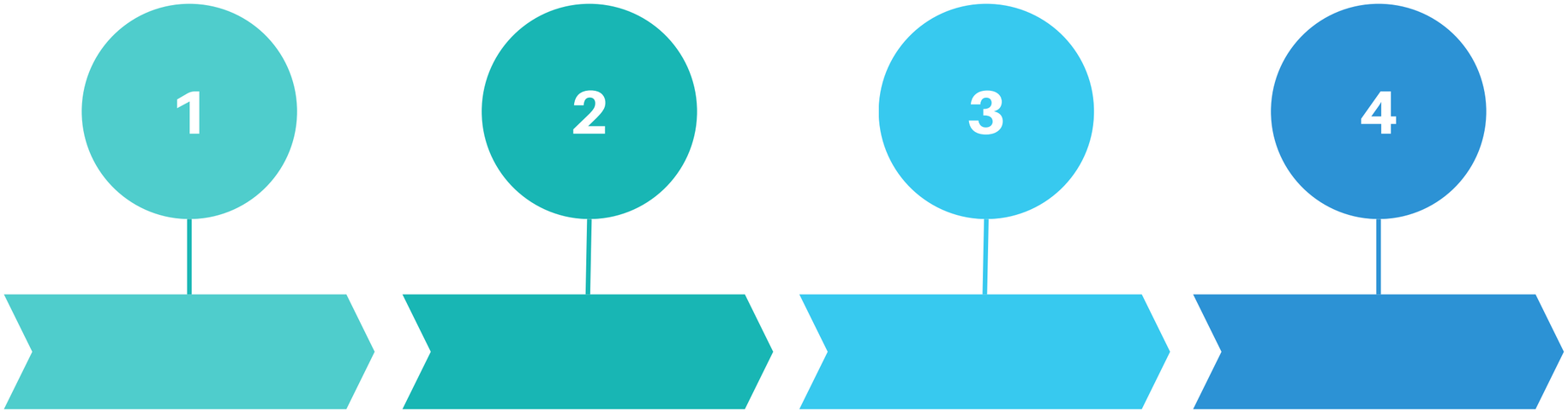


IMAGE ANALYSIS

Boundary Conditions handled by our solution:

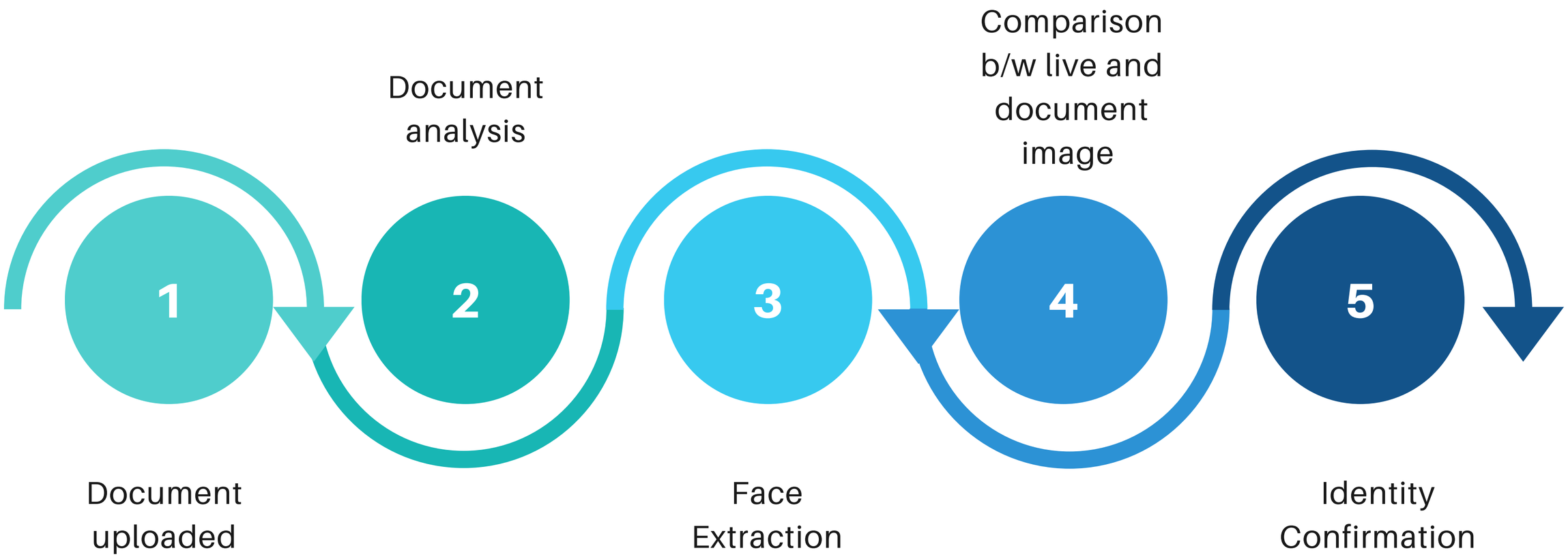
1. **No Face Detected:** The system notifies the user if no face is found in the image and prompts for a new image capture.
2. **Multiple Faces Detected:** If multiple faces are detected, the solution flags the issue and requires the user to provide a single face for analysis.

