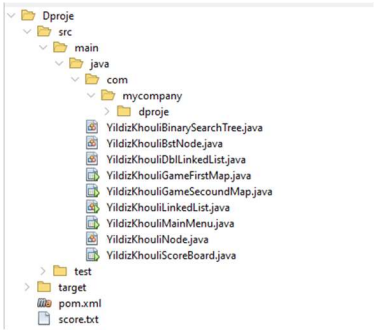
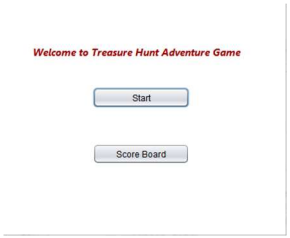
Treasure Hunt Adventure - Project Report

1. Project Overview The "Treasure Hunt Adventure" game is a Java-based board game developed using Swing GUI and fundamental data structures. The game is divided into two levels, where the player moves through tiles with different values using a dice roll mechanic

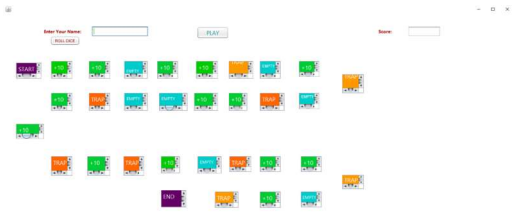


2. Game Structure The project includes the following main components:

YildizKhouliMainMenu: The entry point of the game, allows starting the game or viewing the scoreboard.

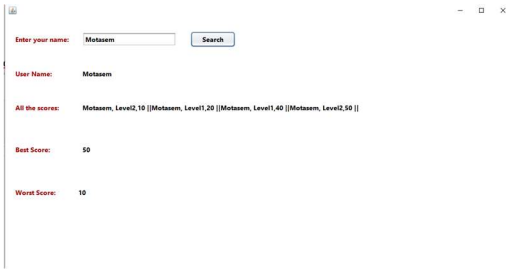


YildizKhouliGameFirstMap: Implements the first level of the game using a custom singly linked list and JTextArea tiles.



YildizKhouliGameSecoundMap: Represents the second level, uses a custom doubly linked list and JButton components for interaction.

YildizKhouliScoreBoard: Displays player scores from a text file and uses a binary search tree to evaluate best and worst scores.



3. Data Structures Used

Custom Singly Linked List (YildizKhouliLinkedList): Used in the first level to manage text-based tiles.

Custom Doubly Linked List (YildizKhouliDblLinkedList): Used in the second level for bi-directional navigation across buttons.

Binary Search Tree (YildizKhouliBinarySearchTree): Used to insert and retrieve player scores efficiently, helping determine max (best) and min (worst) scores.

4. Gameplay Logic

The player inputs their name and clicks "PLAY".

A random dice value between 1 and 6 is generated.

The player moves that many steps forward on the linked list.

Depending on the tile, the score is updated:

+10: Adds 10 to score

-5: Subtracts 5 from score

ladder +5: Moves 5 tiles forward

ladder -5: Moves 5 tiles backward

Empty: No effect

5. GUI Components

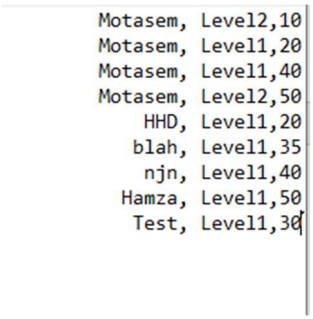
Java Swing elements like JFrame, JButton, JTextArea, JLabel, and JTextField are used.

Panels are used for layout and organizing button tiles.

Color-coded tiles indicate different types of effects (yellow for +10, red for -5, etc.).

6. Score Management and File I/O

Scores are saved in a file score.txt after the completion of each level.



The YildizKhouliScoreBoard reads this file to:

Display all scores associated with a player.

Determine the best and worst score using BST.

A search function lets the user enter their name and retrieve performance history.

7. Conclusion This project successfully combines data structures with Java GUI to create a playable and interactive two-level board game. It demonstrates proficiency in linked lists, binary trees, file handling, and event-driven programming using Swing. It also provides modularity by separating game logic, user interface, and data handling across different classes.

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