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**Group Members:**

1) Muhammad Hassan(22I-1011)

2) Arshiq Rehman(22I-1023)

3) Salman Khan(22I-1285)

**Project Report: Game Development**

**Overview:**

Our project involved the development of a turn-based combat game, where players engage in battles, manage their inventory, and navigate through levels. Each member of our team contributed significantly to different aspects of the game, resulting in a cohesive and entertaining final product.

**Work Contributions:**

* **Arshiq Rehman (22I-1023):**

Arshiq played a pivotal role in shaping the core gameplay mechanics and aesthetics of the game.

**Combat System Implementation:**

Arshiq designed and implemented the turn-based combat system. Players have options to attack enemies, use items, and flee from battles, enhancing the strategic depth of the game.

**Enemy Selection:**

He was responsible for curating the enemies featured in the game, ensuring a diverse and engaging gameplay experience.

**Soundtrack Selection:**

Arshiq curated the soundtracks used in the game, enhancing the atmosphere and immersiveness of the gameplay. He directed the project towards completion, ensuring that the final product met our standards of quality.

* **Muhammad Hassan (22I-1011):**

Hassan's contributions focused on the creation of player inventory, visual assets, and user interface elements.

**Inventory System:**

Hassan developed the inventory system using an AVL tree data structure to efficiently store and manage items. This provided players with a seamless experience in managing their resources throughout the game.

**Visual Assets:**

He sourced and integrated sprites for enemies, potions, and backgrounds, contributing to the visual appeal of the game.

**Main Menu Design:**

Hassan created the main menu interface, providing players with a smooth and intuitive starting point for their gaming experience.

* **Salman Khan (22I-1285):**

Salman's primary responsibilities included level design, maze generation, animation, and code optimization.

**Level Design:**

Salman crafted the game's levels, ensuring a balance of challenge and enjoyment for players. His random maze generation algorithm added variety and replay value to the game.

**Animation:**

He animated each sprite used in the game, bringing characters and environments to life and enhancing the overall gaming experience.

**Code Optimization:**

Salman optimized the game code for smooth operation, ensuring that the gameplay remained fluid and responsive. He also implemented Dijkstra's Algorithm through Recursive Backtracking to find the shortest path when the player chooses to give up, improving the overall user experience.

**Conclusion:**

Through collaborative effort, each member of our team contributed their expertise to create a polished and engaging game. From core mechanics to visual aesthetics and performance optimization, our combined efforts resulted in a cohesive and enjoyable gaming experience for our players.