# CS 300 4-3 Project One Milestone Two: Hash Table Data Structure

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**Pseudocode**

// Function to open and read the file

function LoadCourseData(string filePath)

file = OpenFile(filePath)

if file cannot be opened

Print "Error: Unable to open file"

return

list<string> courseList

while (line = ReadLine(file)) is not end of file

list<string> courseData = Split(line, ',')

if courseData.size() < 2

Print "Error: Invalid line format"

continue

string courseNumber = courseData[0]

string courseTitle = courseData[1]

list<string> prerequisites

if courseData.size() > 2

prerequisites = courseData[2:]

for prerequisite in prerequisites

if prerequisite is not in courseList

Print "Error: Prerequisite course " + prerequisite + " does not exist"

continue

courseList.append(courseNumber)

CloseFile(file)

// Define a structure to hold course information

structure Course

string courseNumber

string courseTitle

list<string> prerequisites

// Constructor to initialize a course

constructor Course(string number, string title, list<string> prereqs)

courseNumber = number

courseTitle = title

prerequisites = prereqs

// Initialize a hash table to store courses

hash\_table<Course> courseTable

// Function to insert course into hash table

function InsertCourse(Course course)

unsigned int key = Hash(course.courseNumber)

if courseTable[key] is empty

courseTable[key] = course

else

node\* current = courseTable[key]

while current.next is not null

current = current.next

current.next = new node(course)

// Function to print all courses

function PrintAllCourses()

for entry in courseTable

if entry is not empty

node\* current = entry

while current is not null

Print "Course Number: " + current.course.courseNumber

Print "Course Title: " + current.course.courseTitle

if current.course.prerequisites is not empty

Print "Prerequisites: " + Join(current.course.prerequisites, ', ')

else

Print "Prerequisites: None"

current = current.next