**Square and Multiply Algorithm**

clear all;

close all;

clc;

a=input('Enter the value of a: ');

x=input('Enter the value of x: ');

n=input('Enter the value of n: ');

[x1,b,d]=mod\_power(a,x,n);

mod\_power=d

function [d,b,c] = mod\_power(a,x,n)

%UNTITLED Summary of this function goes here

% Detailed explanation goes here

x1=dec2bin(x);

l1=length(x1);

temp=a;

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

for i=2:l1

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

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

end

k=1;

c=0;

for j=1:l1

e(1,j)=x1(1,(l1-j+1));

end

for i=1:l1

if(e(i)== '1')

c=k\*b(i);

k=c;

end

end

d=mod(c,n);

end

Output:

Enter the value of a: 5

Enter the value of x: 40

Enter the value of n: 7

mod\_power = 16