

Implementation of RSA

```
from math import gcd

# defining a function to perform RSA approach
def RSA(p: int, q: int, message: int):
    # calculating n
    n = p * q

    # calculating totient, t
    t = (p - 1) * (q - 1)

    # selecting public key, e
    for i in range(2, t):
        if gcd(i, t) == 1:
            e = i
            break

    # selecting private key, d
    j = 0
    while True:
        if (j * e) % t == 1:
            d = j
            break
        j += 1

    # performing encryption
    ct = (message ** e) % n
    print(f"Encrypted message is {ct}")

    # performing decryption
    mes = (ct ** d) % n
    print(f"Decrypted message is {mes}")

# Testcase - 1
RSA(p=53, q=59, message=89)

# Testcase - 2
RSA(p=3, q=7, message=12)
```