**Proposal**

**Introduction:**  
As for the course selection of DKU, create a database which can be made to facilitate the selection of course combinations that do not conflict with time. At the same time, it can compile course selection schemes that do not conflict with pre requests on the premise of selecting a certain major or a certain course at a certain session that they want to take in future years. Other features will revolve around easier use of DKUHUB and course selection confusions.

**Motivation:**  
For students at DKU, selecting courses is often a significant challenge, as they must complete all required courses despite various constraints such as class schedules and personal factors. The specific challenges include:

1. Prerequisite and anti-requisite courses
2. Courses available only during specific semesters
3. Overall credit requirements
4. Scheduling conflicts and constraints

The goal is to provide students with a streamlined course selection plan based on data from DKUHUB and any additional constraints they specify, giving them a clear outline for their future studies.

**Objectives:**  
This project aims to provide a course selection plan for students by collecting optional requirements and information, which may include:

1. A general plan for course selection:  
   1.1. Target major  
   1.2. Courses of interest
2. Personal information:  
   2.1. Courses previously completed  
   2.2. Availability based on personal schedule  
   2.3. Other preferences, such as preferred professors or locations

Based on this information, the program will generate a detailed schedule that includes all the necessary and desired courses, along with suggestions for future course selection. The project will function as an automated academic advisor.

**Database Statement:**  
Managing and organizing the data mentioned above will require extensive operations. By leveraging database management languages, the project can be implemented efficiently, enabling faster data processing. To address the various constraints, algorithms such as topological sorting and Tarjan's algorithm for strongly connected components (SCC) will be used to resolve logical contradictions. The goal is to implement these algorithms within the database system to optimize performance.