

{TESTE DO INTERVALO (GAP TEST)}

uses crt; {Se estiver usando o Turbo Pascal para Windows, usar uses wincrt;}

Type

Vetor = Array[0..10]of Longint;

Vetor1 = Array[0..1000] of Longint;

Vetor2 = Array[0..1000] of Real;

Var

 semente: double; {Variavel utilizada pela RAND2}

 I, J, X, Alfa : Longint;

 U: Double;

 N, D, K, Cat, gl : Longint;

 SVobs, GVobs : Longint;

 Aux, SVesp, Quic, QuicT, SQuic, GVesp, Param : Real;

 A : Vetor;

 Gap : Vetor1;

 Vesp : Vetor2;

{$I RAND2.PAS}

{\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*}

Begin

 Writeln('Quantidade de Numeros ?');

 Readln(N);

 K := 0;

 Writeln('Qual a semente ? (1 - 2147483646) ');

 Readln(semente);

 Writeln('Escolha nivel de significancia (alfa) --> 1, 5 ou 10 %');

 Readln(Alfa);

 If Alfa = 5 then

 Begin

 Param := 1.6449;

 end

 else

 Begin

 If Alfa = 1 then

 Begin

 Param := 2.3263;

 end

 else

 Begin

 If Alfa = 10 then

 Begin

 Param := 1.2816;

 end

 else

 Begin

 Writeln('Nivel de significancia ERRADO !');

 Exit;

 end

 end

 end;

 Clrscr;

 For J := 0 to 1000 do

 Begin

 Gap[J] := 0;

 end;

 For I := 0 to 10 do

 Begin

 A[I] := 0;

 End;

 For I:= 1 to N do

 Begin

 U := Rand2;

 X := Trunc(U \* 10.0);

 If X > 9 Then X := 9;

 If A[X] = 0 Then

 Begin

 A[X] := I;

 End

 Else

 Begin

 K := I - A[X] - 1;

 Gap[K] := Gap[K] + 1;

 A[X] := I;

 End;

 End;

 K := 0;

 For I:= 0 to 1000 do

 Begin

 K := K + Gap[I];

 End;

 Aux := LN(0.9);

 For I := 0 to 1000 do

 Begin

 Vesp[I] := EXP(AUX \* I) \* 0.1 \* K;

 If Vesp[I] < 0.001 Then Vesp[I] := 0.0;

 end;

 Cat := 1000;

 While (Vesp[Cat] = 0.0) do

 Begin

 Cat := Cat - 1;

 End;

 If Cat > (N - 2) then Cat := N - 2;

 SVesp := 0.0;

 SVobs := 0;

 Quic := 0.0;

 gl := 0;

 For I := 0 to Cat do

 Begin

 SVesp := SVesp + Vesp[I];

 SVobs := SVobs + Gap[I];

 if SVesp > 5.0 then

 Begin

 gl := gl + 1;

 SQuic := (SQR(SVobs - SVesp) / SVesp);

 GVesp := SVesp;

 GVobs := SVobs;

 Quic := Quic + SQuic;

 SVobs := 0;

 SVesp := 0.0;

 End;

 End;

 If SVesp <> 0 then

 Begin

 Quic := Quic - Squic;

 SVesp := SVesp + GVesp;

 SVobs := SVobs + GVobs;

 SQuic := (SQR(SVobs - SVesp) / SVesp);

 Quic := Quic + SQuic;

 End;

 gl := gl - 1;

 QuicT := 1.-(2./(9.\*gl))+(Param\*SQRT(2./(9.\*gl)));

 QuicT := QuicT \* QuicT \* QuicT;

 QuicT := gl \* QuicT + 0.005;

 Writeln('---------------------------------------');

 Writeln('Quantidade de Numeros = ',N);

 Writeln('Alfa = ',Alfa,'%');

 Writeln('Graus de Liberdade = ',gl);

 Writeln('QuiQuadrado Calc = ', Quic:8:2);

 Writeln('QuiQuadrado Tab Aprox = ', QuicT:8:2);

 Writeln('---------------------------------------');

End.