**Name :- Akash Mete**

**CLass:- TE Computer**

**ERP :-52**

**Subject :-LP2(IS) (RSA)**

**Code:-**

from Crypto.PublicKey import RSA  
from Crypto.Cipher import PKCS1\_OAEP  
import binascii  
  
msg = (input("Enter Message to Encrypt and Decrypt : "))  
msg = bytes(msg, 'utf-8')  
  
keyPair = RSA.generate(3072)  
  
pubKey = keyPair.publickey()  
print(f"Public key: (n={hex(pubKey.n)}, e={hex(pubKey.e)})")  
pubKeyPEM = pubKey.exportKey()  
print(pubKeyPEM.decode('ascii'))  
  
print(f"Private key: (n={hex(pubKey.n)}, d={hex(keyPair.d)})")  
privKeyPEM = keyPair.exportKey()  
print(privKeyPEM.decode('ascii'))  
  
# msg = input()  
encryptor = PKCS1\_OAEP.new(pubKey)  
encrypted = encryptor.encrypt(msg)  
print("Encrypted:", binascii.hexlify(encrypted))  
  
decryptor = PKCS1\_OAEP.new(keyPair)  
decrypted = decryptor.decrypt(encrypted)  
print('Decrypted:', decrypted)

**Output:-**

**Enter Message to Encrypt and Decrypt : Its Prisoner aka Akash**

**Public key:**  (n=, e=0x10001)

**-----BEGIN PUBLIC KEY-----**

MIIBojANBgkqhkiG9w0BAQEFAAOCAY8AMIIBigKCAYEAl2x0laQ0MjYt5oiy2Rbl

93zm/Y5db9WwJDLhUDaO3NAsTJ3uVQLIi/1nrnwkoU8Yx3DtJHXrBK+xpZHuH03H

QSuVDVgKtH8oc2OJNqjSw9jAL7tvg2a5tpl0/rdtV/ZNGjqwCRF893LW9SC07k6N

uIkIewbh9T7xABqcWPwrDY5occ8EsSau0AmvHkZ1yrHmIGyeN8DmDIb1wxO8ASrH

Ul+cXjjtM826j49lajcny2UPDAwi2SnGLydCPBrNZp73SDeSwrjqfJvLCYIv1U6r

eekkU07TO1puqoTq3XlhDsYNJmZu8xRDEVkBxrjDMc2nm+GOmkTMXk396bgaRMIf

bGhu9+4dIosTl6H+L09SVsSXi7njxBbdJD5FZ7K96tK9JquLCY07cfBrEmOnaPD8

rb+xck68+QssKpUBW40d8DUmLP+A5TclLsI/Pv4mD1ZeMlWhYFoRTdyUFEY8hEKA

B1+bVwiOpHQNrmJJeKRGhw8u0YzkZOMQQb+PXz+S2cf7AgMBAAE=

**-----END PUBLIC KEY-----**

**Private key:** (n=, d=)

**-----BEGIN RSA PRIVATE KEY-----**

MIIG5AIBAAKCAYEAl2x0laQ0MjYt5oiy2Rbl93zm/Y5db9WwJDLhUDaO3NAsTJ3u

VQLIi/1nrnwkoU8Yx3DtJHXrBK+xpZHuH03HQSuVDVgKtH8oc2OJNqjSw9jAL7tv

g2a5tpl0/rdtV/ZNGjqwCRF893LW9SC07k6NuIkIewbh9T7xABqcWPwrDY5occ8E

sSau0AmvHkZ1yrHmIGyeN8DmDIb1wxO8ASrHUl+cXjjtM826j49lajcny2UPDAwi

2SnGLydCPBrNZp73SDeSwrjqfJvLCYIv1U6reekkU07TO1puqoTq3XlhDsYNJmZu

8xRDEVkBxrjDMc2nm+GOmkTMXk396bgaRMIfbGhu9+4dIosTl6H+L09SVsSXi7nj

