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CS 300 Project One Milestone One

Date: 05/23/2025

**Project One Milestone One: Psedocode For Vector Data Structure**

1. **Psedocode for Opening, Reading, and Validating Course File:**

FUNCTION LoadCourses(fileName, vector<course> courses)

OPEN file fileName FOR READING

IF file CANNOT BE OPENED THEN

PRINT "ERROR: Unable to open file"

RETURN

ENDIF

CREATE set validCourseNumbers

WHILE NOT end of file

READ line FROM file

SPLIT line INTO tokens BY ","

IF tokens.length < 2 THEN

PRINT "ERROR: Line must have at least course number and name"

CLOSE file

RETURN

ENDIF

SET courseNumber TO tokens[0]

ADD courseNumber TO validCourseNumbers

ENDWHILE

RESET file TO BEGINNING

WHILE NOT end of file

READ line FROM file

SPLIT line INTO tokens BY ","

CREATE course

SET course.courseNumber TO tokens[0]

SET course.name TO tokens[1]

SET course.prerequisites TO empty list

FOR i FROM 2 TO tokens.length - 1

IF tokens[i] NOT IN validCourseNumbers THEN

PRINT "ERROR: Prerequisite " + tokens[i] + " does not exist as a course"

CLOSE file

RETURN

ENDIF

APPEND tokens[i] TO course.prerequisites

ENDFOR

APPEND course TO courses

ENDWHILE

CLOSE file

RETURN true

END FUNCTION

1. **Pseudocode for Creating and Storing Course Objects:**

STRUCTURE Course

STRING courseNumber

STRING courseName

LIST OF STRING prerequisites

END STRUCTURE

FUNCTION storeCourses(filename, vector<course> courses)

OPEN file filename FOR READING

IF file CANNOT BE OPENED THEN

PRINT "ERROR: Unable to open file"

RETURN

ENDIF

CLEAR courses

WHILE NOT end of file

READ line FROM file

SPLIT line INTO tokens BY “,”

CREATE course

SET course.courseNumber TO tokens [0]

SET course.name TO tokens [1]

SET course.prerequisites TO empty list

FOR i FROM 2 TO tokens.length – 1

APPEND tokens[i] TO course.prerequisties

ENDFOR

APPEND course TO courses

ENDWHILE

CLOSE file

RETURN true

END FUNCTION

1. **Pseudocode for Searching and Printing Course Information:**

FUNCTION searchCourse(Vector<Course> courses, String courseNumber)

FOR each course IN courses

IF course.courseNumber EQUALS courseNumber THEN

PRINT course.courseNumber + “,” + course.courseName

IF course.prerequisites IS NOT empty THEN

SET prerequisiteString TO “Prerequisites: ”

SET isFirst TO true

FOR each prerequisite IN course.prerequisites

IF isFirst THEN

SET prerequisiteString TO prerequisiteString + prerequisite

SET isFirst TO false

ELSE

SET prerequisiteString TO prerequisiteString + “, ” + prerequisite

ENDIF

ENDFOR

PRINT prerequisiteString

ELSE

PRINT “Prerequisites: None”

ENDIF

RETURN

ENDIF

ENDFOR

PRINT ERROR IF COURSE NOT FOUND

END FUNCTION