**Overview**

Utilized the Olivetti faces dataset, which comprises 400 face images of 40 individuals (10 images per person) taken between April 1992 and April 1994 at AT&T Laboratories Cambridge. The task involved:

1. **Loading the Dataset**:
   * Loaded the Olivetti faces dataset.
   * This dataset contains 400 images of 40 people (10 images per person)
2. **Pre-processing**:
   * Reshaped the images to include a channel dimension (required for CNNs).
   * One-hot encoded the target labels.
3. **Data Splitting**:
   * Split the data into training and testing sets.

**Building the CNN Model**

1. **Model Definition**:
   * Defined a sequential CNN model with convolutional, pooling, flattening, and dense layers.
2. **Compilation**:
   * Compiled the model using the Adam optimizer and categorical cross-entropy loss.

**Training and Evaluation**

1. **Training**:
   * Trained the model on the training set.
   * Validated the model using a validation split from the training set.
2. **Evaluation**:
   * Evaluated the model's performance on the test set.
   * Plotted the training history to visualize accuracy over epochs.

**Results**

* **Accuracy Rate**: 90.00%
* **Overall Precision**: 92.35%
* **Overall Recall**: 90.00%

**Application**

The trained model can correctly predict the class of images when uploaded.