MEREAL KATE C. SILVESTRE

Assignment #4

GIVEN 3 X 3 key MATRIX MOD 26:

$$\begin{pmatrix} K11 & K12 & K1 \\ K21 & K22 & K2 \\ K31 & K32 & K3 \end{pmatrix} = \begin{pmatrix} 17 & 17 & 5 \\ 21 & 18 & 21 \\ 2 & 2 & 19 \end{pmatrix}$$

Z	A	F	S	T	A	P	W	H	T	Z	P	N	U	X	L	B	V	A	N	K	S	U	T	Q	M	O	L	L	M	F	S	L	Y	A	E	F	T	W	N	T	U
M	R	S	T	R	U	M	P	I	F	Y	O	U	P	E	R	M	I	T	N	O	W	I	L	I	K	E	D	A	T	I	N	G	K	I	M	B	E	R	L	Y	Z

ZAF = 25 0 5

STA = 18 19 0

PWH = 15 22 7

TZP = 19 25 15

NUX = 13 20 23

LBV = 11 1 21

ANK = 0 13 10

SUT = 18 20 19

QMO = 16 12 14

LLM = 11 11 12

FSL = 5 18 11

YAE = 24 0 4

FTW = 5 19 22

NTU = 13 19 20

ANSWERS:

ZAF = 25 0 5

25 0 5 $\begin{pmatrix} 17 & 17 & 5 \\ 21 & 18 & 21 \\ 2 & 2 & 19 \end{pmatrix}$

Given: 25, 0, 5

((25 * 4) + (0 * 15) + (5 * 24) (25 * 9) + (0 * 17) + (5 * 0) (25 * 15) + (0 * 6) + (5 * 17))

(220, 225, 460) mod 26

(12, 17, 18)

ZAF = 12 17 18

ZAF = MRS

STA = 18 19 0

18 19 0 $\begin{pmatrix} 17 & 17 & 5 \\ 21 & 18 & 21 \\ 2 & 2 & 19 \end{pmatrix}$

Given: 18, 19, 0

((18 * 4) + (19 * 15) + (0 * 24) (18 * 9) + (19 * 17) + (0 * 0) (18 * 15) + (19 * 6) + (0 * 17))

(357, 485, 384) mod 26

(19, 17, 20)

STA = 19 17 20

STA = TRU

PWH = 15 22 7

15 22 7 $\begin{pmatrix} 17 & 17 & 5 \\ 21 & 18 & 21 \\ 2 & 2 & 19 \end{pmatrix}$

Given: 15, 22, 7

((15 * 4) + (22 * 15) + (7 * 24) (15 * 9) + (22 * 17) + (7 * 0) (15 * 15) + (22 * 6) + (7 * 17))

(558, 509, 476) mod 26

(12, 15, 8)

PWH = 12 15 8

PWH = MPI

TZP = 19 25 15

19 25 15 $\begin{pmatrix} 17 & 17 & 5 \\ 21 & 18 & 21 \\ 2 & 2 & 19 \end{pmatrix}$

Given: 19, 25, 15

(19 * 4 + 25 * 15 + 15 * 24 19 * 9 + 25 * 17 + 15 * 0 19 * 15 + 25 * 6 + 15 * 17) mod 26

(811, 596, 690) mod 26

(5, 24, 14)

TZP = 5 24 14

TZP = FYO

NUX = 13 20 23

13 20 23 $\begin{pmatrix} 17 & 17 & 5 \\ 21 & 18 & 21 \\ 2 & 2 & 19 \end{pmatrix}$

Given: 13, 20, 23

(13 * 4 + 20 * 15 + 23 * 24 13 * 9 + 20 * 17 + 23 * 0 13 * 15 + 20 * 6 + 23 * 17) mod 26

(904, 457, 706) mod 26

(20, 15, 4)

NUX = 20 15 4

NUX = UPE

LBV = 11 1 21

11 1 21 $\begin{pmatrix} 17 & 17 & 5 \\ 21 & 18 & 21 \\ 2 & 2 & 19 \end{pmatrix}$

Given: 11, 1, 21

(11 * 4 + 1 * 15 + 21 * 24 11 * 9 + 1 * 17 + 21 * 0 11 * 15 + 1 * 6 + 21 * 17) mod 26

