

C:\Users\user\Desktop\IS\dipesh\AES.exe

Original state:

```
00 01 02 03
04 05 06 07
08 09 0A 0B
0C 0D 0E 0F
```

State after Shift Rows operation:

```
00 01 02 03
05 06 07 04
0A 0B 08 09
0F 0C 0D 0E
```

Process exited after 0.03396 seconds with return value 0
Press any key to continue . . .

C:\Users\user\Desktop\IS\dipesh\Eucliden.exe

Enter any 2 numbers : 629 1665

GCD(629, 1665) = 37

Process exited after 53.22 seconds with return value 0
Press any key to continue . . .

C:\Users\user\Desktop\IS\dipesh\ExtendedEuclidean.exe

Enter two numbers: 161 28

GCD of 161 and 28 is: 7

B0zout coefficients: s = -1, t = 6

Process exited after 5.82 seconds with return value 0
Press any key to continue . . .

C:\Users\user\Desktop\IS\dipesh\FermatTheorem.exe

Enter a Number to check its Primality: 509

Enter the number of times to check primality using Fermat's Little: 250

According to Fermat's Little Theorem: 509 is a prime number.

Process exited after 18.56 seconds with return value 0

Press any key to continue . . .

C:\Users\user\Desktop\IS\dipesh\MillerRabinPrimalityTest.exe

Enter a Number to check its Primality: 503

Enter the number of times to check primality using Miller-Rabin Test: 50

503 is a prime number.

Process exited after 7.62 seconds with return value 0

Press any key to continue . . .

C:\Users\user\Desktop\IS\dipesh\EulersTheorem.exe

Enter two numbers (a and n): 37 17

$\phi(17) = 16$

37^{16} is congruent to 1 modulo 17.

Enter two numbers (a and n): 9 3

$\phi(3) = 2$

The numbers a and n are not relatively prime.

Process exited after 9.879 seconds with return value 0

Press any key to continue . . .

C:\Users\user\Desktop\IS\dipesh\EulersTotient.exe

Enter any Number: 9

Totient Value of 9, $\phi(9) = 6$

Process exited after 7.731 seconds with return value 0

Press any key to continue . . .

C:\Users\user\Desktop\IS\dipesh\DiffieHellmanKeyExchange.exe

A Common Prime Number P : 23

A Primitive Root of P, G = 21

The private key a for Alice : 4

The public key x for Alice : 16

The private key b for Bob : 3

The public key y for Bob : 15

Secret key for Alice is : 2

Secret Key for Bob is : 2

Process exited after 0.03489 seconds with return value 0

Press any key to continue . . .

C:\Users\user\Desktop\IS\dipesh\RSA.exe

Enter PlainTextMessage: 99

First prime number (p) = 13

Second prime number (q) = 17

Value of n = 221

Value of totient function, $\phi = 192$

Value of e = 5

Value of d = 0

Plain Text Message (M) = 99

Encrypted message (E) = 216

Decrypted message or Plaintext Message (M) = 99

Process exited after 3.141 seconds with return value 0

Press any key to continue . . .