Machine Learning and Artificial Intelligence CI7520 Python Review - MLAI

Working with Python

Introduction

This worksheet is intended to introduce Python.

Exercises

Exercise 1: Rock-Paper-Scissors game

Make a Rock-Paper-Scissors game. Allow the player to play against the computer or another human player. Ask for player to play (using input), compare them, print out a message of congratulations to the winner, and ask if the players want to start a new game).

Remember the rules:

- > Rock beats scissors
- > Scissors beats paper
- > Paper beats rock

Exercise 2: Remove Duplicates in a List

Write a program (function!) that takes a list and returns a new list that contains all the elements of the first list minus all the duplicates.

Extras:

Write two different functions to do this - one using a loop and constructing a list, and another using sets.

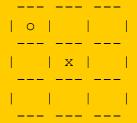
Exercise 3: Cows And Bulls

Create a program that will play the "cows and bulls" game with the user. The game works like this:

Randomly generate a 4-digit number. Ask the user to guess a 4-digit number. For every digit that the user guessed correctly in the correct place, they have a "cow". For every digit the user guessed correctly in the wrong place is a "bull". Every time the user makes a guess, tell them how many "cows" and "bulls" they have. Once the user guesses the correct number, the game is over. Keep track of the number of guesses the user makes throughout the game and tell the user at the end.

Exercise 4: Tic Tac Toe Game

The aim of this exercise is to build a Tic Tac Toe game with fake graphics. We can draw game boards that look like this:



The game should be able to perform the tasks below

- 1. Draw the Tic Tac Toe game board
- 2. Checking whether a game board has a winner
- 3. Handle a player move from user input