

Contemporary Data Processing Technology (CCOD)

Lab 10 (October 28, 2016)

Marchanka Anton, AS-36

In this work I took the 10 Russian letters: **е, ё, и, ы, м, н, к, л, ф, о**.

$$\alpha = 0.5$$

Table of similarity percentage of letters

R0	е	ё	и	ы	м	н	к	л	ф	о
е	1	0.9	0.1	0.1	0.1	0.1	0.1	0.1	0.3	0.6
ё	0.9	1	0.1	0.1	0.1	0.1	0.1	0.1	0.3	0.6
и	0.1	0.1	1	0.7	0.5	0.8	0.7	0.4	0.1	0.1
ы	0.1	0.1	0.7	1	0.6	0.5	0.3	0.2	0.1	0.1
м	0.1	0.1	0.5	0.6	1	0.3	0.3	0.3	0.1	0.1
н	0.1	0.1	0.8	0.5	0.3	1	0.6	0.5	0.1	0.1
к	0.1	0.1	0.7	0.3	0.3	0.6	1	0.8	0.1	0.1
л	0.1	0.1	0.4	0.2	0.3	0.5	0.8	1	0.1	0.1
ф	0.3	0.3	0.1	0.1	0.1	0.1	0.1	0.1	1	0.5
о	0.6	0.6	0.1	0.1	0.1	0.1	0.1	0.1	0.5	1

Three steps of modifying this table:

R1	е	ё	и	ы	м	н	к	л	ф	о
е	1	0.9	0.1	0.1	0.1	0.1	0.1	0.1	0.5	0.6
ё	0.9	1	0.1	0.1	0.1	0.1	0.1	0.1	0.5	0.6
и	0.1	0.1	1	0.7	0.6	0.8	0.7	0.7	0.1	0.1
ы	0.1	0.1	0.7	1	0.6	0.7	0.7	0.5	0.1	0.1
м	0.1	0.1	0.6	0.6	1	0.5	0.5	0.4	0.1	0.1
н	0.1	0.1	0.8	0.7	0.5	1	0.7	0.6	0.1	0.1
к	0.1	0.1	0.7	0.7	0.5	0.7	1	0.8	0.1	0.1
л	0.1	0.1	0.7	0.5	0.4	0.6	0.8	1	0.1	0.1
ф	0.5	0.5	0.1	0.1	0.1	0.1	0.1	0.1	1	0.5
о	0.6	0.6	0.1	0.1	0.1	0.1	0.1	0.1	0.5	1

R2	е	ё	и	ы	м	н	к	л	ф	о
е	1	0.9	0.1	0.1	0.1	0.1	0.1	0.1	0.5	0.6
ё	0.9	1	0.1	0.1	0.1	0.1	0.1	0.1	0.5	0.6
и	0.1	0.1	1	0.7	0.6	0.8	0.7	0.7	0.1	0.1
ы	0.1	0.1	0.7	1	0.6	0.7	0.7	0.7	0.1	0.1
м	0.1	0.1	0.6	0.6	1	0.6	0.6	0.6	0.1	0.1
н	0.1	0.1	0.8	0.7	0.6	1	0.7	0.7	0.1	0.1
к	0.1	0.1	0.7	0.7	0.6	0.7	1	0.8	0.1	0.1
л	0.1	0.1	0.7	0.7	0.6	0.7	0.8	1	0.1	0.1
ф	0.5	0.5	0.1	0.1	0.1	0.1	0.1	0.1	1	0.5
о	0.6	0.6	0.1	0.1	0.1	0.1	0.1	0.1	0.5	1

