4-3 Project One Milestone

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CS-300: Analysis and Design

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September 26th,2024

Pseudocode

// Pseudocode to Load Data into Hash Table

// Open the course data file

function openFile(filename)

// Try to open the file

file = open(filename)

if file is not found

print "Error: File not found."

return error

// Read and parse data from the file

function loadData(filename)

openFile(filename)

for each line in file

// Split the line by commas to extract course information

courseData = split(line, ",")

// Validate that there are at least two parameters (courseNumber and name)

if length(courseData) < 2

print "Error: Invalid course format"

continue

courseNumber = courseData[0]

courseName = courseData[1]

prerequisites = []

// Loop through the remaining elements (prerequisites)

for i = 2 to length(courseData)

prerequisite = courseData[i]

// Check if prerequisite exists in the course data

if not courseExists(prerequisite)

print "Error: Prerequisite not found for course", courseNumber

else

append prerequisites, prerequisite

// Create a new course object

course = createCourse(courseNumber, courseName, prerequisites)

// Store the course object in the hash table

hashTableInsert(coursesHashTable, courseNumber, course)

// Close the file after reading

close file

// Function to create a course object

function createCourse(courseNumber, courseName, prerequisites)

course.number = courseNumber

course.name = courseName

course.prerequisites = prerequisites

return course

// Check if a course exists (to validate prerequisites)

function courseExists(courseNumber)

if courseNumber exists in coursesHashTable

return true

else

return false

// Store course in hash table

function hashTableInsert(hashTable, courseNumber, course)

hashTable[courseNumber] = course

// Print course information and prerequisites

function printCourse(courseNumber)

course = hashTableSearch(coursesHashTable, courseNumber)

if course is found

print "Course Number: " + course.number

print "Course Name: " + course.name

// Print prerequisites

if length(course.prerequisites) > 0

print "Prerequisites:"

for each prerequisite in course.prerequisites

print " - " + prerequisite

else

print "No prerequisites"

else

print "Course not found"

// Hash table search function

function hashTableSearch(hashTable, courseNumber)

return hashTable[courseNumber] if exists, otherwise return null

// Main function to run the program

function main()

filename = "course\_data.txt"

loadData(filename)

// Example search for a specific course

courseNumber = input "Enter course number to search:"

printCourse(courseNumber)