Лабораторная работа №3 Выполнила Широкая Софья
Вариант №70

№1 $n := 0..9$ $m := 0..14$

$P_{n,m} := 3.3 \cdot n - 0.2 \cdot m$

$$P = \begin{bmatrix} 0 & -0.2 & -0.4 & -0.6 & -0.8 & -1 & -1.2 & -1.4 & -1.6 & -1.8 & -2 & -2.2 & -2.4 & -2.6 & -2.8 \\ 3.3 & 3.1 & 2.9 & 2.7 & 2.5 & 2.3 & 2.1 & 1.9 & 1.7 & 1.5 & 1.3 & 1.1 & 0.9 & 0.7 & 0.5 \\ 6.6 & 6.4 & 6.2 & 6 & 5.8 & 5.6 & 5.4 & 5.2 & 5 & 4.8 & 4.6 & 4.4 & 4.2 & 4 & 3.8 \\ 9.9 & 9.7 & 9.5 & 9.3 & 9.1 & 8.9 & 8.7 & 8.5 & 8.3 & 8.1 & 7.9 & 7.7 & 7.5 & 7.3 & 7.1 \\ 13.2 & 13 & 12.8 & 12.6 & 12.4 & 12.2 & 12 & 11.8 & 11.6 & 11.4 & 11.2 & 11 & 10.8 & 10.6 & 10.4 \\ 16.5 & 16.3 & 16.1 & 15.9 & 15.7 & 15.5 & 15.3 & 15.1 & 14.9 & 14.7 & 14.5 & 14.3 & 14.1 & 13.9 & 13.7 \\ 19.8 & 19.6 & 19.4 & 19.2 & 19 & 18.8 & 18.6 & 18.4 & 18.2 & 18 & 17.8 & 17.6 & 17.4 & 17.2 & 17 \\ 23.1 & 22.9 & 22.7 & 22.5 & 22.3 & 22.1 & 21.9 & 21.7 & 21.5 & 21.3 & 21.1 & 20.9 & 20.7 & 20.5 & 20.3 \\ 26.4 & 26.2 & 26 & 25.8 & 25.6 & 25.4 & 25.2 & 25 & 24.8 & 24.6 & 24.4 & 24.2 & 24 & 23.8 & 23.6 \\ 29.7 & 29.5 & 29.3 & 29.1 & 28.9 & 28.7 & 28.5 & 28.3 & 28.1 & 27.9 & 27.7 & 27.5 & 27.3 & 27.1 & 26.9 \end{bmatrix}$$

$B_n := n^2 - 1.2 \cdot n$

$$B = \begin{bmatrix} 0 \\ -0.2 \\ 1.6 \\ 5.4 \\ 11.2 \\ 19 \\ 28.8 \\ 40.6 \\ 54.4 \\ 70.2 \end{bmatrix}$$

$Q(A, C) :=$
$max \leftarrow A_{0,0}$
$min \leftarrow C_0$
for $k \in 0..(\text{rows}(A) - 1)$
  if $C_k < min$
    $min \leftarrow C_k$
    $Kmin \leftarrow k$
  for $t \in 0..(\text{cols}(A) - 1)$
    if $A_{k,t} > max$
      $max \leftarrow A_{k,t}$
      $Tmax \leftarrow t$
      $Kmax \leftarrow k$
  $C_{Kmin} \leftarrow max$
  $A_{Kmax, Tmax} \leftarrow min$
C

$$Q(P,B)=\begin{bmatrix}0\\29.7\\1.6\\5.4\\11.2\\19\\28.8\\40.6\\54.4\\70.2\end{bmatrix}$$

№2 $n:=0..4$ $m:=0..4$

$A_{n,m}:=n\cdot 6-m\cdot 3$ $S_n:=1$

$$A=\begin{bmatrix}0&-3&-6&-9&-12\\6&3&0&-3&-6\\12&9&6&3&0\\18&15&12&9&6\\24&21&18&15&12\end{bmatrix}$$

$$S=\begin{bmatrix}1\\1\\1\\1\\1\end{bmatrix}$$

$C(B,K):=$
$X\leftarrow B\cdot K$
$sum1\leftarrow X_0$
$sum2\leftarrow X_{\text{rows}(X)-1}$
$max\leftarrow B_{0,0}$
for $t\in 0..(\text{rows}(B)-1)$
  for $k\in 0..(\text{cols}(B)-1)$
    if $B_{t,k}>max$
      $max\leftarrow B_{t,k}$
if $sum1<sum2$
  for $i\in 0..(\text{rows}(B)-1)$
    $B_{0,i}\leftarrow B_{0,i}+max$
else
  for $i\in 0..(\text{rows}(B)-1)$
    $B_{\text{rows}(B)-1,i}\leftarrow B_{\text{rows}(B)-1,i}+max$
B

$$C(A,S)=\begin{bmatrix} 24 & 21 & 18 & 15 & 12 \\ 6 & 3 & 0 & -3 & -6 \\ 12 & 9 & 6 & 3 & 0 \\ 18 & 15 & 12 & 9 & 6 \\ 24 & 21 & 18 & 15 & 12 \end{bmatrix}$$

№3

$$F(n):=\left\| \begin{array}{l} \text{if } n>3 \\ \quad \left\| F(n-1)+2\,F(n-2)-F(n-3) \right. \\ \text{else} \\ \quad \left\| 1 \right. \end{array} \right.$$

$$n:=0..16$$

$$\sum_n \frac{1}{F(n)}=5.219428448198$$