# Reinforcement Learning – TicTacToe agent

By
Krishna Rohith Donepudi
Pushpa Latha Vudatha

# Objective

- The goal of this project is to implement Tic Tac Toe, a two player game in a square [3 x 3 or may extend to 4x4 ] grid using reinforcement learning
- Both the SARSA(State-action-reward-state-action) and Q-learning RL algorithms are implemented.
- The agents are trained by a teacher agent that knows the optimal strategy.
- The game is played between a computer and human. Game starts with a player randomly, and ends when the entire grid fills.
- Game strategy of win is to have three pieces of his or her own in a row, whether horizontally, vertically, or diagonally.

# Approach

- Techniques - Reinforcement learning,  SARSA(State-action-reward-state-action), Q-learning
- Programming tools - Python3.*, jupyter notebook, PyQT(optional)

# Deliverables

- Project report (pdf)
- Working project src files (.py, .ipynb, etc.)
- Project demo Video in YouTube
- Project powerpoint presentation
- Github Repository with project code and a user documentation manual as a .MD file

# Evaluation methodology

- The agent must make appropriate moves to maximize its utility
- Verify the charts of the reward reports
- User acceptance test cases for evaluation

Thank You