

# Contemporary Data Processing Technology (CCOD)

Lab 10 (October 28, 2016)

Glebig Roman, AS-36

In this work I took the 10 Russian letters: Б, В, Е, Ё, Н, О, Р, С, У, Ф, Ю.

$$\alpha = 0.5$$

Table of similarity percentage of letters

	Б	В	Е	Ё	Н	О	Р	С	У	Ф	
Б	1	0.8	0.7	0.6	0.5	0.4	0.4	0.2	0.1	0.1	R0
В	0.8	1	0.8	0.7	0.5	0.3	0.6	0.2	0.3	0.1	
Е	0.7	0.8	1	0.9	0.7	0.2	0.3	0.1	0.1	0.1	
Ё	0.6	0.7	0.9	1	0.6	0.1	0.1	0.2	0.1	0.1	
Н	0.5	0.5	0.7	0.6	1	0.2	0.2	0.1	0.3	0.2	
О	0.4	0.3	0.2	0.1	0.2	1	0.3	0.9	0.3	0.4	
Р	0.4	0.6	0.3	0.1	0.2	0.3	1	0.2	0.2	0.7	
С	0.2	0.2	0.1	0.2	0.1	0.9	0.2	1	0.1	0.1	
У	0.1	0.3	0.1	0.1	0.3	0.3	0.2	0.1	1	0.2	
Ф	0.1	0.1	0.1	0.1	0.2	0.4	0.7	0.1	0.2	1	

Three steps of modifying this table:

	Б	В	Е	Ё	Н	О	Р	С	У	Ф	
Б	1	0.8	0.8	0.7	0.7	0.4	0.6	0.4	0.3	0.4	R1
В	0.8	1	0.8	0.8	0.7	0.4	0.6	0.3	0.3	0.6	
Е	0.8	0.8	1	0.9	0.7	0.4	0.6	0.2	0.3	0.3	
Ё	0.7	0.8	0.9	1	0.7	0.4	0.6	0.2	0.3	0.2	
Н	0.7	0.7	0.7	0.7	1	0.4	0.5	0.2	0.3	0.2	
О	0.4	0.4	0.4	0.4	0.4	1	0.4	0.9	0.3	0.4	
Р	0.6	0.6	0.6	0.6	0.5	0.4	1	0.3	0.3	0.7	
С	0.4	0.3	0.2	0.2	0.2	0.9	0.3	1	0.3	0.4	
У	0.3	0.3	0.3	0.3	0.3	0.3	0.3	0.3	1	0.3	
Ф	0.4	0.6	0.3	0.2	0.2	0.4	0.7	0.4	0.3	1	

	Б	В	Е	Ё	Н	О	Р	С	У	Ф	
Б	1	0.8	0.8	0.8	0.7	0.4	0.6	0.4	0.3	0.6	R2
В	0.8	1	0.8	0.8	0.7	0.4	0.6	0.4	0.3	0.6	
Е	0.8	0.8	1	0.9	0.7	0.4	0.6	0.4	0.3	0.6	
Ё	0.8	0.8	0.9	1	0.7	0.4	0.6	0.4	0.3	0.6	
Н	0.7	0.7	0.7	0.7	1	0.4	0.6	0.4	0.3	0.6	
О	0.4	0.4	0.4	0.4	0.4	1	0.4	0.9	0.3	0.4	
Р	0.6	0.6	0.6	0.6	0.6	0.4	1	0.4	0.3	0.7	
С	0.4	0.4	0.4	0.4	0.4	0.9	0.4	1	0.3	0.4	
У	0.3	0.3	0.3	0.3	0.3	0.3	0.3	0.3	1	0.3	
Ф	0.6	0.6	0.6	0.6	0.6	0.4	0.7	0.4	0.3	1	