A POTENTIAL APPROACH TO BUILDING A MODEL FROM SCRATCH



1. Blinking and head movement detection
2. Light Reflection Analysis
3. Face Geometry Analysis
4. Frame Differencing

UPLOAD AND VERIFY DOCUMENTS



DOCUMENT ANALYSIS AND FACE EXTRACTION

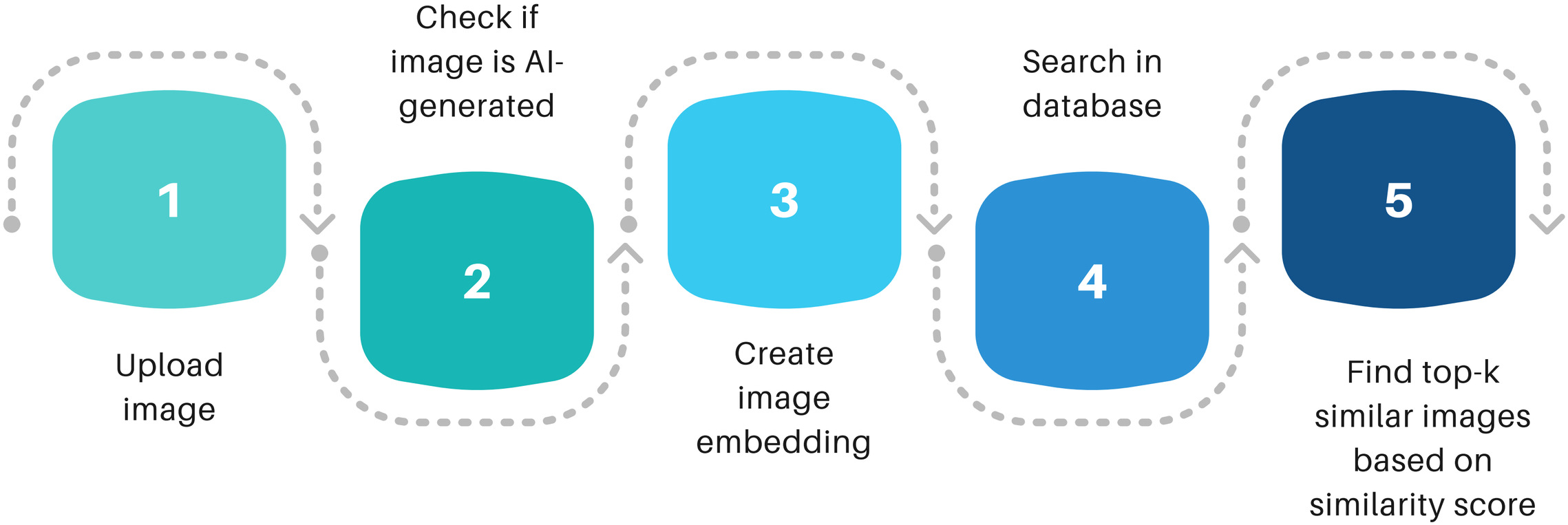
Document Image Check:

We first analyze the document to verify if it contains an image.

Image Detection and Processing:

Once an image is found, we proceed with detecting and extracting the face from the image for further analysis.

IMAGE UPLOADING AND COMPARISON



WHY WE CHOSE PGVECTOR OVER FAISS?

