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# CS-300-H2990 DSA: Analysis and Design 23EW2

# 5-3 Milestone: Tree Data Structure Pseudocode

# Southern New Hampshire University

**December 02, 2023**

**ReadAndValidateFile(filePath):**

**OpenFile(filePath)**

**For each line in the file:**

**tokens = (line)**

**If Length(tokens) < 2:**

**PrintError("Error: Insufficient parameters on line ", lineNumber)**

**CloseFile()**

**Return Error**

**}**

**For i = 1 to Length(tokens) - 1:**

**prerequisite = tokens[i]**

**If Not CourseExists(prerequisite):**

**PrintError("Error: Prerequisite ", prerequisite, " on line ", lineNumber, " does not exist.")**

**CloseFile()**

**Return Error**

**}**

**}**

**}**

**CloseFile()**

**Return Success**

**FileOpenError:**

**PrintError("Error: Unable to open file ", filePath)**

**Return Error**

**LoadCoursesFromFile(filePath, tree):**

**OpenFile(filePath)**

**For each line in the file:**

**tokens = (line)**

**courseNumber = tokens[0]**

**courseTitle = tokens[1]**

**// Create a new course object**

**newCourse = CreateCourseObject(courseNumber, courseTitle)**

**// Add prerequisites to the course object**

**For i = 2 to Length(tokens) - 1:**

**prerequisite = tokens[i]**

**newCourse.AddPrerequisite(prerequisite)**

**}**

**// Insert the course object into the tree**

**tree.Insert(newCourse)**

**}**

**CloseFile()**

**FileOpenError:**

**PrintError("Error: Unable to open file ", filePath)**

**PrintCourseInformation(tree):**

**If tree is not empty:**

**TraverseTreeInOrder(tree.root)**

**Else:**

**Print("No courses to display.")**

**Procedure TraverseTreeInOrder(node):**

**If node is not null:**

**TraverseTreeInOrder(node.left)**

**Print("Course Number: ", node.courseNumber)**

**Print("Course Title: ", node.courseTitle)**

**PrintPrerequisites(node.prerequisites)**

**TraverseTreeInOrder(node.right)**

**PrintPrerequisites(prerequisites):**

**If Length(prerequisites) > 0:**

**Print("Prerequisites: ")**

**For each prerequisite in prerequisites:**

**Print(prerequisite)**

**Else:**

**Print("No prerequisites.")**