

Lab 1

APPLIED LINEAR ALGEBRA FOR IT - 501032

1 Exercises

Exercise 1: Write a computer program to push values from a list into:

- (a) tuple (b) set (c) dictionary

Exercise 2: Write a computer program to push values from a dictionary into

- (a) list (b) tuple (c) set

Exercise 3: Write a computer program to perform the following requirements:

- (a) Find out how many time x value occurs in a dictionary
- (b) Update k value at the position of x value in a dictionary
- (c) Delete x value in a dictionary
- (d) Insert x value into a dictionary

Exercise 4: Let two sets S_1 and S_2 . Write a computer program to find

- (a) $S_1 \cap S_2$
- (b) $S_1 \cup S_2$
- (c) Insert x value into S_2 set
- (d) Delete x value in S_1 set

Exercise 5: Draw a histogram to illustrate the value of the following list: 1, 4, 6, 8, 22, 11, 10, 3, 6

Exercise 6: Write a program to convert a distance with units of either kilometers, meters, centimeters, or milimeters into meters.

Exercise 7: Write a program to find corresponding constellation with input time, based on the above table.

Exercise 8: Write a program to extract numerology information from your birthday and your name.

- (a) Find your life path number/ master number ($\in N^+$ from 2 to 11). (e.g 19/08/1999 $\rightarrow 1 + 9 + 0 + 8 + 1 + 9 + 9 + 9 = 46 \rightarrow 4 + 6 = 10$)
- (b) Find personal year number ($\in N^+$ from 1 to 9). (e.g your birthday: 19/08/1999, PNY(2022) = $[2 + 0 + 2 + 2] + [1+9] + [0 + 8] = 24 \rightarrow 2 + 4 = 6$)

Table 1: Description of constellation

Constellation	Time
Aries (Ram)	March 21-April 19
Taurus (Bull)	April 20-May 20
Gemini (Twins)	May 21 - June 21
Cancer (Crab)	June 22 - July 22
Leo (Lion)	July 23 - August 22
Virgo (Virgin)	August 23 - September 22
Libra (Balance)	September 23 - October 23
Scorpius (Scorpion)	October 24 - November 21
Sagittarius (Archer)	November 22 - December 21
Capricornus (Goat)	December 22 - January 19
Aquarius (Water Bearer)	January 20 - February 18
Pisces (Fish)	February 19 - March 20

Table 2: Description of key characters (Pythagoras)

1	2	3	4	5	6	7	8	9
A	B	C	D	E	F	G	H	I
J	K	L	M	N	O	P	Q	R
S	T	U	V	W	X	Y	Z	

Table 3: Description of vowel characters

A	Ă	Â	E	Ê	I
O	Ô	Ó	U	Ů	Y

- (c) Find destiny number ($\in N^+$ from 1 to 9, 11, 22), based on key characters in Table 2
For example, full name: NGUYEN VAN HUY $\rightarrow 3N + 2U + 2Y + A + V + E + H + G = 3 \times 5 + 2 \times 3 + 2 \times 7 + 1 + 4 + 5 + 8 + 7 = 60 \rightarrow 6 + 0 = 6$
- (d) Find soul number ($\in N^+$ from 1 to 11), based on vowel characters in Table 3.
For example, HUY = U = 3 (Y is considered as consonant after vowel 'U')
- (e) Find impression number ($\in N^+$ from 1 to 11). For example, HUY = H + Y = 8 + 9 = 17 = 1 + 7 = 8