**Practical : 5**

**Code:**

#include<stdio.h>

#include<math.h>

#include<stdlib.h>

#include<time.h>

int main(){

int i,j,k,count = 0,counts = 0;

double N[300],SL[300],N\_2[300],mean=0.0,var=0.0,LL=0.0,UL=0.0,LL\_S=0.0,UL\_S=0.0,u,sum=0.0,sum\_sq=0.0,a=0.0,b=0.0,c=0.0,d=0.0;

srand(time(NULL));

for(k=0;k<200;k++){

for(i=0;i<25;i++){

N[i] = 0.0;

for(j=0;j<500;j++){

u = rand()/(1.0+RAND\_MAX);

// u = (double)rand()/(double)RAND\_MAX;

N[i] += u;

}

SL[i]=(N[i]-250)/(sqrt(500.0/12.0));

N\_2[i]=5+(SL[i]\*sqrt(0.5));

sum+=N\_2[i];

sum\_sq+=pow(N\_2[i],2);

}

mean=sum /25.0;

var=(sum\_sq/25.0)-pow(mean,2);

LL=mean-1.96\*sqrt(var/25.0);

a+=LL;

UL=mean+1.96\*sqrt(var/25.0);

b+=UL;

LL\_S=(25.0\*var)/(39.36407703);

c+=LL\_S;

UL\_S=(25.0\*var)/(12.40115022);

d+=UL\_S;

if(LL<5.0&&UL>5.0){

count+=1;

}

if(LL\_S<0.5&&UL\_S>0.5){

counts+=1;

}

sum=0.0;

sum\_sq=0.0;

}

printf("Confidece Interval for Population mean:{%f,%f}\n",a/200,b/200);

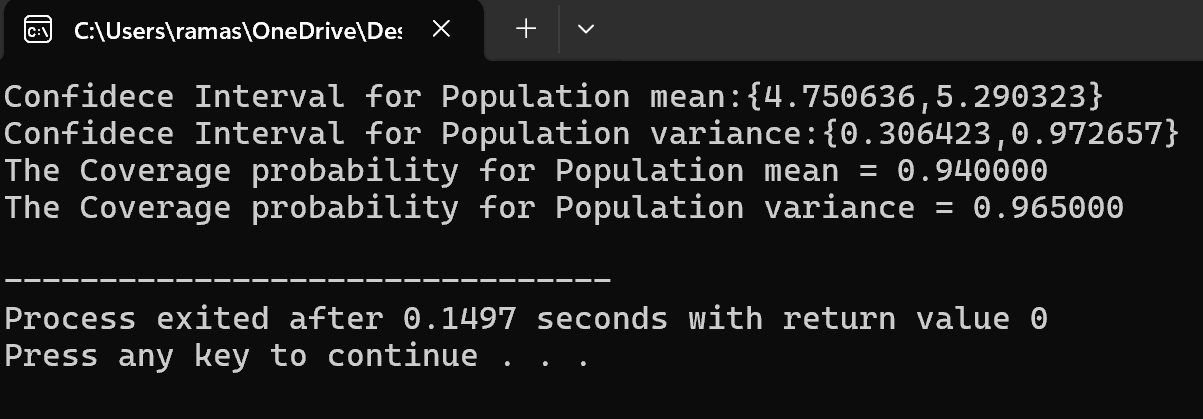
printf("Confidece Interval for Population variance:{%f,%f}\n",c/200,d/200);

printf("The Coverage probability for Population mean = %f\n",count/200.0);

printf("The Coverage probability for Population variance = %f\n",counts/200.0);

}

**Output :**

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