Message(ASCII):- codesmilecodesmi
Message(Hexa):- 63 6f 64 65 73 6d 69 6c 65 63 6f 64 65 73 6d 69
Key(Hexa):- f6 cc 34 cd c5 55 c5 41 82 54 26 02 03 ad 3e cd
Cipher(Hexa): dd 08 e5 ae a1 1a 78 0c 59 f9 68 cc 33 fb 8e ff

Initialization:- Fill key and plain text matrix	**Input bits** 63 73 65 65 6f 6d 63 73 64 69 6f 6d 65 6c 64 69	**Key bits** f6 c5 82 03 cc 55 54 ad 34 c5 26 3e cd 41 02 cd	
Key expansion:- W[0:43]	w[0] = f6 cc 34 cd w[1] = c5 55 c5 41 w[2] = 82 54 26 02 w[3] = 03 ad 3e cd	RotWord()= ad 3e cd 03 SubWord()= 95 b2 bd 7b ^ Rcon()= 94 b2 bd 7b w[4] = 62 7e 89 b6 w[5] = a7 2b 4c f7 w[6] = 25 7f 6a f5 w[7] = 26 d2 54 38	RotWord()= d2 54 38 26 SubWord()= b5 20 07 f7 ^ Rcon()= b7 20 07 f7 w[8] = d5 5e 8e 41 w[9] = 72 75 c2 b6 w[10] = 57 0a a8 43 w[11] = 71 d8 fc 7b
	RotWord()= d8 fc 7b 71 SubWord()= 61 b0 21 a3 ^ Rcon()= 65 b0 21 a3 w[12] = b0 ee af e2 w[13] = c2 9b 6d 54 w[14] = 95 91 c5 17 w[15] = e4 49 39 6c	RotWord()= 49 39 6c e4 SubWord()= 3b 12 50 69 ^ Rcon()= 33 12 50 69 w[16] = 83 fc ff 8b w[17] = 41 67 92 df w[18] = d4 f6 57 c8 w[19] = 30 bf 6e a4	RotWord()= bf 6e a4 30 SubWord()= 08 9f 49 04 ^ Rcon()= 18 9f 49 04 w[20] = 9b 63 b6 8f w[21] = da 04 24 50 w[22] = 0e f2 73 98 w[23] = 3e 4d 1d 3c
	RotWord()= 4d 1d 3c 3e SubWord()= e3 a4 eb b2 ^ Rcon()= c3 a4 eb b2 w[24] = 58 c7 5d 3d w[25] = 82 c3 79 6d w[26] = 8c 31 0a f5 w[27] = b2 7c 17 c9	RotWord()= 7c 17 c9 b2 SubWord()= 10 f0 dd 37 ^ Rcon()= 50 f0 dd 37 w[28] = 08 37 80 0a w[29] = 8a f4 f9 67 w[30] = 06 c5 f3 92 w[31] = b4 b9 e4 5b	RotWord()= b9 e4 5b b4 SubWord()= 56 69 39 8d ^ Rcon()= d6 69 39 8d w[32] = de 5e b9 87 w[33] = 54 aa 40 e0 w[34] = 52 6f b3 72 w[35] = e6 d6 57 29
	RotWord()= d6 57 29 e6 SubWord()= f6 5b a5 8e ^ Rcon()= ed 5b a5 8e w[36] = 33 05 1c 09 w[37] = 67 af 5c e9 w[38] = 35 c0 ef 9b w[39] = d3 16 b8 b2	RotWord()= 16 b8 b2 d3 SubWord()= 47 6c 37 66 ^ Rcon()= 71 6c 37 66 w[40] = 42 69 2b 6f w[41] = 25 c6 77 86 w[42] = 10 06 98 1d w[43] = c3 10 20 af	
Initial state (Key Addition Layer)	Round Key f6 c5 82 03 cc 55 54 ad 34 c5 26 3e cd 41 02 cd	Plain 63 73 65 65 6f 6d 63 73 64 69 6f 6d 65 6c 64 69	Result 95 b6 e7 66 a3 38 37 de 50 ac 49 53 a8 2d 66 a4

