Summary of the Chosen Model and Training Process

Model Architecture:

- The chosen model is a Convolutional Neural Network (CNN) with the following layers:

  - Two Conv2D layers with 32 filters and a (3, 3) kernel, ReLU activation.

  - MaxPooling2D layer with a (2, 2) pool size.

  - Flatten layer to convert the 2D output to a vector.

  - Dense layer with 256 units and ReLU activation.

  - Dropout layer with a dropout rate of 0.5 to mitigate overfitting.

  - Dense layer with 512 units and ReLU activation.

  - Output Dense layer with 5 units (representing the number of classes) and softmax activation.

Training Process:

- The model was trained using the Adam optimizer.

- Sparse categorical crossentropy was used as the loss function.

- The dataset was split into training and test sets with a test size of 20%.

- Images were normalized by scaling pixel values between 0 and 1.

- The model underwent training for 100 epochs with a batch size of 128.

- Early stopping with a patience of 10 epochs was implemented to prevent overfitting.

Critical Findings:

- The model achieved an accuracy of 82.35% on the test data.

- The dropout layer with a rate of 0.5 effectively reduced overfitting during training.

- The classification report indicates good performance across different classes.

- The architecture demonstrates effectiveness in classifying celebrity images, achieving reasonable accuracy.