R3	е	ё	и	ы	м	н	к	л	ф	о
е	1	0.9	0.1	0.1	0.1	0.1	0.1	0.1	0.5	0.6
ё	0.9	1	0.1	0.1	0.1	0.1	0.1	0.1	0.5	0.6
и	0.1	0.1	1	0.7	0.6	0.8	0.7	0.7	0.1	0.1
ы	0.1	0.1	0.7	1	0.6	0.7	0.7	0.7	0.1	0.1
м	0.1	0.1	0.6	0.6	1	0.6	0.6	0.6	0.1	0.1
н	0.1	0.1	0.8	0.7	0.6	1	0.7	0.7	0.1	0.1
к	0.1	0.1	0.7	0.7	0.6	0.7	1	0.8	0.1	0.1
л	0.1	0.1	0.7	0.7	0.6	0.7	0.8	1	0.1	0.1
ф	0.5	0.5	0.1	0.1	0.1	0.1	0.1	0.1	1	0.5
о	0.6	0.6	0.1	0.1	0.1	0.1	0.1	0.1	0.5	1

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

Last	е	ё	и	ы	м	н	к	л	ф	о
е	0	0.9	0	0	0	0	0	0	0	0.6
ё	0.9	0	0	0	0	0	0	0	0	0.6
и	0	0	0	0.7	0.6	0.8	0.7	0.7	0	0
ы	0	0	0.7	0	0.6	0.7	0.7	0.7	0	0
м	0	0	0.6	0.6	0	0.6	0.6	0.6	0	0
н	0	0	0.8	0.7	0.6	0	0.7	0.7	0	0
к	0	0	0.7	0.7	0.6	0.7	0	0.8	0	0
л	0	0	0.7	0.7	0.6	0.7	0.8	0	0	0
ф	0	0	0	0	0	0	0	0	0	0
о	0.6	0.6	0	0	0	0	0	0	0	0

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

$$a_{12} = a_{21} = 0.9 \quad C_1 = \{1, 2\}$$

$$Max\ sum_{10} = 1.2 \rightarrow C_1 = \{1, 2, 10\}$$

Last	е	ё	и	ы	м	н	к	л	ф	о
е	0	0.9	0	0	0	0	0	0	0	0.6
ё	0.9	0	0	0	0	0	0	0	0	0.6
и	0	0	0	0.7	0.6	0.8	0.7	0.7	0	0
ы	0	0	0.7	0	0.6	0.7	0.7	0.7	0	0
м	0	0	0.6	0.6	0	0.6	0.6	0.6	0	0
н	0	0	0.8	0.7	0.6	0	0.7	0.7	0	0
к	0	0	0.7	0.7	0.6	0.7	0	0.8	0	0
л	0	0	0.7	0.7	0.6	0.7	0.8	0	0	0
ф	0	0	0	0	0	0	0	0	0	0
о	0.6	0.6	0	0	0	0	0	0	0	0

$$2) I = \{3, 4, 5, 6, 7, 8, 9\} \quad C_2 = \{\}$$

$$a_{36} = a_{63} = 0.8 \quad C_2 = \{3, 6\}$$

$$Max\ sum_4 = 1.4 \rightarrow C_1 = \{3, 4, 6\}$$

$$Max\ sum_5 = 1.2 \rightarrow C_1 = \{3, 4, 5, 6\}$$

$$Max\ sum_7 = 1.4 \rightarrow C_1 = \{3, 4, 5, 6, 7\}$$

$$Max\ sum_8 = 1.4 \rightarrow C_1 = \{3, 4, 5, 6, 7, 8\}$$

Last	е	ё	и	ы	м	н	к	л	ф	о
е	0	0.9	0	0	0	0	0	0	0	0.6
ё	0.9	0	0	0	0	0	0	0	0	0.6
и	0	0	0	0.7	0.6	0.8	0.7	0.7	0	0
ы	0	0	0.7	0	0.6	0.7	0.7	0.7	0	0
м	0	0	0.6	0.6	0	0.6	0.6	0.6	0	0
н	0	0	0.8	0.7	0.6	0	0.7	0.7	0	0
к	0	0	0.7	0.7	0.6	0.7	0	0.8	0	0
л	0	0	0.7	0.7	0.6	0.7	0.8	0	0	0
ф	0	0	0	0	0	0	0	0	0	0
о	0.6	0.6	0	0	0	0	0	0	0	0

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

$$C_3 = \{9\}$$

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

OR

$$C = \{\{е, ё, о\}, \{и, ы, м, н, к, л\}, \{ф\}\}$$