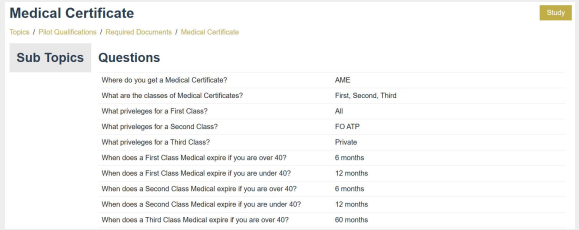
AVIATION INDEX

Authors: Jesse Dalton - jmdalton0@gmail.com

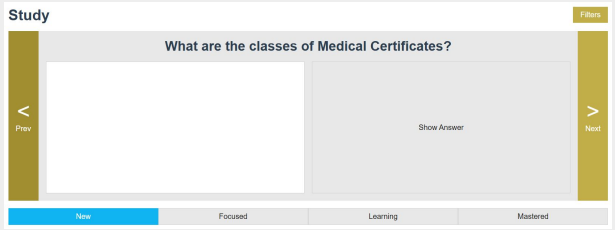
Project Description: Aviation Index is a full-stack, web-based study platform created for pilots who need a fast, structured way to master aviation knowledge. The application organizes aviation-specific information into a hierarchy of topics, allows users to study questions using a flashcard interface, and tracks user progress across sessions.

Project Justification: The role of a pilot is inherently safety-critical, requiring extensive knowledge across multiple aviation domains such as principles of flight, meteorology, navigation, airspace regulations, and emergency procedures. A thorough understanding of these concepts is essential for making informed, efficient decisions in dynamic, high-pressure situations. The sheer volume of information that pilots must learn is overwhelming and scattered across many different training materials. Aviation Index aims to aggregate this slew of information into a structured and comprehensive format, making it easy for pilots to efficiently review and reinforce their knowledge.

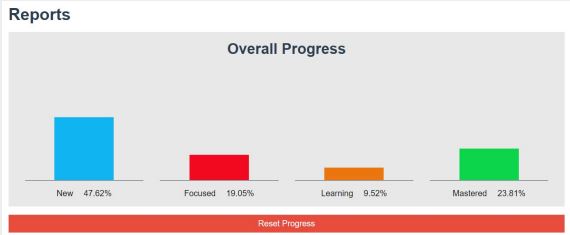
Features



Organized and comprehensive aviation content



Flash Cards to test understanding



Detailed reports to track progress

Technologies Used

- Spring Boot Framework
  - Spring Web with Thymeleaf
  - Spring Security
  - Spring Data JPA
  - Spring Test
- MySQL Database
- Git with GitHub

Design Process

- Identified User Stories
- Defined detailed Functional Requirements
- Designed application architecture and data domain
- Followed Implementation Plan to iteratively develop application
- Followed Testing Plan to test application

Major Functional Requirements

- Users can register and log in securely
- Admins can curate topics and questions
- Users can view study topics and questions
- Users can filter study questions
- Users can track their personal progress