TPA 9: Detect markers on face as eye-center, nose-tip, lip(5), chin etc. and then fit an elliptical mask using these markers. Observe degradation under pose change and blur

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Problem Statement: Implement detectors (classifiers or templates) to separately detect markers on Eyes (centre and pair of extremes), Nose (tip), lips (centre and extremes) and chin. Fit an elliptical mask on a face image, using these markers.

Analyse degradation due to :

- Noise, Increasing blur
- Pose change

Input: Input to the system are the following

• Frontal face samples; and templates for the landmarks on the face (to be used for training)

Expected Output: The developed code should be able to do the following

- Cropped facial region with elliptical mask fitted on the markers.
- Plot of No. of points detected vs. degradation parameter.
- Show samples of output in ideal, degraded (low and high) and pose change(± 45 degree pitch, roll, and yaw)

Hint for excellence: Special credit will be given if a modified or adaptive *FR* system is designed to deal with two of these variations.

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