xBbdJD5FZ7K96tK9JquLCY07cfBrEmOnaPD8rb+xck68+QssKpUBW40d8DUmLP+A

5TclLsI/Pv4mD1ZeMlWhYFoRTdyUFEY8hEKAB1+bVwiOpHQNrmJJeKRGhw8u0Yzk

ZOMQQb+PXz+S2cf7AgMBAAECggGACZm86znt0fCBHi3fl7JYd/Be3YeiYUin8iZE

W9IXDQ/+fF3CXSMf36RRkmIDmTNLIRCwsGWbi4CvijhY48+KHmsqzZ2d5s4Ycfcc

ctnnAbd4jpjbMUvDjZIS4A11giS3Gb52fR9d5XsjVDJegQImVni1usXNG2qssV1+

jokab7HDlHz+0VPgXzH7UjeUbfqz2lgYpfSggVMoj4BCT26iFD/EnxgL41jGsdBy

f8v/Gr8Nt61TTk0pksFx9R6b6Zw9fMrEddy/pIpKgyhobTMp5I9AIEZ42vUq1PZR

C1Noe+pF9Bsgrir88uZV1JFi3imwbsh6vZxh/oOm0OHnmMgv3WIWcGBpsRHBsoKL

dxqoDl6TNmX4Q7z06NJVKf0umQZMFhQFlNn5/OA+GT/dFfOo9UmP8U2JODejByCo

GmhOLNEKwZZPqTD9vUxq+tOsuItCeztwDezqwn4oHp/ojHT2AqVK6GdXAk2axBr8

E8DXa5tlLJhSvRNOvLQkUUzPzVzZAoHBAMRns+b73+bkYBEAh/1VJ1nUgsc0+8E/

KE06MNAXY0WL3vPLDw/THZwZtLylkDdTOtVVLI4zay/2ChE6PWha8HRertxDjqGz

RsUweUL4s6pRMwevhsm5qmK4K6eqdUf/UuFx9xkanHFLgzduzhhAhrshcq/Nd8D7

o2Oisn3W6IgjuqK5dt3WZ40liPrDtcsSCkLE7kaOF/pe563+QR/CC+1Kl61EKz7l

3NTLuqfIwdLDVyphuCWauTBAfi2Kqa1OswKBwQDFXrKnyc35OyWsP5gdvhPGom+H

UfM8k8bK+Bt4Mm4KSCnsWI+1rvgj9LKRgubwN3WL5Ag20VG5Jvulw0HpE8ZkTNWM

8gfGA4GZrOcPDvJ7c9Gg+cexvjRXNgdpXeVUFZu4W27bmXSiWJfLJUD0ZIBH6n5z

zKi+otltzlLoaB+BxD+/euACt4sVO/eRf4/j0+3Wk7tNp1XZdPLdNRZ9H+mgcfhl

nxa5dhjXBA74ek68r8RO3G9ojFadqAlaTLtyxZkCgcEAt7ahCvCTMTBxw7WRfp/G

XTpw0dF3o/1lv0ctHZii3QzGkZhhEFZTng5Vhxf+3CFYKPCw6pqiKoykQhUOF6zo

upFOUu5GXm6JRi3fX4uu0yN87jV7iPnIrOrEuuKxLZVge0zU64B+0WLm7FUTJpBE

9omE83joCXXYEXzAJQF/JMj27Ps6eqrw1ZBEnvut8rN/MZFvqEOFnkZjw9bOJ9yk

t2NMmV/oa78rX0jp4cPhuTnLMPOTAmnFy6Kn5AWOTXQNAoHBALLJE4DWV1Sa9YdQ

nBTlJ7jZT7n+zB1lp8AYe5mn5PI/aGqF1rg3ZOP9NvyE3XlgY4Ry7dXqSuMzouUH

ON9PYHle+FsSq2P9rRpt+2gynAikY5I0cWZa68LMWG5j9ebzI/oeKQ+XtIWTRv1o

I6y+lU2P5zgyffEiR18mdQe9ujysbyqevej4Jm73wUz1hnxUb6/eZt7y49t2CsHC

4zo4/EKwutgjAkzB48JyFLWU5VoaxfLBz9Gevp9VphM8StiukQKBwD8YvVqJzntE

5d3OADTb0V0hwWKpbpkQyXMcMWIGWf5j8tmdmR30pMLHKdLvAHTSzrgpSn/2MZ7e

6PH+qvymwYLya5qGWIag7CJ092e/YA5gqv0ZAFGGjh69hzA1vxnr5i2Gl6ymZu1+

2PixJGRJDrbqYEqM6Fvy9YUT7doNfq6027cs6L/ao3KjvRS923ueKqjLSpguENty

vHQz8BirzWHjPdIeelQyqSdeTvtnWoUrbkmvD4XDghtRzUH2DacWJw==

**-----END RSA PRIVATE KEY-----**

**Encrypted:** b''

**Decrypted: b'Its Prisoner aka Akash'**

Process finished with exit code 0