**Aim:**

The aim of the project is to accurately distinguish between images of people with masks and those without masks. This is achieved by training a convolutional neural network (CNN) model. The goal is to develop a system that can reliably identify mask-wearing status from images.

**Methodology:**

The methodology involves training a CNN model on a dataset of images containing people with and without masks.

* The model architecture, as shown in the first image, consists of several convolutional layers (Conv2D), max-pooling layers (MaxPooling2D), a flatten layer (Flatten), and dense layers (Dense), including a dropout layer (Dropout) for regularization. This architecture is designed to learn hierarchical features from the input images.
* The second image shows the training process, indicating the accuracy and loss metrics for both the training and validation sets over several epochs. The model's performance is monitored during training to prevent overfitting and optimize its parameters.
* The model's performance is further evaluated using a confusion matrix, as seen in the third image, which visualizes the classification accuracy for each class (mask and no mask).

**Results:**

The results indicate a high level of accuracy.

* The training process shows increasing accuracy and decreasing loss over epochs, suggesting that the model is learning effectively. The validation accuracy also remains high, indicating good generalization performance.
* The confusion matrix demonstrates that the model correctly classifies most images, as evidenced by the high values on the diagonal. This confirms the model's ability to accurately distinguish between images of people with and without masks.