// Define a Course Object

Class Course

String courseNum

String courseName

Vector prereqList

// Define Constructor

Course(number, name, prereqs)

// Define File Operations

FUNCTION lineParse(path)

CREATE vector named tempList

OPEN file found in path

LOOP through file

CREATE Course object named newCourse

READ line and SPLIT into tokens by comma

IF tokens contain at least 2 elements

SET newCourse.courseNum = first token

SET newCourse.courseName = second token

SET newCourse.prereqList = remaining tokens (if any)

ELSE

PRINT "Error. Invalid Format"

ADD newCourse to tempList

CLOSE file

RETURN tempList

FUNCTION listValidate(courseList)

CREATE Bool named valid = True

FOR course in courseList

IF course.prereqList ISNOT NULL

FOR prereq in course.prereqList

SET found = False

FOR courseCheck in courseList

IF courseCheck.courseNum == prereq

found = True

BREAK

IF found == False

PRINT "Error: Prerequisite", prereq, "not found."

valid = False

RETURN valid

// Search for specific course

FUNCTION searchCourse(input, courseList)

FOR course in courseList

IF course.courseNum == input

RETURN course

RETURN NULL // If not found

// Print Course

FUNCTION printCourse(courseList)

CREATE string input

PRINT "Enter course number: "

GET user input and store in input

SET course = searchCourse(input, courseList)

IF course IS NULL

PRINT "Error: Course not found."

RETURN

PRINT "Course Number:", course.courseNum

PRINT "Course Name:", course.courseName

IF course.prereqList.size() > 0

PRINT "Prerequisites:", JOIN(course.prereqList, ", ")

ELSE

PRINT "Prerequisites: None"

// Main Menu

FUNCTION Main()

CREATE vector named courseList

WHILE TRUE

PRINT "1. Load and Validate File"

PRINT "2. Search and Print Course"

PRINT "3. Exit"

PRINT "Enter choice:"

GET User input and store in choice

SWITCH choice

CASE 1:

PRINT "Enter file path: "

GET user input and store in path

SET courseList = lineParse(path)

IF listValidate(courseList) == False

PRINT "Error: Invalid file format."

CASE 2:

printCourse(courseList)

CASE 3:

PRINT "Exiting program."

RETURN

DEFAULT:

PRINT "Invalid option. Try again."