	Б	В	Е	Ё	Н	О	Р	С	У	Ф	
Б	1	0.8	0.8	0.8	0.7	0.4	0.6	0.4	0.3	0.6	R3
В	0.8	1	0.8	0.8	0.7	0.4	0.6	0.4	0.3	0.6	
Е	0.8	0.8	1	0.9	0.7	0.4	0.6	0.4	0.3	0.6	
Ё	0.8	0.8	0.9	1	0.7	0.4	0.6	0.4	0.3	0.6	
Н	0.7	0.7	0.7	0.7	1	0.4	0.6	0.4	0.3	0.6	
О	0.4	0.4	0.4	0.4	0.4	1	0.4	0.9	0.3	0.4	
Р	0.6	0.6	0.6	0.6	0.6	0.4	1	0.4	0.3	0.7	
С	0.4	0.4	0.4	0.4	0.4	0.9	0.4	1	0.3	0.4	
У	0.3	0.3	0.3	0.3	0.3	0.3	0.3	0.3	1	0.3	
Ф	0.6	0.6	0.6	0.6	0.6	0.4	0.7	0.4	0.3	1	

In the final table, where all values less than  $\alpha$  and main diagonal will become zeros.

	Б	В	Е	Ё	Н	О	Р	С	У	Ф	
Б	0	0.8	0.8	0.8	0.7	0	0.6	0	0	0.6	Final
В	0.8	0	0.8	0.8	0.7	0	0.6	0	0	0.6	
Е	0.8	0.8	0	0.9	0.7	0	0.6	0	0	0.6	
Ё	0.8	0.8	0.9	0	0.7	0	0.6	0	0	0.6	
Н	0.7	0.7	0.7	0.7	0	0	0.6	0	0	0.6	
О	0	0	0	0	0	0	0	0.9	0	0	
Р	0.6	0.6	0.6	0.6	0.6	0	0	0	0	0.7	
С	0	0	0	0	0	0.9	0	0	0	0	
У	0	0	0	0	0	0	0	0	0	0	
Ф	0.6	0.6	0.6	0.6	0.6	0	0.7	0	0	0	

$$1) I = \{1, 2, 3, 4, 5, 6, 7, 8, 9, 10\} \quad C_1 = \{\}$$

$$a_{34} = a_{43} = 0.9 \quad C_1 = \{3, 4\}$$

$$Max = sum_1 \rightarrow C_1 = \{3, 4, 1\}$$

$$Max = sum_2 \rightarrow C_1 = \{3, 4, 1, 2\}$$

$$Max = sum_5 \rightarrow C_1 = \{3, 4, 1, 2, 5\}$$

$$Max = sum_7 \rightarrow C_1 = \{3, 4, 1, 2, 5, 7\}$$

$$Max = sum_{10} \rightarrow C_1 = \{3, 4, 1, 2, 5, 7, 10\}$$

	Б	В	Е	Ё	Н	О	Р	С	У	Ф	
Б	0	0.8	0.8	0.8	0.7	0	0.6	0	0	0.6	Final
В	0.8	0	0.8	0.8	0.7	0	0.6	0	0	0.6	
Е	0.8	0.8	0	0.9	0.7	0	0.6	0	0	0.6	
Ё	0.8	0.8	0.9	0	0.7	0	0.6	0	0	0.6	
Н	0.7	0.7	0.7	0.7	0	0	0.6	0	0	0.6	
О	0	0	0	0	0	0	0	0.9	0	0	
Р	0.6	0.6	0.6	0.6	0.6	0	0	0	0	0.7	
С	0	0	0	0	0	0.9	0	0	0	0	
У	0	0	0	0	0	0	0	0	0	0	
Ф	0.6	0.6	0.6	0.6	0.6	0	0.7	0	0	0	

$$2) I = \{6,8,9\} \quad C_2 = \{\}$$

$$a_{68} = a_{86} = 0.9 \quad C_2 = \{6,8\}$$

	O	C	y	
O	0	0.9	0	Final
C	0.9	0	0	
y	0	0	0	

$$3) I = \{9\} \quad C_3 = \{9\}$$

$$C = \{\{3,4,1,2,5,7,10\},\{6,8\},\{9\}\}$$

OR

$$C = \{\{E,\ddot{E},\mathcal{B},B,H,P,\Phi\},\{O,C\},\{Y\}\}$$