Round 1	Round Key	AfterByteSub	After Shift	AfterMixColumns	KeyAddition
	62 a7 2526	2a 4e 94 33	2a 4e 94 33	2f 06 9f da	4d a1 ba fc
	7e 2b 7f d2	0a 07 9a 1d	07 9a 1d 0a	20 8f 83 bc	5e a4 fc 6e
	89 4c 6a 54	53 91 3b ed	3b ed 53 91	80 48 5c 55	09 04 36 01
	b6 f7 f5 38	c2 d8 33 49	49 c2 d8 33	d0 3a 42 a8	66 cd b7 90

Round 2	Round Key d5 72 57 71 5e 75 0a d8 8e c2 a8 fc 41 b6 43 7b	AfterByteSub e3 32 f4 b0 58 49 b0 9f 01 f2 05 7c 33 bd a9 60	AfterShiftRows e3 32 f4 b0 49 b0 9f 58 05 7c 01 f2 60 33 bd a9	AfterMixColumns 63 e0 f5 c8 1e fe 6f a4 00 2f b5 f7 b2 fc f8 28	KeyAddition b6 92 a2 b9 40 8b 65 7c 8e ed 1d 0b f3 4a bb 53
Round 3	Round Key b0 c2 95 e4 ee 9b 91 49 af 6d c5 39 e2 54 17 6c	AfterByteSub 4e 4f 3a 56 09 3d 4d 10 19 55 a4 2b 0d d6 ea ed	AfterShiftRows 4e 4f 3a 56 3d 4d 10 09 a4 2b 19 55 ed 0d d6 ea	AfterMixColumns 92 6f 8b 08 2e a5 e7 51 0c 43 79 d0 8a ad f0 69	KeyAddition 22 ad 1e ec c0 3e 76 18 a3 2e bc e9 68 f9 e7 05
Round 4	Round Key 83 41 d4 30 fc 67 f6 bf ff 92 57 6e 8b df c8 a4	AfterByteSub 93 95 72 ce ba b2 38 ad 0a 31 65 1e 45 99 94 6b	AfterShiftRows 93 95 72 ce b2 38 ad ba 65 1e 0a 31 6b 45 99 94	AfterMixColumns fe 22 9b f7 28 82 b4 66 56 5e 7b b1 af 08 18 f1	KeyAddition 7d 63 4f c7 d4 e5 42 d9 a9 cc 2c df 24 d7 d0 55
Round 5	Round Key 9b da 0e 3e 63 04 f2 4d b6 24 73 1d 8f 50 98 3c	AfterByteSub ff fb 84 c6 48 d9 2c 35 d3 4b 71 9e 36 0e 70 fc	AfterShiftRows ff fb 84 c6 d9 2c 35 48 71 9e d3 4b fc 36 0e 70	AfterMixColumns 18 31 91 74 39 2c 8e fb db aa 1e 88 51 c8 6d b2	KeyAddition 83 eb 9f 4a 5a 28 7c b6 6d 8e 6d 95 de 98 f5 8e
Round 6	Round Key 58 82 8c b2 c7 c3 31 7c 5d 79 0a 17 3d 6d f5 c9	AfterByteSub ec e9 db d6 be 34 10 4e 3c 19 3c 2a 1d 46 e6 19	AfterShiftRows ec e9 db d6 34 10 4e be 3c 2a 3c 19 19 1d 46 e6	AfterMixColumns ba ce 05 91 d9 aa 45 7c 8b 8a 27 6b 15 20 88 11	KeyAddition e2 4c 89 23 1e 69 74 00 d6 f3 2d 7c 28 4d 7d d8
Round 7	Round Key 08 8a 06 b4 37 f4 c5 b9 80 f9 f3 e4 0a 67 92 5b	AfterByteSub 98 29 a7 26 72 f9 92 63 f6 0d d8 10 34 e3 ff 61	AfterShiftRows 98 29 a7 26 f9 92 63 72 d8 10 f6 0d 61 34 e3 ff	AfterMixColumns 82 db e5 28 63 12 83 2a 69 c7 0d 54 50 91 ba f0	KeyAddition 8a 51 e3 9c 54 e6 46 93 e9 3e fe b0 5a f6 28 ab
Round 8	Round Key de 54 52 e6 5e aa 6f d6 b9 40 b3 57 87 e0 72 29	AfterByteSub 7e d1 11 de 20 8e 5a dc 1e b2 bb e7 be 42 34 62	AfterShiftRows 7e d1 11 de 8e 5a dc 20 bb e7 1e b2 62 be 42 34	AfterMixColumns ac 0e 01 41 cd e9 d2 67 3b 87 37 dd 73 b2 75 83	KeyAddition 72 5a 53 a7 93 43 bd b1 82 c7 84 8a f4 52 07 aa
Round 9	Round key 33 67 35 d3 05 af c0 16 1c 5c ef b8 09 e9 9b b2	AfterByteSub 40 be ed 5c dc 1a 7a c8 13 c6 5f 7e bf 00 c5 ac	AfterShiftRows 40 be ed 5c 1a 7a c8 dc 5f 7e 13 c6 ac bf 00 c5	AfterMixColumns 5d 28 91 c4 39 77 53 6b 0b e2 03 43 c6 b8 f7 6f	KeyAddition 6e 4f a4 17 3c d8 93 7d 17 be ec fb Cf 51 6c dd
Round 10	Round key 42 25 10 c3 69 c6 06 10 2b 77 98 20 6f 86 1d af	AfterByteSub 9f 84 49 f0 eb 61 dc ff f0 ae ce 0f 8a d1 50 c1	AfterShiftRows 9f 84 49 f0 61 dc ff eb ce 0f f0 ae c1 8a d1 50	No Inverse mix columns in this round	KeyAddition dd a1 59 33 08 1a f9 fb e5 78 68 8e ae 0c cc ff

