*ABCD University Code Q&A:*

1. **What was the problem you were solving in the projects for this course?**

In the projects for this course (CS300), the problem at hand was to develop a ABCD university courses planning program. The primary problem addressed by this project is to allow users to load course data from a file, manage and store it in a data structure, and provide functionalities in a choice menu to list courses and view a course details, including prerequisites if the course requires them.

1. **How did you approach the problem? Consider why data structures are important to understand.**

I approached the problem by implementing a program that uses data structures (vectors and classes) to store and manage course information. These data structures are crucial because they allow me to efficiently organize, search, and manipulate the course data. Vectors are used to store a list of course objects, and classes (specifically the **Course** class) is used to structure the data. This approach provides a clear and maintainable way to manage the courses information.

1. **How did you overcome any roadblocks you encountered while going through the activities or project?**

In this particular code, some of the roadblocks that were addressed include correctly parsing the input file, ensuring that prerequisites are handled properly, and allowing user interaction for loading data and viewing courses. These roadblocks were overcome by carefully parsing the file and implementing clear logic for handling course prerequisites and user input.

The utilization of vectors greatly facilitated the storage and management of my course data, enabling the effective handling of dynamic lists of course objects.

1. **How has your work on this project expanded your approach to designing software and developing programs?**

Working on this project has greatly expanded my approach to software design by emphasizing the importance of modular code, structured data using classes, and vectors. It encouraged me to use functions for the separation of concerns and to create a user-friendly interface for interacting with the program. Additionally, it highlighted the significance of data validation and file handling.

The use of vectors in this project also played a crucial role. Vectors, as dynamic arrays, provided a flexible way to manage and manipulate collections of course objects. This was particularly important when loading course data from a file, where the number of courses could vary. It taught me about memory management and how to efficiently store and manipulate data in memory using dynamic data structures.

1. **How has your work on this project evolved the way you write programs that are maintainable, readable, and adaptable?**

This project helped me promote good programming practices. By applying code modularity and breaking down tasks into functions, I was able to make the code more readable and maintainable. The use of vectors enhanced data management, and provided a flexible way to handle collections of course objects. Additionally, handling user input and potential errors helped me write robust and user-friendly code.

In summary, this project boosts my software development skills by highlighting the importance of structured data, modularity, user interaction, and good coding practices to create programs that are easy to maintain, read, and adapt.