```
DELL@DESKTOP-AHR0043 MINGW64 /h/mrinal_COLLEGE/fifth semester/crypto
$ python Ceasar_cipher.py
        Enter the message: hello i am mrinal
        Enter the Key value: 12

        Encrypted message: tqxxa u my yduzmx
        Decrypted message: hello i am mrinal
```

```
DELL@DESKTOP-AHR0043 MINGW64 /h/mrinal_COLLEGE/fifth semester/crypto
$ python Hill_cipher.py
        Enter the message: liverpool is the best
        Enter Key Matrix size: 2
        Enter 2x2 Key Matrix:
        Enter element at position (1, 1): 3
        Enter element at position (1, 2): 2
        Enter element at position (2, 1): 3
        Enter element at position (2, 2): 7

        Encrypted message: FAXSSJGWUJAMSDHQQHOEWR
```

```
DELL@DESKTOP-AHR0043 MINGW64 /h/mrinal_COLLEGE/fifth semester/crypto
$ python Vigenere_cipher.py
        Enter the message: you will never walk alone
        Enter the key: 6

        Encrypted message: NDJ LXAA CTKTG LPAZ PADCT
```

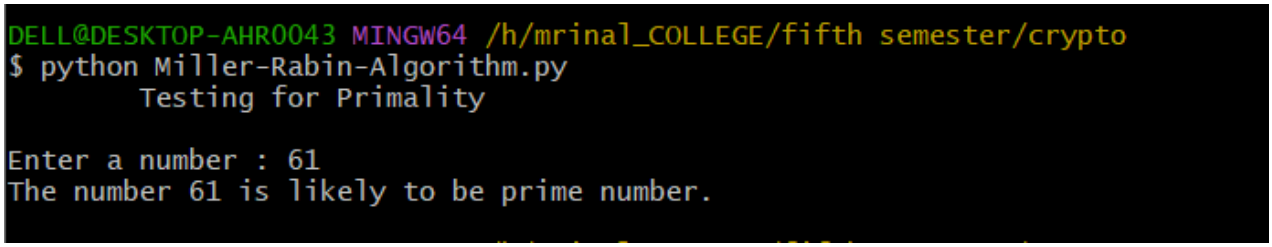
```
DELL@DESKTOP-AHR0043 MINGW64 /h/mrinal_COLLEGE/fifth semester/crypto
$ python Playfair_cipher.py
        Enter the message: i am eating pineapple
        Enter the key: hello

        Encrypted message: phkloukppukplhiiol
```

```
DELL@DESKTOP-AHR0043 MINGW64 /h/mrinal_COLLEGE/fifth semester/crypto
$ python RailFence_Cipher.py
        Enter the message: this is the labsheet of crpyto
        Enter the key (number of rails): 4

        Encrypted message: TTSFOHSHBHOCTIIEAETRYSLEP
```

```
DELL@DESKTOP-AHR0043 MINGW64 /h/mrinal_COLLEGE/fifth semester/crypto
$ python eucledian-and-extended-eucledian.py
Enter a: 161
Enter b: 28

Using Euclidean Algorithm
GCD(161,28) : 7

Using Extended Euclidean Algorithm
Extended GCD(161,28) : 7
Coefficients (S, T) for 161 , 28: (-1, 6)
```

```
DELL@DESKTOP-AHR0043 MINGW64 /h/mrinal_COLLEGE/fifth semester/crypto
$ python S-box-and-Key-Generation.py
Input Matrix:
[0, 1, 5, 6]
[0, 1, 5, 6]
[0, 1, 5, 6]
[0, 1, 5, 6]

S-box Output Matrix:
[19, 55, 82, 124]
[23, 51, 86, 120]
[27, 63, 90, 116]
[31, 59, 94, 112]

Expanded Key:
[18, 53, 84, 123, 22, 49, 80, 127, 26, 61, 92, 115, 30, 57, 88, 119]
```

```
DELL@DESKTOP-AHR0043 MINGW64 /h/mrinal_COLLEGE/fifth semester/crypto
$ python additive-inverse-and-multiplicative-inverse.py

Enter the prime number , p: 17
Enter the element to find inverses For , a : 9

        Additive Inverse of 9 is  8

        Multiplicative Inverse of 9 is  2
```


DELL@DESKTOP-AHR0043 MINGW64 /h/mrinal_COLLEGE/fifth semester/crypto
$ python Miller-Rabin-Algorithm.py
Testing for Primality
Enter a number : 61
The number 61 is likely to be prime number.

```
DELL@DESKTOP-AHR0043 MINGW64 /h/mrinal_COLLEGE/fifth semester/crypto
$ python FermentsEulers-theroem-Eulers-totient-function.py
Fermat's Theorem Test
Enter a number : 42
42 is composite.

Euler▒s totient Function
Euler's Totient Function of 42 is 12

Euler Theorem
Enter a base 'a' : 4
Enter a modulus 'm' : 2
Euler's Theorem doesn't apply for the given values of 'a' and 'm'.

DELL@DESKTOP-AHR0043 MINGW64 /h/mrinal_COLLEGE/fifth semester/crypto
$ python FermentsEulers-theroem-Eulers-totient-function.py
Fermat's Theorem Test
Enter a number : 3
3 is probably prime.

Euler▒s totient Function
Euler's Totient Function of 3 is 2

Euler Theorem
Enter a base 'a' : 3
Enter a modulus 'm' : 10
Euler's Theorem: 3^4 % 10 = 1
```

```
DELL@DESKTOP-AHR0043 MINGW64 /h/mrinal_COLLEGE/fifth semester/crypto
$ python Primitive-root.py
Enter a prime number: 17
Primitive roots of 17 are [3, 5, 6, 7, 10, 11, 12, 14]

DELL@DESKTOP-AHR0043 MINGW64 /h/mrinal_COLLEGE/fifth semester/crypto
$ python Primitive-root.py
Enter a prime number: 5
Primitive roots of 5 are [2, 3]
```

```
DELL@DESKTOP-AHR0043 MINGW64 /h/mrinal_COLLEGE/fifth semester/crypto
$ python Co-prime-or-not.py
Enter the first number: 10
Enter the second number: 3
10 and 3 are coprime.
```

```
DELL@DESKTOP-AHR0043 MINGW64 /h/mrinal_COLLEGE/fifth semester/crypto
$ python Diffie-Hellman-Algorithm.py
Enter a prime modulus (p): 23
Enter a primitive root (g): 5
Enter private key for party A: 6
Enter private key for party B: 15
Shared secret keys match.
Shared Secret Key: 2
```

```
DELL@DESKTOP-AHR0043 MINGW64 /h/mrinal_COLLEGE/fifth semester/crypto
$ python RSA_algorithm.py
Enter a prime number (p): 5
Enter a prime number (q): 19
Enter a message to encrypt: 19
Encrypted message: [49, 38]
Decrypted message: 19

DELL@DESKTOP-AHR0043 MINGW64 /h/mrinal_COLLEGE/fifth semester/crypto
$ python RSA_algorithm.py
Enter a prime number (p): 5
Enter a prime number (q): 19
Enter a message to encrypt: hi
Encrypted message: [24, 90]
Decrypted message:


DELL@DESKTOP-AHR0043 MINGW64 /h/mrinal_COLLEGE/fifth semester/crypto
$ python RSA_algorithm.py
Enter a prime number (p): 5
Enter a prime number (q): 19
Enter a message to encrypt: 123
Encrypted message: [49, 50, 91]
Decrypted message: 123
```