Exercise 2: Airline Passenger Satisfaction

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This assignment aims to develop a neural network model to classify airline passengers as dissatisfied, neutral, or satisfied. You will work with a dataset containing various features related to passenger satisfaction.

Assignment Steps

Reading and Preprocessing the Data

- Import the dataset from Kaggle:

  `https://www.kaggle.com/datasets/teejmahal20/airline-passenger-satisfaction`

- The goal is to predict the overall customer satisfaction from the following features: Gender, customer type, age, type of travel, class, flight distance, departure delay and arrival delay.
- Normalize or standardize numerical features.

Designing the Model

- Construct a neural network with appropriate input and output layers.
- Use ReLU activation for hidden layers and softmax for the output layer.

Training the Model

- Split the data into training and test sets.
- Use categorical cross-entropy as the loss function.
- Implement an optimizer and training loop.
- Apply early stopping to prevent overfitting.

Evaluating the Model

- Evaluate your model on the test set, and calculate its accuracy.
- Discuss the performance of your model. Can you figure out where the model tends to make mistakes, and explain why?