# 3C Reflection on PathFinder Puzzle ML Project

## Introduction

*PathFinder Puzzle* is more than just a game—it's a hands-on experience that blends puzzle-solving fun with the power of machine learning. Players are challenged to find the best path through a grid, while the system learns from their moves and adapts over time. This project highlights how technology and creativity can come together to build something that's not only entertaining but also insightful. In this reflection, we’ll explore how the project brings the 3C model to life: Curiosity, Connections, and Creating Value.

## 1. Curiosity:

The PathFinder Puzzle game is designed to spark curiosity in players by presenting a challenging environment where they must navigate through a grid-based system. The machine learning model adapts to user inputs, encouraging users to experiment with different strategies and explore optimal paths. This dynamic response loop sustains interest and invites players to ask, "What happens if I try this route?", promoting deeper engagement and replayability.

## 2. Connections:

What makes this project unique is how it brings together different fields. It combines game design with machine learning and user behavior analysis. The game’s backend learns from players’ decisions, while the frontend provides a smooth and enjoyable experience. This connection between tech and user interaction helps us understand not only how to design smarter games but also how people think and adapt when solving problems.

## 3. Creating Value:

The game creates value in two major ways: (1) for players, it provides a satisfying, strategy-based gaming experience with evolving difficulty, and (2) for developers and researchers, it offers data on user behavior patterns, success rates, and decision-making trends. This dual value creation makes the project impactful both as a recreational tool and an educational or experimental resource for further AI/ML enhancements in games.