The procedure that I solve the problem:

Step 1: Obtain the face images

Step 2: represent every image as a vector θ_i (45045*1) and combine all the vectors into a big matrix A with dimension (45045 * 165)

Step 3: Compute the average face vector μ (45045*1)

Step 4: subtract the mean face for every face:

$$\theta_i' = \theta_i - \mu$$

Step 5: Compute the covariance

$$C = \frac{1}{M} A \cdot A^T$$

Step 6: compute the eigenvectors. As the matrix $A \cdot A^T$ is so large, so we consider the matrix $A^T \cdot A$. And use the relationship between the eigenvectors of these two matrix to find the best 10 eigenvectors.