**Project One Milestone Three**

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**Pseudocode**

DEFINE Course with fields: courseNumber (string), title (string), prerequisites (list of string)

FUNCTION LoadCourses(fileName):

CREATE empty BinarySearchTree bst

CREATE empty Map seenCourses

CREATE empty List formatErrors

CREATE empty Map pendingPrereqs

OPEN file named fileName FOR reading

IF file failed to open:

PRINT "Error: could not open file"

RETURN (bst, ["File open error"])

SET lineNumber to 0

WHILE there is another line in file:

INCREMENT lineNumber

READ next line as raw

TRIM whitespace from raw

IF raw is empty:

CONTINUE

SPLIT raw by comma into tokens

TRIM whitespace on each token

IF count(tokens) < 2:

APPEND "Line " + lineNumber + ": needs at least courseNumber and title" TO formatErrors

CONTINUE

SET number to tokens[0]

SET title to tokens[1]

IF number is empty OR title is empty:

APPEND "Line " + lineNumber + ": empty course number or title" TO formatErrors

CONTINUE

CREATE Course c

SET c.courseNumber to number

SET c.title to title

SET c.prerequisites to empty list

IF count(tokens) > 2:

FOR i from 2 to count(tokens)-1:

SET prereqNum to tokens[i]

IF prereqNum is empty:

CONTINUE

APPEND prereqNum TO c.prerequisites

IF number exists in seenCourses:

APPEND "Line " + lineNumber + ": duplicate course " + number TO formatErrors

CONTINUE

INSERT (number -> c) INTO seenCourses

INSERT c INTO bst keyed by c.courseNumber

CLOSE file

FOR EACH (num, course) IN seenCourses:

FOR EACH prereqNum IN course.prerequisites:

IF prereqNum NOT IN seenCourses:

APPEND "Course " + num + ": prerequisite " + prereqNum + " not found in file" TO formatErrors

IF formatErrors is not empty:

PRINT "Format validation found issues:"

FOR EACH msg IN formatErrors:

PRINT " - " + msg

RETURN (bst, formatErrors)