Step 1: Download Dataset
Use Kaggle API to download the Malaria Cell Detection dataset

Step 2: Subset Selection
Decide whether to use the entire dataset or a subset (5%)

Step 3: Random Selection
If subset is chosen, randomly select a smaller subset (100 parasitized, 100 uninfected images)

Step 4: Data Preprocessing
Apply data augmentation and normalization to prepare the image data for training

Step 5: Model Architecture
Define a Convolutional Neural Network (CNN) model using Keras

Step 6: Model Compilation
Compile the model with the Adam optimizer, binary crossentropy loss, and accuracy metric

Step 7: Model Training
Train the model with a reduced number of epochs
Save the best model using Model Checkpoint
Use Early Stopping to prevent overfitting

Step 8: Save Model
Save the trained model for future use

Step 9: Model Evaluation
Evaluate the model on the validation dataset

Step 10: Plot Training History
Plot the training and validation loss over epochs

Step 11: Plot Accuracy History
Plot the training and validation accuracy over epochs

Step 12: Random Image Predictions
Make predictions on randomly selected images for visualization

Step 13: End