**Name :- Onasvee Banarse**

**CLass:- TE Computer**

**ERP :-09**

**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 OrionOriginal aka Onasvee**

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

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

MIIBojANBgkqhkiG9w0BAQEFAAOCAY8AMIIBigKCAYEA0o+4RmQEolkY+mLOtFSn

ouzE+h+rDvCrPOWvspSZysHIYHZaVoDW37WYWI5/deGZbKdGNv8LPVwYZ5+WCclG

ReMVezMLHkq6UPepkOWM3dWg0VIcm3cubDwNcvchp0SV2lh04S1/5b0an0GbDPxS

p3WXpR+/aHGGApsyPZdUAoHC+VRXNICoEHG/8XUpiulzcctwDD/03Fr6tieZSQ/S

JZ5ki8KvDWFj88UzVYz+8I4dW9PX0jjJ4nn/1QxVXKnhGGX6e/yAiP7S/msOzasm

Yh8eCHNNf1hjTGKNOYlmOvu2wvicTc1AQmUtXKI6o7kKt9DzWCwBETC4kPfRBkZv

jhrE/17FXD8a1sVyfzSvs58lWQgrAValadGkSajO2kqmVrphqxlj33w81kzcsBPi

i//0FkGfuUQGoV3AjG75feuegwIh/DIfw9ZaxmmhAc51T4G15ubn13aGRukGIIAZ

BvZGznzc7EIeTAwWamtXAjgRi6n7U6y+jlroXKJwykj7AgMBAAE=

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

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

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

MIIG5AIBAAKCAYEA0o+4RmQEolkY+mLOtFSnouzE+h+rDvCrPOWvspSZysHIYHZa

VoDW37WYWI5/deGZbKdGNv8LPVwYZ5+WCclGReMVezMLHkq6UPepkOWM3dWg0VIc

m3cubDwNcvchp0SV2lh04S1/5b0an0GbDPxSp3WXpR+/aHGGApsyPZdUAoHC+VRX

NICoEHG/8XUpiulzcctwDD/03Fr6tieZSQ/SJZ5ki8KvDWFj88UzVYz+8I4dW9PX

0jjJ4nn/1QxVXKnhGGX6e/yAiP7S/msOzasmYh8eCHNNf1hjTGKNOYlmOvu2wvic

Tc1AQmUtXKI6o7kKt9DzWCwBETC4kPfRBkZvjhrE/17FXD8a1sVyfzSvs58lWQgr

AValadGkSajO2kqmVrphqxlj33w81kzcsBPii//0FkGfuUQGoV3AjG75feuegwIh

/DIfw9ZaxmmhAc51T4G15ubn13aGRukGIIAZBvZGznzc7EIeTAwWamtXAjgRi6n7

U6y+jlroXKJwykj7AgMBAAECggGALSTZKmZZRAF8RHqYvLsFsf23gbT2dN6OqCDK

mawYiQshDeVyGufGqfICNsJee4Sh41S9zh7CZyZuqRDjFzgLFALK4T4hXR5CcgeX

WFSO7iTWNOq47XARCO2bKJHpqjYfNtAORxT9PeFcatajCpayleq1V5bF7/ue8sIZ

dHEUdvEhP1mg1MXcwqHQuFEZVgoVUUl/vXCc6/2pkRJOYAa/VIdwITLdWy4NQv99

sRLoueSOUNjLhevdBOyJOEFLr/FPyLjDZPluJCyCH7LOuIFdxEW7kQB5e2k+wzDX

gVBEJ2z5d744X48jyDeEgCQiSnBw0s9Hc1iMvlfs3P/uwqX6DA4P9OWCkiF3fc4C

rhgo//w0Np5RV/4/zxBmoxMtLXGCqskJ6z2/L1zCl3YoluxM+xSa0rh5ZnlgEXyA

9l/xyH0boIMXYWdtQgG/BC6UxJzNi3l7vHnkbTpV+bJdJjLT1KNSvu5Y7VbR6d68

/7b+vc9E+XesQ/QhQVqDqbvgNSmBAoHBANuhVjk2UR2Q+HZtolCu0Bm4BGjgmHSm

Juho6+kGSiRS5Hg7hRccm+fjQd0kGk0yJTcHU8g5UF+hlMT7jHhQlcNWttQVVvdc

SWgQaoEUcZnpAyFMqTL4eNezCHOyvnRh4h2RFoxrDPE5DlPVQab+GSVMorHp28g0

v5WwrSHdjcdoXXObgCWlq5WfbsshQuJF1FhsTtdsb5Y/JAvoDpi76tAIbvhrr0u0

SouZv7+ucH/bFJFwFNRVHw0ZCQPNVlEvOwKBwQD1be8FA4cUgtGU7UrCLmFwjI/f

KGgfLgPUafU63yneMgPajLKu7acBz24eY+ab0etBfeF371YSkKFLA6/7wUHOQw/r

PMKg77AWCu01VV5T6yX5YE081tOCSHtziy9OFYLdd/z408pweiHOhPD02Gz8V+50

etE0zaQ9dYj86FL7PPGO0Fxp0bGJDl14nvJoKfCiIFSRjZVnTJGw98TaIuurRmZ9

MQKP9fbdtpcxDQ6mZqFSGsALDykyqcuXu+g5MUECgcEAjpvR2tBUFzicvHkvnegE

o86Cvn6nP4brWJlYJTS6S5+vTgqHvpwK96TujWL12Q4ob/TICAh/EblfWhBkA3N/

6xiRGmDI2VEJMRMHtMzLfr54E9UtQDVqcdSENmvnkrZEFiKxW3ffLXp4vSKJwJ7Z

QQjj01YgKX1msRHJOWYcu1Ae7gQYT1mlcj/Vtvvf7ACfgtLA1sxIIGzbQQfrAm1y

aKYxOAjkB+oHRWINya7AyaQ9VLpMLBshUGXjHp7j308lAoHBAK/GOU509VSqUKIB

xO4Hu7+Y3B2uWcwi75k8/eZZGCpL1di7tel0yYyRXEOltu7YTE5OcqGsJxAKx4nr

LSn4gkHQY+FNVfNfVtSipLry1ijyG/NbllXBYiBH+yqIf6vD2kL1gZdQUAd4YSgA

rHYfXwbnjx+bKqRPt5ZQzHidh3jqb/Khpd4f0a/gOu99nw0dJHto/kh0h5FBFIMT

IMg+BF1ZgWOeK0Chn1mxQN1fhaOFk3ozMGF7TT08wFR+vtXfQQKBwA8bkaOFL7e4

9vw75920f8CXFLoP5uOEOvTvucFcpLyJ45WWE5o98N9mNH093gW9oNLCPFcr7eiD

dl6WtjbS82UXMlDGDJv+7al71AY/wTQbeMvqKKtzzBXeoNADcXsVRsqbBB7KPJb4

uJq6Rr9rPzcv8TeIPXG7t0FS4V7jwwgCdFsOT6M1Zh9dLwdsSydWcyl3N4x1gQzE

PrHA1jVVkPdQZ5492piZo6V1XMS36F9FiC9IyxJ1840LwTV/rvtsnw==

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

**Encrypted:** b''

**Decrypted: b'Its OrionOriginal aka Onasvee'**

Process finished with exit code 0