**1. Opening the File and Reading Data:**

function readCoursesFromFile(fileName):

open file fileName for reading

if file is not open:

print "Error: Could not open file"

return

initialize empty vector courses

for each line in the file:

if line is empty:

continue

split line by commas into tokens

courseNumber = tokens[0]

courseName = tokens[1]

prerequisites = tokens[2 to end of line] // This is a list of course numbers

// Validate course line

if courseNumber is empty or courseName is empty:

print "Error: Invalid course line - missing course number or title"

continue

// Validate prerequisites exist in the file

for each prerequisite in prerequisites:

if not courseExists(courses, prerequisite):

print "Error: Prerequisite course " + prerequisite + " not found"

continue

// Create a Course object and add it to the vector

newCourse = createCourse(courseNumber, courseName, prerequisites)

add newCourse to courses

return courses

function courseExists(courses, courseNumber):

for each course in courses:

if course.courseNumber == courseNumber:

return true

return false

**2. Defining Objects and Storing Them in a Vector:**

struct Course:

string courseNumber

string courseName

list<string> prerequisites

function createCourse(courseNumber, courseName, prerequisites):

course = new Course

course.courseNumber = courseNumber

course.courseName = courseName

course.prerequisites = prerequisites

return course

**3. Searching for a Course in the Data Structure and printing:**

function searchCourse(courses, courseNumber):

for each course in courses:

if course.courseNumber == courseNumber:

print "Course Number: " + course.courseNumber

print "Course Name: " + course.courseName

if course.prerequisites is empty:

print "No prerequisites."

else:

print "Prerequisites: " + join(course.prerequisites, ", ")

return

print "Course not found"