

RSA ALGORITHMCODE:

```
import math

p = int(input("enter p : "))
q = int(input("enter q : "))
message = int(input("enter message : "))

d=0

# calculate n
n = p*q

# calculate totient
totient = (p-1)*(q-1)

for e in range(2, totient):
    if math.gcd(e, totient) == 1:
        break

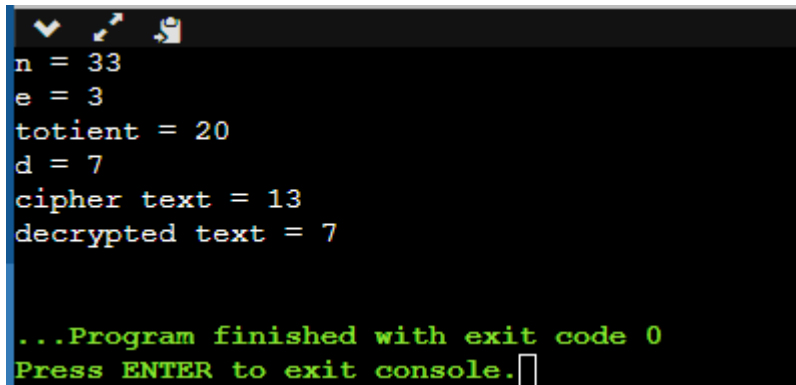
for i in range(1, 10):
    x = 1 + i*totient
    if x % e == 0:
        d = int(x/e)
        break

local_cipher = pow(message, e)
cipher_text = local_cipher % n

decrypt_t= pow(cipher_text, d)
decrypted_text = decrypt_t % n
```

```
print('n = '+str(n))  
print('e = '+str(e))  
print('totient = '+str(totient))  
print('d = '+str(d))  
print('cipher text = '+str(cipher_text))  
print('decrypted text = '+str(decrypted_text))
```

OUTPUT:

A screenshot of a console window with a dark background. The output text is displayed in a light green monospaced font. The text shows the values of variables n, e, totient, d, cipher text, and decrypted text. At the bottom, it indicates the program finished with exit code 0 and prompts the user to press ENTER to exit the console.

```
n = 33  
e = 3  
totient = 20  
d = 7  
cipher text = 13  
decrypted text = 7  
  
...Program finished with exit code 0  
Press ENTER to exit console.
```