(563, 116, 528) mod 26

(17, 12, 8)

LBV = 17 12 8

LBV = RMI

ANK = 0 13 10

0 13 10 $\begin{pmatrix} 17 & 17 & 5 \\ 21 & 18 & 21 \\ 2 & 2 & 19 \end{pmatrix}$

Given: 0, 13, 10

(0 * 4 + 13 * 15 + 10 * 24 0 * 9 + 13 * 17 + 10 * 0 0 * 15 + 13 * 6 + 10 * 17) mod 26

(435, 221, 248) mod 26

(19, 13, 14)

ANK = 19 13 14

ANK = TNO

SUT = 18 20 19

18 20 19 $\begin{pmatrix} 17 & 17 & 5 \\ 21 & 18 & 21 \\ 2 & 2 & 19 \end{pmatrix}$

Given: 18, 20, 19

(18 * 4 + 20 * 15 + 19 * 24 18 * 9 + 20 * 17 + 19 * 0 18 * 15 + 20 * 6 + 19 * 17) mod 26

(828, 502, 713) mod 26

(22, 8, 11)

SUT = 22 8 11

SUT = WIL

QMO = 16 12 14

16 12 14 $\begin{pmatrix} 17 & 17 & 5 \\ 21 & 18 & 21 \\ 2 & 2 & 19 \end{pmatrix}$

Given: 16, 12, 14

(16 * 4 + 12 * 15 + 14 * 24 16 * 9 + 12 * 17 + 14 * 0 16 * 15 + 12 * 6 + 14 * 17) mod 26

(580, 348, 550) mod 26

(8, 10, 4)

QMO = 8 10 4

QMO = IKE

LLM = 11 11 12

11 11 12 $\begin{pmatrix} 17 & 17 & 5 \\ 21 & 18 & 21 \\ 2 & 2 & 19 \end{pmatrix}$

Given: 11, 11, 12

(11 * 4 + 11 * 15 + 12 * 24 11 * 9 + 11 * 17 + 12 * 0 11 * 15 + 11 * 6 + 12 * 17) mod 26

(497, 286, 435) mod 26

(3, 0, 19)

LLM = 3 0 19

LLM = DAT

FSL = 5 18 11

5 18 11 $\begin{pmatrix} 17 & 17 & 5 \\ 21 & 18 & 21 \\ 2 & 2 & 19 \end{pmatrix}$

Given: 5, 18, 11

(5 * 4 + 18 * 15 + 11 * 24 5 * 9 + 18 * 17 + 11 * 0 5 * 15 + 18 * 6 + 11 * 17) mod 26

(554, 351, 370) mod 26

(8, 13, 6)

FSL = 8 13 6

FSL = ING

YAE = 24 0 4

24 0 4 $\begin{pmatrix} 17 & 17 & 5 \\ 21 & 18 & 21 \\ 2 & 2 & 19 \end{pmatrix}$

Given: 24, 0, 4

(24 * 4 + 0 * 15 + 4 * 24 24 * 9 + 0 * 17 + 4 * 0 24 * 15 + 0 * 6 + 4 * 17) mod 26

(192, 216, 428) mod 26

(10, 8, 12)

YAE = 10 8 12

YAE = KIM

FTW = 5 19 22

5 19 22 $\begin{pmatrix} 17 & 17 & 5 \\ 21 & 18 & 21 \\ 2 & 2 & 19 \end{pmatrix}$

Given: 5, 19, 22

(5 * 4 + 19 * 15 + 22 * 24 5 * 9 + 19 * 17 + 22 * 0 5 * 15 + 19 * 6 + 22 * 17) mod 26

(833, 368, 563) mod 26

(1, 4, 17)

FTW = 1 4 17

FTW = BER

NTU = 13 19 20

13 19 20 $\begin{pmatrix} 17 & 17 & 5 \\ 21 & 18 & 21 \\ 2 & 2 & 19 \end{pmatrix}$

Given: 13, 19, 20

(13 * 4 + 19 * 15 + 20 * 24 13 * 9 + 19 * 17 + 20 * 0 13 * 15 + 19 * 6 + 20 * 17) mod 26

(817, 440, 649) mod 26

(11, 24, 25)

NTU = 11 24 25

NTU = LYZ