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Project One Milestone One: pseudocode

Pseudocode to define how the program opens the file, reads the data from the file, parses each line, and checks for file format errors:

| FUNCTION loadCoursesFromFile(fileName)  OPEN fileName FOR READING AS file  IF file IS NOT opened THEN  OUTPUT "Error: Unable to open file."  RETURN empty vector  END IF  DECLARE courses AS empty vector  DECLARE courseNumbers AS empty set  WHILE NOT end of file DO  READ line FROM file  SET tokens TO SPLIT(line, ',')  IF SIZE OF tokens < 2 THEN  OUTPUT "Error: Insufficient parameters in line: ", line  CONTINUE TO NEXT ITERATION  END IF  SET courseNumber TO tokens[0]  SET courseTitle TO tokens[1]  ADD courseNumber TO courseNumbers  DECLARE prerequisites AS empty vector  IF SIZE OF tokens > 2 THEN  FOR EACH token IN tokens FROM INDEX 2 TO END DO  ADD token TO prerequisites  END FOR  END IF  DECLARE newCourse AS Course object  SET newCourse.number TO courseNumber  SET newCourse.title TO courseTitle  SET newCourse.prerequisites TO prerequisites  ADD newCourse TO courses  END WHILE  // Validate prerequisites exist  FOR EACH course IN courses DO  FOR EACH prerequisite IN course.prerequisites DO  IF prerequisite NOT IN courseNumbers THEN  OUTPUT "Error: Invalid prerequisite ", prerequisite, " for course ", course.number  REMOVE course FROM courses OR MARK course AS invalid  END IF  END FOR  END FOR  CLOSE file  RETURN courses  END FUNCTION |
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Pseudocode to show how to create course objects and store them in the appropriate data structure:

| STRUCT Course  DECLARE number AS STRING (String because course number contains letters)  DECLARE title AS STRING  DECLARE prerequisites AS VECTOR OF STRING  END STRUCT  FUNCTION parseCourseLine(line)  SET tokens TO SPLIT(line, ',')  SET courseNumber TO tokens[0]  SET courseTitle TO tokens[1]  DECLARE prerequisites AS empty vector  IF SIZE OF tokens > 2 THEN  FOR EACH token IN tokens FROM INDEX 2 TO END DO  ADD token TO prerequisites  END FOR  END IF  DECLARE newCourse AS Course object  SET newCourse.number TO courseNumber  SET newCourse.title TO courseTitle  SET newCourse.prerequisites TO prerequisites  RETURN newCourse  END FUNCTION  FUNCTION createCoursesVector(fileName)  OPEN fileName FOR READING AS file  DECLARE courses AS empty vector  WHILE NOT end of file DO  READ line FROM file  IF line IS valid THEN  SET course TO parseCourseLine(line)  ADD course TO courses  END IF  END WHILE  CLOSE file  RETURN courses  END FUNCTION |
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Pseudocode that will search the data structure for a specific course and print out course information and prerequisites:

| FUNCTION searchCourse(courses, courseNumber)  SET found TO false  FOR EACH course IN courses DO  IF course.number EQUALS courseNumber THEN  SET found TO true  OUTPUT "Course Number: ", course.number  OUTPUT "Course Title: ", course.title  IF SIZE OF course.prerequisites EQUALS 0 THEN  OUTPUT "Prerequisites: None"  ELSE  OUTPUT "Prerequisites:"  FOR EACH prerequisite IN course.prerequisites DO  OUTPUT " - ", prerequisite  END FOR  END IF  BREAK FROM LOOP  END IF  END FOR  IF NOT found THEN  OUTPUT "Course ", courseNumber, " not found."  END IF  END FUNCTION |
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