

1) Project description:

Program should compare two txt files and report the differences (in a form of sentences). The program should allow for making changes: copy or delete stuff from file according to user decision. For example:

- File one contains a sentence: Hello world at the very beginning while file two doesn't. User can delete it from first file or copy it to the second file.

2) Project description:

Simple tic-tac-toes game (polish kółko i krzyżyk) for two players. The program should allow for loading and saving game state.

3) Project description:

Program should code the given txt file using the Caesar cipher, Affine cipher, Straddle Checkerboard Cipher and Rail-fence cipher algorithms.

Of course, you need to program decoder as well.

4) Project description:

Program to find given word in a txt file. The program should print all the sentences (one by one – controlled by user) in which given word appears. Program should allow for replacement of found word with a word given by user. It should check if the “new” word is unique for given text file.

5) Project description:

Scientific calculator, including memory and ability to perform a calculation on examples given in txt file.

Eg.

?Sin(2x)+cos(y)+e^x

x=2

y=3

6) Project description:

k-means clustering algorithm on a numeric dataset given in txt file (columns features, rows observations). The program should check if the given dataset is correct and return the result. The limit for iterations should be hard-coded as 1000. Use the Euclidean distance.

7) Project description:

Simple sudoku game. The program should allow for loading and saving game state.

2			6	7	5		
						9	6
6	7			1	3		
	5		7	3	2		
	7					2	
			1	8	9		7
		3	5			6	4
8	4						
	5	2		6			8

8) Project description:

Crossword assistant. Program should ask user about length of word and all the letters (and its positions) we know. It should return list of possible words to use.

9) Project description:

Database for teachers. Program should store students grades with the description for what this grade is given. I assume that you all attend to high-school so it is self-explanatory. The program should calculate final grade for subjects. Use your own idea for weights (eg. Test should be more valuable than homework 😊).

10) Project description:

k-nearest neighbor algorithm on a numeric dataset given in txt file (columns features, rows observations). The program should work in a way that user is defining a vector or specifying a row from txt file. Program should return a list of 10 points closest to the given point using Euclidean, city-block or correlation distances. The program should check if the given dataset is correct.

11) Project description:

Big int calculator performing basic operations such as: addition, subtraction, multiplication and division.

The big int is:

8364616634234234234234

12) Project description:

Write a simple pong game. The direction of ball reflection should be randomly picked from possible directions.

13) Project description:

Write a hangman game. The program should use a words database given in txt file. The word that was used should be removed from file. The program should allow for loading and saving game state.

14) Project description:

Write a snake game. The position of first and next “food tokens” should be picked randomly from list of all possible. The game should allow for save and load.

15) Project description:

Typing tutor program (polish “ Mistrz Klawiatury). Program should allow for choosing the level: basic or hard. The list of words/ sentences should be loaded from txt file. After each training the program should save (to the txt file) the score for word or sentence.

16) Project description:

Wheel of fortune game. Use the rules given here:

[https://en.wikipedia.org/wiki/Wheel_of_Fortune_\(American_game_show\)](https://en.wikipedia.org/wiki/Wheel_of_Fortune_(American_game_show))

Assume the movement of the wheel as random (using the random number generator).