Part 1: Project Plan (Record of Tasks)

Task/Mileston	Start Date	End Date
Finalize Design Document	10/20/2025	10/30/2025

Part 2: High-Level Design Overview

I am going to use C++ as the core language specifically due to the Qt framework and the flexibility C++ offers. Not only is C++ a multi-paradigm language that allows for many different types of ways of programming such as Object-Oriented, Functional, or Procedural, it also allows for more efficiency due to being a lower level language in comparison to other popular programming languages. I will also be using the Qt framework. This is because Qt is a well documented and popular framework that already has a lot of information on how to use it and has a long history of being used for many uses. It is versatile and allows for easier GUI management than other options. I may also need to integrate AI through python, though I will look more into that in the future.

Part 3: Data Structures and Storage

I plan on keeping my application local, with a database that allows for local storage through files. Something like SQLite would be ideal for such things. It is a relational database which will allow for seamless search when knowing the exact definition of a word while also being able to keep it local and not have to connect to anything. It is also a good database to use due to its integration with Qt already being so good. I will also be using vector databases, but I am not sure which one as I have to look more into which ones can be used locally and without too many issues.

Example table for how words will be stored in the relational database(may be changed later)

Id	Language	Word	Translation	Proficiency Level

Part 4: Key Algorithm Design

Choosing which words need to be reviewed based on previous days
This algorithm will use a combination of the last time the user studied the word, how long they studied the word for, and how well they know it based on previous attempts to review it. The exact algorithm is unknown as of right now

Part 5: User Interface (UI) Design

Kind of simple UI like Anki