

FACULTY OF COMPUTERS AND INFORMATION LUXOR UNIVERSITY

Artificial Intelligence Project

AlgoMinders

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AGENDA

- Problem Formulation
- AI Algorithms
- Project Execution

PROBLEM FORMULATION

Problem Definition

Agent Specification (PEAS)

Problem Formulation (Start State, Goal State ,Search space, Actions, Path Cost)

Task Environment

PROBLEM DEFINITION

- It is a game in which the player must find his way to one of the exits while avoiding the monster and not falling into its scope, and also with some obstacles that hinder his movement.
- A 10×10 grid contains a player, monsters, a set of obstacles, and two door exits.
- The player must determine his movement based on the monster and its scope, so that he can move as long as the number of seconds in which the monster will reach a place is greater than the number of seconds that the player will take to reach this place.

AGENT SPECIFICATION

- Performance: The player reaches one of the door exits in the fewest number of steps.
- Environment: 10*10 grid contains a player, monsters, a set of obstacles, and two door exits
- Actuators: Display screen.
- Sensors: Keyboard.

PROBLEM FORMULATION

- Start state: There are 3 initial states for each level in the game, complete initial state.
- Goal state: The player reaches one of the exit doors without falling into the monster or its scope.
- Search space: A 10×10 grid.
- Actions: Up, Down, Left, Right.
- Path cost: 1 for each movement.

TASK ENVIRONMENT

- Fully observable, deterministic, sequential, static, discrete, single agent.

AI ALGORITHMS

List The Algorithms Used To Solve The Problem

Comparison Between Used Algorithms In Solving The Problem (Based on your running represent: Time, Space, Optimality, Completeness)

ALGORITHMS USED TO SOLVE THE PROBLEM

- 1- BFS: Breadth First Search.
- 2- DFS: Depth First Search.
- 3- UCS: Uniform Cost Search.
- 4- Greedy Best First Search.
- 5- A*

