Zailin Yuan

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EDUCATION

M.S., Computer Science Jan.2019
University of Texas at Dallas, Dallas, TX
M.S., Chemical Engineering Dec.2018
University of Southern California (USC), Los Angeles, CA

SKILLS & COURSES

- Languages: Java, C/C++
- Tools: Eclipse IDE, Code Blocks, MATLAB, R
- Courses: Programming Design, Algorithm and Data Structures, Computer Architecture, Discrete Math

PROJECTS & EXPERIENCE

Coin Toss Simulator Aug.2017
A graphics-based program simulating tossing two coins each a time. Using a bar graph to show the results.

- Compiled 5 classes: *CoinTossSimulator.java*, *Bar.java, CoinSimComponent.java, CoinTossSimulatorTester.java, CoinSimViewer.java.*
- Implemented Console and User interface within CoinSimViewer.java. Designed a random engine to generate random tossing results. Related simulating results with Bar chart within CoinSimComponent.java. Used Bar.java to specify the size, color and positions of the bar chart.
- Incremental development. Designed CoinTossSimulatorTestor.java to test CoinTossSimulator.java.

Bulgarian Solitaire Sep.2017
A simulator of Bulgarian Game

- Designed two type of modes from command line. One allows user to input card piles, the other let computer generates random card piles.
- Compiled 3 classes: *BulgarianSolitaireSimulator.java*, *SolitaireBoard.java.* Compiled functions in SolitaireBoard.java to load data, play rounds and check the end of the game. Compiled BulgarianSolitaireSimulator.java to give user interface and modes choices.
- Use assertion to keep this program robust.

Walking Labyrinth Game Jan.2018
Computer find the path of any maze

- Implemented a machine player that plays the maze game against human player using Java.
- Compiled 5 classes: Maze.java, MazeComponent.java, MazeCoord.java, MazeFrame.java, MazeViewer.java
- Found path from the start location to the exit with DFS and backtracking algorithm.
- Developed an interface connecting player and machine with JFrame and JComponent.

Anagram Dictionary May.2018
Scrabble game helper

- Designed a game helper by loading the dictionary which the game needs and comparing with the current racks. Then give all possible answers.
- Compiled 5 classes: *AnagramDictionary.java, Mapper.java, Rack.java, WordFinder.java, ScoreTable.java.*
- Designed the user interface letting user to choose which game dictionary to load. Compiled AnagramDictionary,java to loading a dictionary from a .txt file. Implemented Mapper.class to generate a HashMap to sort the dictionary and find the word. Compiled ScoreTable.java to count the score the user get.

Student Score Management System Sep.2018

- Implement a student score management system with C++ Linked list based HashMap.
- Achieved its functions of input, delete, change, sort and search scores of students, and give statistical information on all data stored.
- A user interface is designed to offer User instructions (help list) of all the operations can do.
- Implemented 5 files: *listFuncs.cpp, listFuncs.h, main.cpp, concord.cpp, grades.cpp.*

Data Analytics and Monitoring on Tennessee Eastman Process May.2017

- Led a team of four to analysis chemical process data by R.
- PCA, LDA and CCCA are employed in R and MATLAB to modeling on both the quality and process datasets of the Tennessee Eastman Process
- Calculated T^2 and Q limit to detect potential disturbance in distorted data sets
- Introduced LDA method to decide which observation belongs to normal region/abnormal region
- Used CCCA method to monitor the input and output of process with disturbances
- Graphics to show results. Power Point and Oral defense.