Design Rationale

AI Behaviors Influence on Player Strategy:

The AI's state machine's behavior directly influences how the player approaches the game. For example, in a stealth scenario, the player will need to understand the patrol patterns and vision range of the guard to plan their movements carefully. The more the player understands these behaviors, the better they can strategize their movements to avoid detection.

Player Actions Dynamically Altering AI States:

As the player interacts with the AI, their actions directly alter the AI's states. For instance, getting spotted before ducking to cover will trigger a search, while the guard is distracted this may allow the player to evade guard completely. The more the player reacts to the AI's behavior, the more they can influence and manipulate the outcome of the game. This dynamic interaction between player and AI creates an evolving challenge, making each encounter feel unique and responsive to the player's strategy.

Challenges Faced During Implementation and Solutions:

One major challenge during implementation was the limitation of using a state machine, which restricted how the AI could respond to various player actions. Since a state machine operates on predefined states and transitions, it became difficult to ensure the AI remained reactive without feeling too predictable or rigid. For instance, if the AI encountered a new situation, the system had to be flexible enough to accommodate a wide variety of player actions without seeming "dumb" or repetitive. This approach helped create a more dynamic and unpredictable behavior within the constraints of a state machine.