**Problem Definition:**

Clearly states the problem of spam classification in emails or text messages.

Specifies the goal of reducing false positives and false negatives while achieving high accuracy.

**Design Thinking Approach:**

**Data Collection:**

* Identifies the need for a labeled dataset of spam and non-spam messages.
* Suggests using a Kaggle dataset as a potential data source.

**Data Preprocessing:**

* Recognizes the importance of cleaning and preprocessing text data.
* Specifies key preprocessing steps like removing special characters, lowercase conversion, and tokenization.

**Feature Extraction:**

* Acknowledges the need to convert text data into numerical features.
* Suggests using TF-IDF as a common technique for feature extraction.

**Model Selection:**

* Highlights the importance of experimenting with different machine learning algorithms, including Naive Bayes, Support Vector Machines, and deep learning using neural networks.

**Evaluation:**

* Specifies the use of standard evaluation metrics (accuracy, precision, recall, and F1-score) to measure model performance.

**Iterative Improvement:**

* Emphasizes the iterative nature of model development.
* Recognizes the need for fine-tuning models and experimenting with hyperparameters to improve accuracy.

Feature engineering to create more informative features from the text data.

Exploring ensemble methods to combine predictions from multiple models.

Handling imbalanced datasets, which is common in spam classification tasks.

Implementing advanced techniques for deep learning, such as recurrent neural networks (RNNs) or transformers, depending on the dataset's size and complexity.

Overall, the design thinking approach provides a solid foundation for developing an effective AI-powered spam classifier.