Artificial Intelligence Project Report

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Abstract

Spending quality time with your social circle is enjoyed by everybody on this Earth. Especially the time spent in breaks between their day to day tasks. Some spend this time to refuel their energy by having a light snack or some indulge in activities to take the ease the mind. These activities can include several things but the project focuses on only one, that is playing card games with friends. The Pati Web Application will provide an alternative to playing one those card games. Here a person wouldn't need a friend to play the game with, instead their device will play with them. This document all the details on how the project was created.

Contents

1 Introduction

1.1 Overview

It is a Web Application called "3 Pati". The application provides one of the variants of many card games that are in this world. That variant is called exactly what the website is named after, "3 Pati". Currently it runs on local devices only and hasn't been deployed it. Therefore the production part of the project is still untouched.

1.2 Objectives

Its purpose is to provide users a platform to enjoy the game without having a need for people to play with. If they already play this game with their friends, they can come on this website and practice their tactics. However, even if someone just needs to enjoy their time a little bit, they can do so as well.

1.3 Scope and Limitations

This game hopes to bring the entertainment to people who are unable to spend their time with their friends and family. Whenever they get free time, they can tend to this game to fulfil their entertainment needs. This game being on the web makes it accessible on any device that supports web functionalities.

1.4 Application Areas

Since it is an entertainment based project, its application areas get limited as well. Apart from using it as a source of environemnt on the user's device, it does not really have any other area to offer.

2 Methodology

2.1 System Overview

The Game is quite simple. You are first prompted with the home page where you select how many opponents you wish to face in the game. Maximum you can chose 4 opponents and minimum is 1. After you've chosen the opponent numbers, each player will be dealt 3 cards. Refer to image in GUI to see which dealt area belongs to which player.

The sequence of turns goes as Player 1 - to - Player 2 - to - Player 3 - to - Player 4. Each Player can see their 3 cards before the game begins. Once the Play Button is clicked, the game starts and after that they will only be able to see their cards at the end of the game. Player with the least amount of score will be the winner. A score sheet is also provided further in the document.

Move made by single player is as follows:

1. A card is picked from top of the deck available on left side. It is shown to the player only.

2. Now the player has 2 choices. Either to discard the card and put it on table for others to see. Or replace it with one of your own 3 cards.

There is a special move as well. If the card thrown on the table has number 7 in it, the player can swap one of their card with one of the other players' card

2.2 Data Processing

The first input comes from home page where the user selects the number of opponent players. That is stored in sessionStorage inside JavaScript. This way, on each new execution of the website, there will be a need to select new number of opponent players. This value is used by many other algorithms later in the application.

After that, inputs come by the mouse click on the card images that are displayed on the web. These are then also stored in sessionStorage because these determine the next move for the AI.

The outputs are delayed on the web page in form of images that are formatted according to their respected destination.

2.3 Graphical User Interface (GUI)

The GUI consists of 2 main pages. First is the home page which is displayed to the user on start of the application. After that, the use is the game board where all the cards are dealt. Each player has its own horizontal or vertical area on the board depending on where they are seated. Player 1, that is the user, is seated on the bottom of the board. Player 2 sits opposite to the Player 1 hence on the top of the board. Player 3 sits on the right side whereas Player 4 sits on the left side. There sitting arrangement is shown in the following picture.

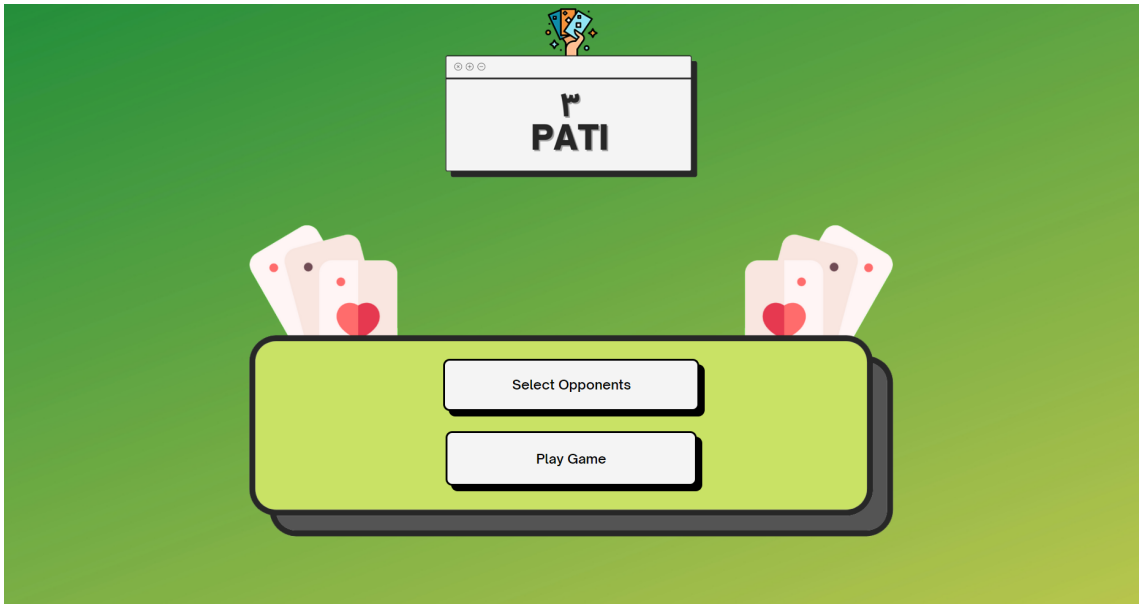

Image 1: Homepage

Image 2: Gameboard

2.4 Tools and Techniques

The creation of GUI was based on HTML, CSS and JavaScript. JavaScript was used to make the web pages dynamic. The moves performed are calculated in Python script. They are accessed in JavaScript through Flask Server which was also created using Python script.

3 Results

The project ended up being a success. The Calculated moves were perfect with having no contradiction in each other. However, there was another special move that is part of the game. That move is made when card number 10 is thrown. This move allows player to see and shuffle the opponent's or their own cards. However, due to late start to the project led to leaving no time which could be utilized to create and implement this move.

First improvement would be to make this special move available to the user. Also giving labels to the cards in hands of opponents would be a quality upgrade. Moreover, better implementation of AI could be used to calculate the moves.

4 Code of the Project

The complete code is uploaded on GitHub. Steps taken to run the code are mentioned there as well.