

TSP (Travel Salesman Problem) Game Design Process

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Phase 1: Getting ideas for the game

To create a game for the travel salesman problem it was decided that everyone in the group would create their own travel salesman problem game. After the four games were made, we would take the best aspects from the four games and combine them to create the final travel salesman problem game.

Keelan's Game

In this game there is a 3D delivery guy where you go to other checkpoints. In the game you move the 3D character by using the arrow keys going to the other checkpoints. The route to the checkpoints has numbers signifying fuel consumption.

Umar's Game

In this game the concept is about traveling the world. The start point is in Hong-Kong, and you must travel to six other cities around the world before returning to Hong-Kong. Each path has its set fuel consumption, it adds up when you start travelling. At the end you get your fuel consumption add up from travelling also you can not travel to a city more than once. This game part of the game where you can travel the earth and go to 7 different cities across a spinning globe.

Ulugbek's Game

GameCosmic career, in this game you travel to other planets delivering product. The aim of the game is to consume the least amount of fuel when travelling to the other planets. You are based in the planet x and must deliver your product to other planets only going to each planet once before returning to planet x. In the game when travelling to planets it will tell you the fuel consumed.

Jaymes's game

In this game you have a dot representing you in the middle node. Then you must go from the middle node to the other seven nodes and return to the middle. All the nodes connected are connected to each other with lines with number representing the amount of fuel cost to go to each other node and the middle one. You start with a fuel of 1000 and after going to all the other nodes and returning to the middle one your fuel will decrease. The aim of the game is to reduce your fuel consumption when going to the other nodes.

Phase 2: Making the final game

Making the game with the best aspects of the four games. For the final game the concept chosen was space and the mission is to get from planet to planet, fuel usage is the metric chosen. In the game you will be travelling to other planets in a 3D environment on a ship and the distance to each planet will be lightyears away. The aim of the game is to find the shortest path to deliver your products to each planet before returning to planet x. There is also another part to the game where you can travel the earth and go to 7 different cities across a spinning globe.

TSP OUTLINE STEPS

1. Empathize

- Goal: A game is enjoyable when the player can make inputs into the game. Instead of having the game play itself. The player is encouraged to put inputs where they must constantly be engaged in the game. No man Sky is an example of a game where the player can travel to other planets.
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2. Define

- Goal: The goal of this game is to have an interactive experience where the player can choose multiple paths and have some autonomy. Being able to move the ship to any direction is a decision to make the player feel like they have autonomy.
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3. Ideate

- Goal: So, to make the game make the player feel a sense of autonomy. There is a rocket ship in which the player can move in any direction as they travel from planet to planet.
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4. Prototype

- Goal: For the prototype the focus on the game was on the movement of the ship and if you were able to land on the planets. Another aspect of the prototype was the aesthetics of the game, which were lacking. The screen was too dark and some of the text on the screen was barely visible. There weren't any instructions on how to play the game. The game is a bit buggy. When landing on a planet the ship is through the planet. The size of the planets is too small.
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5. Test

- Goal: We got a group to test our game and give feedback.

Phase 3: Feedback from other groups

Feedback Received:

1. The navigation area in the game was too small.
2. It was difficult to understand the fuel cost between planets.
3. The visual design was unclear.
4. The game had only one level and felt too simple.

Improvements Made Based on Feedback:

1. Enlarged the navigation map for better usability.
2. Added colorful navigation buttons, matching each color to its corresponding planet.
3. Made fuel usage between planets more transparent and easier to understand.
4. Added two additional levels to increase gameplay depth and complexity.