

Code:

```
import math
```

```
def gcd(a, b):
```

```
    if a == 0:
```

```
        return b
```

```
    return gcd(b % a, a)
```

```
def mod_Inv(A, M):
```

```
    for X in range(1, M):
```

```
        if (((A % M) * (X % M)) % M == 1):
```

```
            return X
```

```
    return -1
```

```
print("RSA Algorithm")
```

```
p = int(input("Enter value of p:"))
```

```
q = int(input("Enter value of q:"))
```

```
n = p * q
```

```
phi_n = (p-1) * (q-1)
```

```
e = 2
```

```
while (e < phi_n):
```

```
    if(gcd(e, phi_n) == 1):
```

```
        break
```

```
    else:
```

```
        e = e+1
```

```
print("Public key is", e)
```

```
k = 2
```

```
i = 0
```

```
d = mod_Inv(e, phi_n)
```

```
print("Private key is ",d)
```

```
print("1. Encryption\n2. Decryption")
```

```
option = int(input("Enter option number:"))
```

```
if option == 1:
```

```
    plain_text = int(input("Enter plain text:"))
```

```
    cipher_text = math.pow(plain_text, e)
```

```
    cipher_text = cipher_text % n
```

```
    print("Cipher text is ", cipher_text)
```

```
elif option == 2:
```

```
    cipher_text = int(input("Enter cipher text:"))
```

```
    plain_text = math.pow(cipher_text, d)
```

```
plain_text = plain_text % n  
print("Plain text is ", plain_text)
```

else:

```
print("Wrong option selected")
```



The screenshot shows a web browser window with a pink header bar containing navigation icons. Below the header, a dark grey bar displays the text "Interactive Python Course" in a white box. The main content area is a dark blue terminal window titled "Shell" with a "Clear" button in the top right corner. The terminal displays the following text:

```
RSA Algorithm  
Enter value of p:3  
Enter value of q:11  
Public key is 3  
Private key is -1  
1. Encryption  
2. Decryption  
Enter option number:1  
Enter plain text:3  
Cipher text is 27.0  
>
```