Projects by Dustin Stabinski

Simulation of Disney's Fastpass+ Reservation System
Language: C++
Nov 2019 – Present

Presents a version of the Fastpass+ Reservation System at Walt Disney World Resort by allowing users to reserve fastpasses, modify existing fastpasses, and view wait times in a simulated park environment.

Pipeline Simulator
Language: C
Oct 2019 – Nov 2019

This program simulates instruction pipelining with the University of Michigan's assembly language "LC2K". This cycle-accurate pipeline simulator is complete with data forwarding and branch prediction. https://en.wikipedia.org/wiki/Instruction_pipelining

Assembly Language Linker (with updated Assembler)
Language: C
Oct 2019

The assembler program takes in an assembly file (written in the University of Michigan's assembly language "LC2K") as input and creates a corresponding object file. The linker program takes in multiple object files as input and creates a single unified executable.

Assembly Language Assembler and Simulator
Language: C
Sep 2019

The assembly program takes in assembly code (written in the University of Michigan's assembly language "LC2K") and outputs the corresponding machine code. The simulator program, then, executes the outputted machine code.

Implementation of the Traveling Salesperson Problem
Language: C++
Apr 2019

This C++ program takes in coordinates of "donut shops" as input and performs the following actions:
1) Creates an optimal minimum spanning tree connecting the points

2) Uses a Branch and Bound Algorithm to achieve a nearly optimal solution of the traveling salesperson problem

Log Manager
Language: C++
Mar 2019

This C++ program begins by reading an input file containing log entries, and then enters an interactive mode where the user can perform timestamp, category, and keyword searches for the purpose of constructing an "excerpt list" of the log file. The log manager also allows the user to manage and display this "excerpt list" to identify the important/relevant entries of their log file.

Variation of a Stock Market Simulation
Language: C++
Feb 2019

This C++ program is a Star Wars-themed stock market simulation. Sith are sellers (they want to sell high), Jedi are buyers (they want to buy low), planets are commodities, and generals are stock market traders. The “movie watcher mode” is a particular type of algorithm called a “streaming algorithm”, where we can only look at each input once, and cannot make a copy of all the input. This is similar to a stock market simulation also, where if we could go back in time, we could determine the optimal point at which to buy and then later sell the same commodity (planet) to achieve the highest profit margin.

Puzzle Solver
Language: C++
Jan 2019

The Puzzle Solver is a C++ program that will take as input a sample map and some command-line flags indicating how your program will behave. It processes the map, checks that the input is valid, and then outputs information about the puzzle’s solvability and a description of the puzzle’s solution (if it has any). The game is played on a grid, filled with open space and walls that block player movement.

The goal of the game is for the player to get from their starting location (marked with @) to the target (marked with ?), by pressing buttons (a , b , ..., z and ^) that open and close doors (A , B , ..., Z) that stand in their way. The player’s available moves are to travel one tile north, east, south, or west (up, right, down, or left) as long as there’s no wall (#) or closed door (A, B,..., Z when closed) in their way. The player cannot move diagonally or step off of the grid (you can imagine the specified map is surrounded by impassable walls).

MemGame
Language: Python
Jun 2018

This is a memory training game for campers at Island Lake Camp using Python.

Navigator
Language: Python
Jun 2018

This is a Python application created for the Island Lake Camp Video Department which, when placed in a certain directory, searched for any desired files (based on the user's preferences) within that directory and any subdirectories, and copied them to a separate directory for easy access.

Superlative
Language: Python
Nov 2017 – Dec 2017

Using the Facebook API, I created a Python-based program that allows users to view information about which users are the most active on their feed and their most popular posts.