

Homework 1: Introductory Python Problems

July 20, 2019

Due: 7.10 19:00
Homework email: psupku2019@163.com
Please include your name

Programming part

Problem 1: Please use the library of matplotlib in python to draw a unit circle.

Problem 2: Given a 3*3 matrix A (invertible) and 3*1 vector b, please print the solution vector of $Ax=b$.

Problem 3: Given a list of ascending numbers, e.g., $a = [1,4,6,9,13,16,19,28,40,100]$ and a number. Please insert the number into the list such that it is still ascending.

Problem 4: Given an odd number. Please find the least number of 9's that has a factor of the number.
e.g. $999999 / 13 = 76923$

Problem 5: Please find the number of odd numbers that are composed by 0-7.

Problem 6: Please find all the prime numbers between 0-100. (Don't print them all directly, i.e., `print('2,3,5,7,...')`)

Problem 7: Please write a function that takes source string and target string as input, and returns the index of the first occurrence of target string in source string, or -1 if target string is not part of source string.
e.g., `strStr('abcdefg', 'def')`=3

Theoretical part

Problem 8: For $k > 2$, prove all these 3 definitions are different. (All-vs-one, linearly separable, pairwise linearly separable)

Problem 9(optional this time but required in next homework): Please implement the logistic regression with Python.