**RSA Encryption Algorithm**

clc;

close all;

clear all;

p=input('Enter value of p: ');

q=input('Enter value of q: ');

n1=p\*q;

phi\_n=(p-1)\*(q-1);

e=7;

phi\_n1=(phi\_n)-1;

a=e;

x=phi\_n1;

n=phi\_n;

[ans, b, product]=sqmod(a,x,n);

d=ans;

disp('Public Key')

e

n1

disp('Private Key')

d

n1

m=50;

[encrypted, b, product]=sqmod(m,e,n1);

encrypted

[dencrypted, b, product]=sqmod(encrypted,d,n1);

dencrypted

function [ ans, b, product] = sqmod( a,x,n )

%UNTITLED2 Summary of this function goes here

% Detailed explanation goes here

n1=dec2bin(x);

product=1;

l1=length(n1);

b=zeros(1,l1);

temp=a;

b(1)=mod(temp,n);

for i=2:l1

temp=b(i-1)\*b(i-1);

b(i)=mod(temp,n);

end

for i=1:l1

if(n1(i)=='1')

product=product\*b(l1-i+1);

end

end

ans = mod(product,n);

end

Output:

Enter value of p: 11

Enter value of q: 7

Public Key

e = 7

n1 = 77

Private Key

d = 43

n1 = 77

encrypted = 8

dencrypted = 50