Name of the Faculty	Name of the course	Year & Semester	Topic	Conventional methods	Innovative methods
Mr. A. Lakshmanarao	Artificial Intelligence	III & I	Two-Player Perfect Information games	Chalk & Talk	Roleplay

Two Player Perfect Information Games

- A game with the perfect information is that in which agents can look into the complete board. Agents have all the information about the game, and they can see each other moves also. Examples are Chess, Checkers, Go, etc.

1. Chess
2. Chekers
3. Othello
4. Go
5. Backgammon

The above five games are explained through role play. Pairs of students are selected from the class and each pair of students are assigned with one game (online gaming). All the students engaged with at least one game.

Through role play, students developed thinking skills and abilities that help them to succeed in their future, including in language learning. The balance of enjoyment and challenge makes role play amazing tool for learning.

1. Chess:

- The first universally recognized World Chess Champion, Wilhelm Steinitz, claimed his title in 1886; Magnus Carlsen is the current World Champion.
- The first two chess programs were proposed by Greenblatt et al (1967) and Newell & Simon (1972).

Chess is an abstract strategy game and involves no hidden information. It is played on a square chessboard with 64 squares arranged in an eight-by-eight grid. At the start, each player (one controlling the white pieces, the other controlling the black pieces) controls sixteen pieces: one king, one queen, two rooks, two bishops, two knights, and eight pawns. The object of the game is to checkmate the opponent's king, whereby the king is under immediate attack (in "check") and there is no way for it to escape. There are also several ways a game can end in a draw.

2. Chekers

Checkers programs first developed by Arthur Samuel (1959,1957). It is a two player game played on 8 x 8 square board.

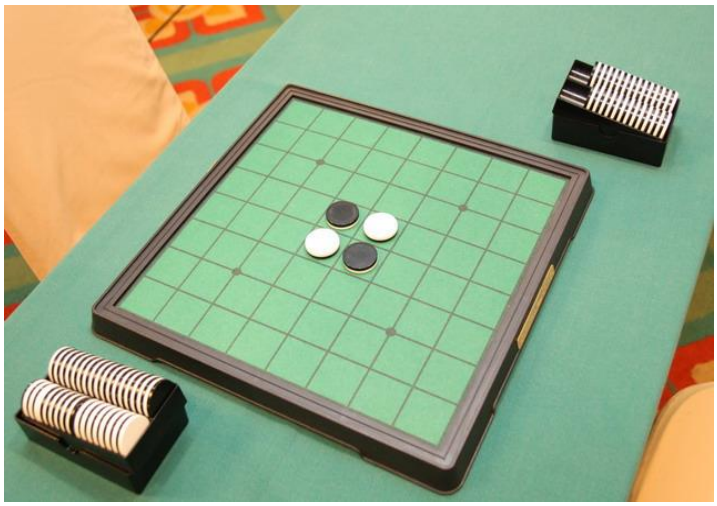
Each player gets 12 pieces of same color(dark or light) which are placed on the dark square of the board in three rows. The row closet to the player is called the king row. The pieces in the king row are called kings, while others are called men. Kings can move diagonally forward as well as backward.

Men may move only diagonally forward. A player can remove opponent pieces from the game by diagonally jumping over them. When men pieces jump over king pieces of the opponent from the board or by leading the opponent to such a situation where opponent player is left with no legal moves.

3.Othello

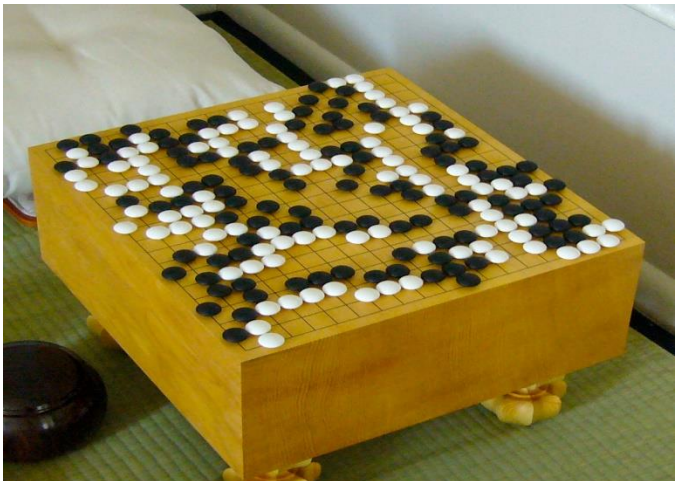
Othello, known as Reversi is a two player game which is played on 8 X 8 square grid with pieces that have two distinct bi-colored sides. The pieces typically are shaped as coins, but each possess a light and dark face, each face representing one

player. The objective of the game is to make your pieces constitute a majority of the pieces on the board at the end of the game, by tuning over as many of your opponent's pieces as possible. Advanced computer program was developed by Rosenbloom in 1982 and subsequently Lee & Mahajan in 1990 leading it becoming world championship level game.



4.Go

- Go is an abstract strategy board game for two players in which the aim is to surround more territory than the opponent. The game was invented in China more than 2,500 years ago.
- The standard Go board has a 19×19 grid of lines, containing 361 points.
- The playing pieces are called stones. One player uses the white stones and the other, black. The players take turns placing the stones on the vacant intersections (points) of a board. Once placed on the board, stones may not be moved, but stones are removed from the board if the stone (or group of stones) is surrounded by opposing stones on all orthogonally adjacent points, in which case the stone or group is captured. The game proceeds until neither player wishes to make another move.



Backgammon

It is also a two player game in which the playing pieces are moved using dice. A player wins by removing all of his pieces from the board. Although luck plays an important role, there is a large scope of strategy. With each roll of the dice a player must choose from numerous options for moving his checkers and anticipate the possible counter-moves by the opponent.

Players may rise the stakes during the game. Backgammon has been studied with great interest by computer scientists. Similar to chess, advanced backgammon software has been developed which is capable of beating world-class human players. The high level programs were developed by Berliner in 1980 and Tesauro & Sejnowski in 1989.