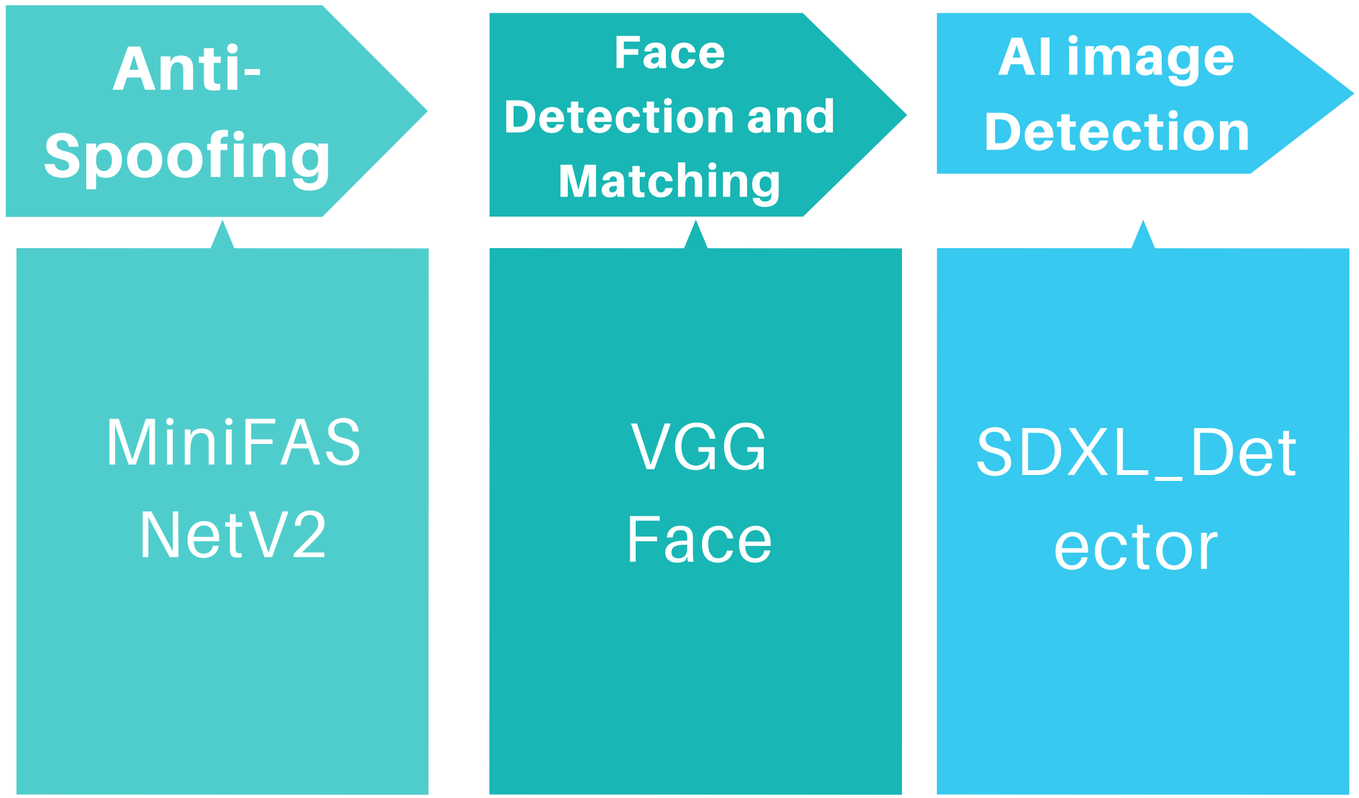
FAISS is fast , similarity search specialized for high dimensional vectors	Pgvector is a vector search with integeration into relational databases
Not Scalable for large databases	Highly Scalable
Specialized only for face detection.	Works for general object detection
Primarily focused on vector similarity search	Vector similarity search + SQL based relational queries

TIME COMPLEXITIES FOR FAISS AND POSTGRESS

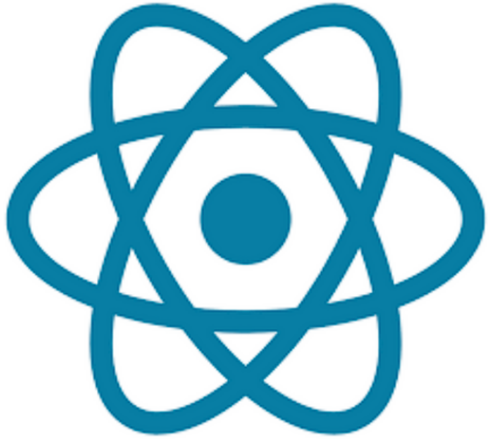
FAISS	Postgress
Time taken for 5000 images- 0.102 s	Time taken for 5000 images- 2 s
Time taken for 20000 images- 0.604 s	Time taken for 20000 images- 2.5 s

There’s an overhead in Postgress due to use of Postgress Neon (online server)

MODELS USED


Anti-Spoofing
Face Detection and Matching
AI image Detection
MiniFAS NetV2
VGG Face
SDXL_Detector

TECHNOLOGIES USED



OUR TEAM

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