**CS385: Computer Vision (2024)- 2 hours**

For the given school dataset:

1. Define a function detect\_faces(image)this function should:
   * Accept one parameter: image path of the image for which face detection is to be performed.
   * Selects the best bounding box which detects the face and returns its encoding.
2. Define a function create\_database(directory) this function should:
   * Call the first function to create and store all the encodings of detected faces and form a database for matching.
3. Define a function search\_face(face\_encodings, query\_encoding), this function should:
   * Accept two parameters: face\_encodings, representing the previously created face encodings, and query\_encoding, representing the encoding of the query face.
   * Implement a method to compare the query face encoding with the pre-loaded encodings to identify similar faces.
   * Return the sorted results of matched faces.
4. Display the top 10 images retrieved for a given query image. For all query images compute the following:

| Feature extractors | Rank 1 accuracy | Rank 10 accuracy |
| --- | --- | --- |
| SIFT, Brief ( roll numbers : 2,5,7,10,12,14, 16,18, 20,22,24,26,28, 30, 32,34,36,38,40,42 ) | Using SIFT features | Using SIFT features |
| Using Brief features | Using Brief features |
| HoG, ORB roll numbers(4,6,8,11,13,15,17,19,21,23,25,27,29,31,33,35,37,39,41,43) | Using HoG features | Using HoG features |
| Using ORB features | Using ORB features |

Demonstrate and Submit: Final code and Report to:

<https://u.pcloud.com/#page=puplink&code=XHrkZKmPp9atiQhBY8VYxKC5K77AepA2X>