**Danny Forte**

**CS-300 Analysis and Design**

**4/3/2025**

**Project One Milestone 2**

Open file and read contents

function openFile(fileName):

try:

file = open(fileName, "r")

except FileOpenError:

print("Error: Cannot open file.")

return None

return file

Validate file format and parse data

function parseFile(file):

hashTable = createHashTable()

allCourses = []

while line = file.readLine():

tokens = line.split(",")

if length(tokens) < 2:

print "Invalid format"

continue

courseNumber = tokens[0]

courseTitle = tokens[1]

prerequisites = tokens[2:]

for prereq in prerequisites:

if not hashTable.contains(prereq):

print("Error: Prerequisite not found.")

course = createCourse(courseNumber, courseTitle, prerequisites)

hashTable.put(courseNumber, course)

allCourses.append(courseNumber)

return hashTable

Create a course object

function createCourse(courseNumber, courseTitle, prerequisites):

course = new Course {

number = courseNumber

title = courseTitle

prereqs = prerequisites

}

return course

Generate Hash key

generateHashKey(courseNumber):

return hash(courseNumber)

Print course information

function printCourses(hashTable):

for courseNumber in hashTable.keys():

course = hashTable.get(courseNumber)

print("Course Number: " + course.number)

print("Course Title: " + course.title)

print("Prerequisites: " + join(course.prereqs, ", ") if course.prereqs else "None")

Main program

function main():

fileName = "courses.txt"

file = openFile(fileName)

if file == None:

return

hashTable = parseFile(file)

file.close()

printCourses(hashTable)

Execute program

main()