Other test cases: -

One Block Example:-

Plaintext(ASCII):- abcdefghabcdefgh
Plaintext(Hexa):- 61 62 63 64 65 66 67 68 61 62 63 64 65 66 67 68
Key(Hexa):- 61 62 63 64 65 66 67 68 61 62 63 64 65 66 67 68
Key(ASCII):- abcdefghabcdefgh
Cipher(Hexa):- ff 4e b3 ad 54 a5 e1 4a ec b2 10 8b 0e 0a 65 80

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3 Blocks Example

Plaintext (ASCII):- Information technology department
Plaintext (After handling):- Information technology department**********
Plaintext(Hexa):-
49 6e 66 6f 72 6d 61 74 69 6f 6e 20 74 65 63 68
6e 6f 6c 6f 67 79 20 64 65 70 61 72 74 6d 65 6e
74 2a 2a 2a 2a 2a 2a 2a 2a 2a 2a 2a 2a 2a 2a 2a

Key(Hexa):- 61 62 63 64 65 66 67 68 61 62 63 64 65 66 67 68
Key(ASCII):- abcdefghabcdefgh
Cipher(Hexa):-

f4 2a 5a a9 d5 80 c9 47 ae 95 54 eb 79 e7 d0 3c
fe 9b ed 53 cd 0a 5a 37 2e 6d 77 9a 19 aa 5c 90
83 44 b6 26 84 41 5f 51 b2 4d 6d 43 d5 7f ce 54

.....

Plaintext less than one block: -

Plaintext (ASCII):- Friday
Plaintext After Handling :- Friday**********
Plaintext(Hexa):- 46 72 69 64 61 79 2a 2a 2a 2a 2a 2a 2a 2a 2a 2a
Key(Hexa):- 61 62 63 64 65 66 67 68 61 62 63 64 65 66 67 68
Key(ASCII):- abcdefghabcdefgh
Cipher(Hexa):-

8b 94 d7 19 91 14 b8 6e 14 75 1e 7d b8 a9 2e 9f

.....

Key less than one block: -

Plaintext(Hexa):- Friday**********
Key(Hexa):- 61 62 63 64 65 66 67 68
Key(ASCII):- abcdefgh
Displaying error message and request another key from user.