Reference:

A screenshot of a computer flowchart

Description automatically generated

1. Open and read the file.
   1. Open the file in read mode. If the file cannot be opened, print an error message and exit.
   2. Data structure. Define an empty vector to store course objects. Define an empty set to store course numbers for validation.
   3. Remove whitespaces from the line. Split the line into tokens using a comma as a delimiter. If the number of tokens is less than 2, print an error message for a format error and continue to the next line. Define the course number, and title from the tokens. Then define the prerequisites from the remaining tokens. Add the course number to the set of course numbers. Store the course number, title, and prerequisites in the course object. Append the course object to the vector.
   4. If the prerequisite is not in the vector set of course numbers, print an error message indicating a missing prerequisite and continue.
2. Create course objective and store in vector.
   1. Define a class course with courseNumber, courseTitle, and prerequisites.
   2. As stated in 1-b, set the courseNumber, courseTitle, and prerequisites from the attributes. Append the course object into the vector.
3. Search and print course information
   1. Search for specific course.
      1. If (course.courseNumber == courseNumber) { Return the courseNumber;} else { print error;}
   2. Print course information.
      1. If course is not null, print the course number and title.
         1. If course.prerequisites is not empty, print prerequisites.
         2. Else print ‘No prerequisites.’
      2. Else print an error message with the course not found.