**TECHVERSE**

**Approach to Solving the Image Classification Problem:**

* Dataset Preparation
* Model Selection
* Model Architecture
* Data Augmentation
* Model Training
* Model Evaluation
* Prediction on New Images

The code is a Python script implemented with a AI, deep learning model using Keras and TensorFlow for image classification using the InceptionV3 architecture and also open cv hence these result I trains a model to classify images as either "harmful" or "harmless" based on the dataset provided.

**Explanation of the code:**

* The script imports necessary libraries such as numpy, matplotlib, absl, keras, and tensorflow.
* It defines the model architecture using InceptionV3 as the base model and adds additional layers for classification.
* The model is compiled with an optimizer, loss function, and metrics.
* Image data augmentation is set up using Image DataGenerator to generate augmented training data.
* The script loads the training data from a directory and prepares it for training.
* A function is defined to plot images from the training data.
* Model checkpoints and early stopping callbacks are defined.
* The model is trained using the fit\_generator function and the defined callbacks.
* After training, the best model is loaded from the saved checkpoint.
* The training history is visualized by plotting the loss and accuracy.
* A test image is loaded, preprocessed, and passed through the model for prediction.
* The predicted class is displayed along with the input image.

**Outcomes :**

* Deep Learning and Neural Networks:
* Image Preprocessing and Augmentation:
* Dataset Management and Annotation
* Performance Evaluation and Metrics
* Real-Time Image Processing and Inference
* User Interface Design and Interaction
* Ethical and Privacy Considerations

Code and outputs:

https://colab.research.google.com/drive/1s7yq1xvzOtjJlGCxIcA9Xz54I8G3vJT5?usp=sharing