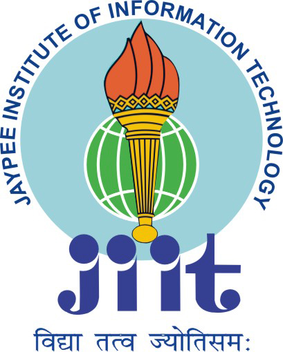
**JAYPEE INSTITUTE OF INFORMATION TECHNOLOGY, NOIDA**

**B.TECH SEMESTER IV**

**PROJECT FOR ALGORITHMS AND PROBLEM SOLVING LAB**



**PROJECT TITLE: Maze-Mania**

**PROJECT REPORT**

**SUBMITTED BY:**

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***INTRODUCTION***

Introducing Maze Mania, an engaging project that explores the world of maze-solving robots. Inspired by Japan's fastest maze solver, this project aims to simulate and optimize maze-solving strategies in a virtual environment. Users will dive into the realm of robotics and algorithm design, experiencing the thrill of solving complex mazes efficiently.

***FEATURES OF THE PROJECT***

**1. Virtual Maze Generation:** Maze Mania features algorithms to generate mazes of varying complexity, providing a challenging environment for robot navigation.

**2**. **Robot Control Interface**: Design an intuitive interface for users to control virtual robots, allowing them to navigate through the maze and make strategic decisions.

**3. Pathfinding Algorithms**: Implement a variety of pathfinding algorithms, including A\* search, Dijkstra's algorithm, and depth-first search, to guide robots through the maze.

4. **Optimization Strategies:** Explore optimization techniques to improve the speed and efficiency of maze solving, enhancing the competitiveness of the project.

**5. Real-time Visualization:** Create a graphical interface to visualize the maze, robot movements, and pathfinding algorithms in action, providing users with a real-time view of the maze-solving process.

**6.Performance Metrics:** Develop a scoring system to evaluate the performance of different algorithms and strategies, allowing users to compare their solutions and improve their maze-solving skills.

***ADVANTAGES***

1. Maze Mania provides hands-on learning experience in algorithm design and optimization.
2. It offers a creative and challenging environment for users to explore maze-solving strategies.
3. The project can be extended and customized to include additional features and challenges, making it a versatile and engaging platform for learning and experimentation.