**Practical – 2**

**Aim : Write a Program in Scilab to calculate maximum traffic intensity and maximum no. of users accomodated in Erlang B and Erlang C system for given no of channels.**

Ans.

**Program Code :**

function ex = exper()

pr\_blocking = input ( "Enter probability of blocking : " ) ;

pr\_delay = input ( "Enter probability of blocked call delay : " ) ;

y = input ( "Enter call rate : " ) ;

H = input ( "Enter the average call duration : " ) ;

c = input ("Enter the number of channels : ") ;

printf ("Number of channels = %d \n", c) ;

Au = y\* H ;

p =0;

for A =1:1:100

while (p < pr\_blocking )

[ p ]= erlangB (A , c );

A = A +1;

end

printf ("For blocking probability of %f \n", pr\_blocking ) ;

printf ("Maximum traffic intensity is %d \n", A -1) ;

u =( A -1) / Au ;

printf ("%d users are accomodated \n", u) ;

break ;

end

p =0;

for A =1:1:100

while (p < pr\_delay )

[ p ]= erlangC (A , c );

A = A +1;

end

printf ("For block call delay probability of %f \n", pr\_delay ) ;

printf ("Maximum traffic intensity is %d \n",A -1) ;

u =( A -1) / Au ;

printf ("%d users are accomodated \n", u) ;

break ;

end

endfunction

function [ p1 ]= erlangB ( A1 , c1 )

pr2 =0;

pr1 = A1 ^ c1 / factorial ( c1 ) ;

for k =1: c1

pr2 = pr2 +( A1 ^ k / factorial ( k ) ) ;

end

p1 = pr1 / pr2 ;

endfunction

function [ p2 ]= erlangC (A2 , c2 )

temp\_1 =0;

for k =0: c2 -1

temp\_1 = temp\_1 + A2 ^ k/ factorial (k ) ;

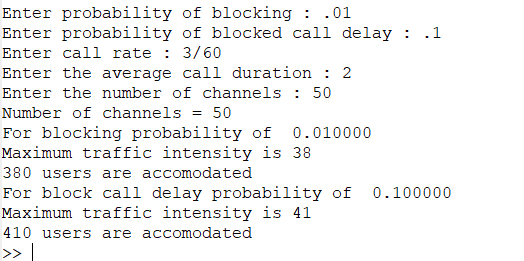
end

denominator = A2 ^ c2 +( factorial ( c2 ) \*(1 -( A2 /c2 ) ) \* temp\_1 ) ;

p2 = A2 ^ c2 / denominator ;

endfunction

**Output :**

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