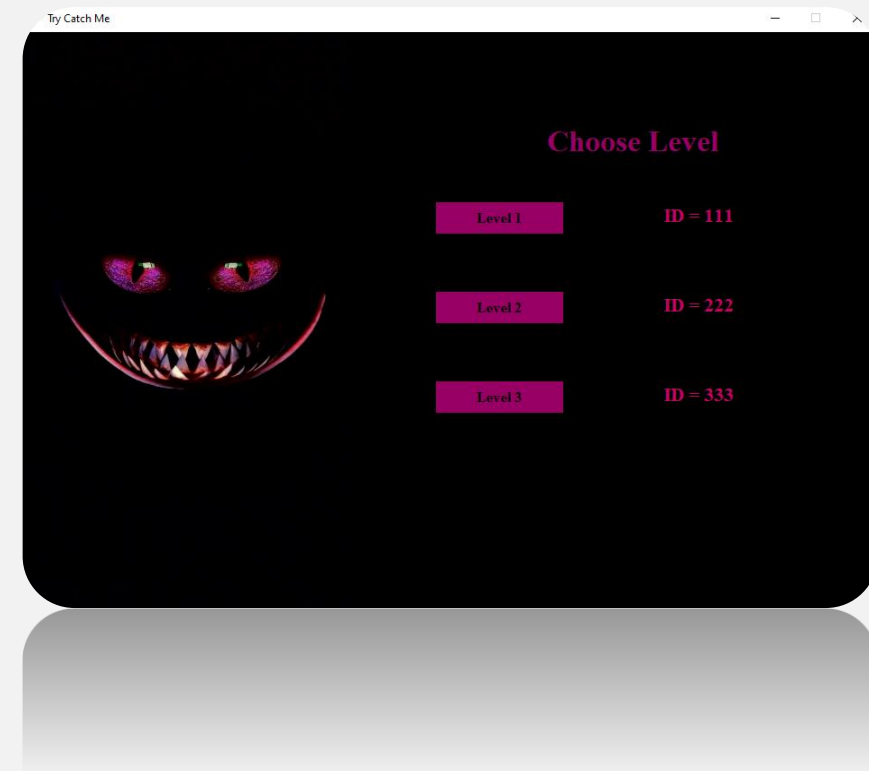
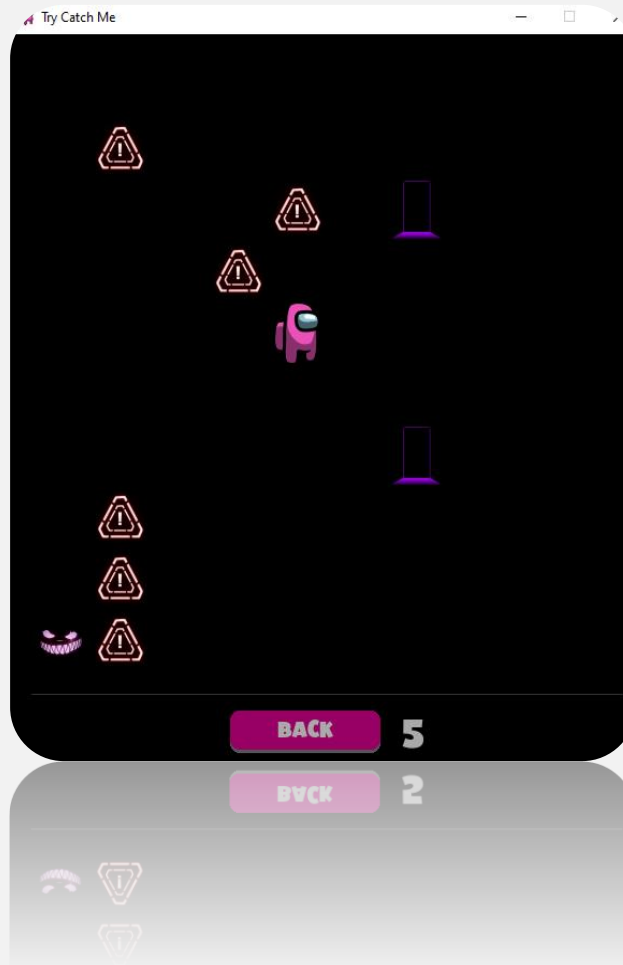
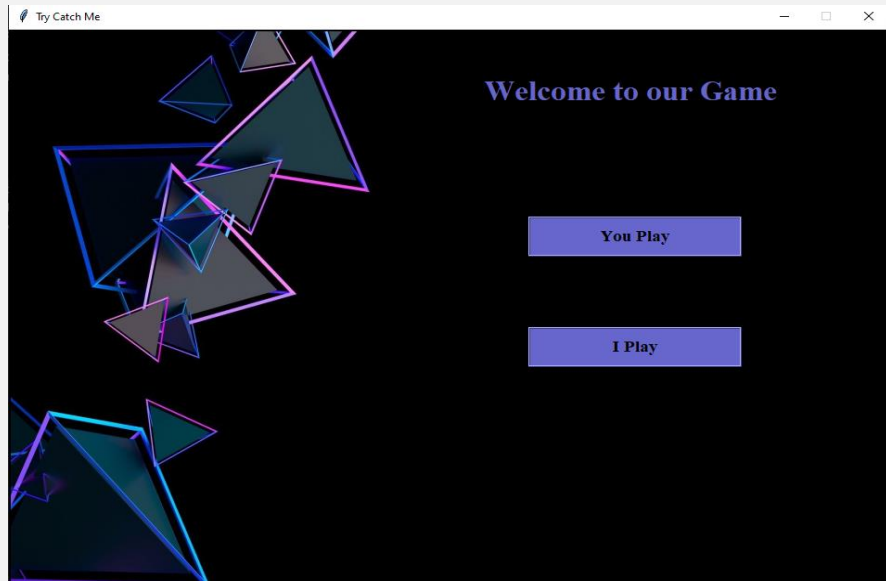
ALGORITHMS COMPARISON

	BFS	DFS	UCS	Greedy	A*
Completeness	Yes	Yes	Yes	No	Yes
Optimality	Yes	No	Yes	No	Yes
Time	$O(n)$	$O(n)$	$O(n)$	$O(n)$	$O(n)$
Space	$O(n)$	$O(n)$	$O(n)$	$O(n)$	$O(n)$

PROJECT EXECUTION

Represent you project (Running, Code, Video/Screenshots, etc.)

PROJECT REPRESENTATION



PROJECT REPRESENTATION

