A Project ETE Report

On

LUDO IN PYTHON

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ABSTRACT

Ludo is a very important gaming app playing an important role in entertainment purpose through the software interface. It has many advantages and has some disadvantages , not only young generation playing this game for entertainment purpose but at every age of life , they can play based on their own choices to play with someone, group or even alone. It has facility to interacting people with people and sharing their emotions to make a strong bonding between peoples.
It access the information to play with whom and when and even has choices to chose or make a group. There is four sides to play means maximum four can play at a time and can be present and even a person can play with singly with application itself provides the competitor definitely these types of feature has it's own advantages.

Problem Formulation

In the ludo game using python , it contains a geometric size of main frame in which it contains four subparts or side of different colors like red, green, yellow and blue. In each subpart, it contains four sub label to represent game piece and for each one has a home part when game piece will arrive at center after a whole set of boxes travelled. Boxes are those in which game piece can travel.

REQUIRED TOOLS

Hardware Requirements

- Processor: Intel i3 processor
- Hard Disk: 20GB
- Memory: 2GB RAM

Software reqirements

- Python IDE
- Github
- Python 3.7
- Custom Api
- Oracle 10g

1. INTRODUCTION

Pachisi was created in India in the 6th century. The earliest evidence of this game's evolution in India is the depiction of boards on the caves of Ellora. The original version is also described in Indian epic Mahabharata in which Shakuni uses the cursed dice to beat the Pandavas and at last after losing everything, It was also known as Chaupar in ancient times. The contemporary version was played by the Mughal emperors of India; a notable example is Akbar.
Pachisi was modified to use a cubic die with dice cup and patented as "Ludo" in England in 1896. The Royal Navy took Ludo and converted it into the board game Uckers.
Special areas of the Ludo board are typically coloured bright yellow, green, red, and blue. Each player is assigned a colour and has four tokens[c] in their colour. The board is normally square with a cross-shaped playspace, with each arm of the cross having three columns of squares, usually six per column. The middle columns usually have five squares coloured; these represent a player's home column. A sixth coloured square not on the home column is a player's starting square. At the centre of the board is a large finishing square, often composed of coloured triangles atop the players' home columns (thus depicting "arrows" pointing to the finish).
We have developed the ludo game in python 3.7 using Tkinter gui and programmatic logic to let do our work by gui's label or icons. It has four turn for each side and if any side getting six in the turn then a bonus turn will be available for that side.It will not give further chance if it is against the rule of game.

2. LITERATURE SURVEY

As game and intelligence have strong connection and brainstorming. Lots of people have made great effort to build the game into systems. In[1] there has been a complete

description about how to solve a game using AI. The paper explained search methods such as Alpha-Beta pruning , Minimax algorithm and discussed on games following tree structure as solution strategy.

GeorgiesN.Yannakakisin[2] gave a thorough description of Game Theory and its applications. He explained about AI and its four flagships, briefing about the terminology used currently in games.Carla P.Gomesin[3] gave connection between search algorihms with hard combinatorial problems. He grouped this connection under three things planning, duality and randomization.

In[4], Ludo is implemented a TD(λ)based Ludo player and also implemented a Q-learning based Ludo player using re-inforcement learning.

2.1 Comparative Analysis

MajedAlhajry, Faisal Alvi, Member, IEEE and Moataz Ahmed used 240 representations of blocks to solve the Ludo algorithm implementing the AI. To this we have tried to optimize the research work by using the Q learning in more optimal way and using the index of only “72” blocks and probability based on token color. Here we instead of giving a more that one index to a block we tried to execute Ludo by giving single index to single block.

GAME THEORY

Game theory is the modeling of strategic interaction between two more than two players in a situation that contains rules set and their outcomes. In other words, it is a strategic decision making. Particularly,we can say that, it is "the study, of mathematical models of conflict and cooperation between the decision makers those are intelligent and also rational"[5]. There can be interactive decision theory which can be thought of as an alternative in terms of more explanatory attribute in different fields/areas. This theory will take into consideration the areas of sciences such as computers, political, economics and psychology mainly.

Decision theory: It could be seen as theory of with one player or the player playing against nature. The formation of preferences and beliefs are under main focus. In this theory, we can represent the uncertainty of outcomes and is represented by Probability theory, and to model the new information to revise belief Bayes Law is used frequently As it is logical in computer science, it has increasingly important role in logical theories that have game semantics as their base. Also interactive computations have also been modeled to this field, that serve the basis for multi-agent systems.There may be two main theory types:

1. Co-operative and

2. Non co-operative game theory.

Non co-operativetheory: deals with effective interaction of users to achieve goals in an intelligent manner. Addition to game theory, there are three more theories that are related in a number of ways to game theory. These may be:

1. Decision theory,

2. General equilibrium theory and

3. Mechanism design theory

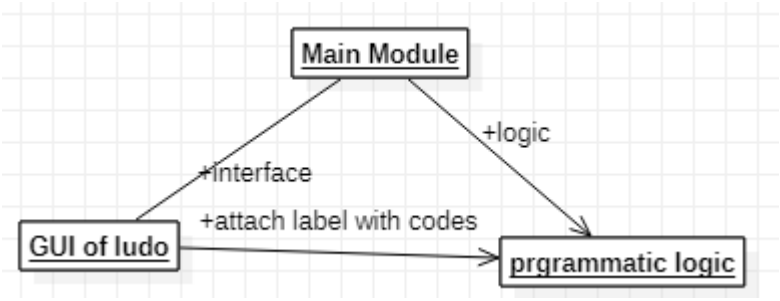
Decision theory: It could be seen as theory of with one player or the player playing against nature. The formation of preferences and beliefs are under main focus. In this theory, we can represent the uncertainty of outcomes and is represented by Probability theory, and to model the new information to revise belief Bayes Law is used frequently .Decision theory is the decision analysis in order to get most of the information before any decision is being stated.

General equilibrium theory: It could be seen as the specialized game theory type that deals with the producing and trading the products that connects with large number of producers and consumers.

Mechanism design theory: It is different from game theory in such a way that game theory is based on the rules of the game as they are given, while this mechanism design theory calls for the consequences of different types of rules. In a way, this theory heavily relies on game theory.

3 ARCHITECTURAL FLOW

Here, we describe the architectural structure of our main module in which it contained programmatic logic and gui's figure with code associated label .Whenever any action by clicking any icon of interfacethe code associated with get come in action and performed that task with gui.



Gui of ludo

After starting the game, a GUI ludo board appears, other rules are the same. First, the player has to roll the dice. The main thing in this simple GUI based game is that the player just has to press “Roll” to roll the dice. At the top of the board, it displays a dice with the number. The has to keep on rolling until there’s a possible pawn to move. All the game movements are to be performed manually by the player. A simple 2D GUI is provided for easy gameplay. The gameplay design is so simple that the user won’t find it difficult to use and understand. For the gaming environment, the project uses various images and GIF files to provide real-time experience.

CONCLUSION

This project implements a LUDO game in 2D GUI format. This application allows the user to play the game by simply opening the python 's code and prompting the game to start. The game interface is very simple and is easy to understand by the user. Since the game is built in 2D the game performance is fast and efficient .

Reference

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