НТУУ “КПІ”

Кафедра Обчислювальної техніки

Лабораторна робота №3

з дискретної математики

“**Відношення множин**”

Виконав

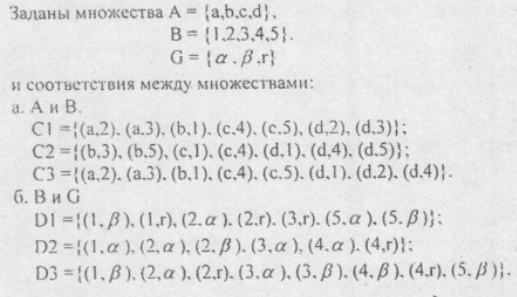
ст. І курсу

ФІОТ, гр. ІО-01

Ткаченко Ігор

Київ 2011

Варіант 26

**C:\Users\Игорь\Desktop\Снимок1.PNG**

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| D1 | α | β | r |  |
| 1 | 0 | 1 | 1 |
| 2 | 1 | 0 | 1 |
| 3 | 0 | 0 | 1 |
| 5 | 1 | 1 | 0 |

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| **С2** | **1** | **3** | **4** | **5** |
| **B** | **0** | **1** | **0** | **1** |
| **C** | **1** | **0** | **1** | **0** |
| **D** | **1** | **0** | **1** | **1** |

|  |  |  |  |
| --- | --- | --- | --- |
| **D3** | α | β | r |
| **1** | **0** | **1** | **0** |
| **2** | **1** | **0** | **1** |
| **3** | **1** | **1** | **0** |
| **4** | **0** | **1** | **1** |
| **5** | **0** | **1** | **0** |

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
| **D3-1** | **1** | **2** | **3** | **4** | **5** |
| α | **0** | **1** | **1** | **0** | **0** |
| β | **1** | **0** | **1** | **1** | **1** |
| r | **0** | **1** | **0** | **1** | **0** |

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
| **D1 D3-1** | **1** | **2** | **3** | **4** | **5** |
| **1** | **1** | **0** | **1** | **1** | **1** |
| **2** | **1** | **1** | **1** | **1** | **0** |
| **3** | **1** | **0** | **0** | **1** | **0** |
| **5** | **1** | **1** | **1** | **1** | **1** |

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
| **C2(D1 D3-1)** | **1** | **2** | **3** | **4** | **5** |
| **B** | **1** | **1** | **1** | **1** | **1** |
| **C** | **1** | **0** | **1** | **1** | **1** |
| **D** | **1** | **1** | **1** | **1** | **1** |

1. **Лістинг програми:**

PROGRAM Lab26;

USES Crt;

TYPE TIndex = 1..N;

TZIndex = 0..N;

TVector = ARRAY[TIndex] OF 0..1;

TArray = ARRAY[TIndex, Tindex] OF 0..1;

TMatrix = ARRAY[TIndex, Tindex] OF 0..N;

VAR R, R\_1: TArray;

K: TMatrix;

PROCEDURE Init;

VAR l, NR: byte;

i, j: TIndex;

BEGIN

FOR i := 1 TO N DO

FOR j := 1 TO N DO

R[i, j] := 0;

Writeln('Input number of elements of ratio R:');

Readln(NR);

Writeln('Input elements of ratio R:');

FOR l := 1 TO NR DO

BEGIN

Readln(i, j);

R[j, i] := 1

END;

Writeln('Array R:');

FOR i := 1 TO N DO

BEGIN

FOR j := 1 TO N DO Write(R[i, j], ' ');

Writeln

END;

Readln

END;

PROCEDURE d1d3;

VAR temp: boolean;

i, j: TIndex;

pr1R, pr2R: TVector;

BEGIN

FOR i := 1 TO N DO

BEGIN

pr1R[i] := 0;

pr2R[i] := 0

END;

FOR i := 1 TO N DO

BEGIN

temp := false;

FOR j := 1 TO N DO IF R[j, i] = 1 THEN temp := true;

IF temp THEN pr1R[i] := 1

END;

FOR i := 1 TO N DO

BEGIN

temp := false;

FOR j := 1 TO N DO IF R[i, j] = 1 THEN temp := true;

IF temp THEN pr2R[i] := 1

END;

Write('pr1R = { ');

FOR i := 1 TO N DO IF pr1R[i] = 1 THEN Write(i,' ');

Writeln('}');

Write('pr2R = { ');

FOR i := 1 TO N DO IF pr2R[i] = 1 THEN Write(i,' ');

Writeln('}');

Readln

END;

PROCEDURE c2d1;

VAR i, j: TIndex;

BEGIN

FOR i := 1 TO N DO

FOR j := 1 TO N DO

R\_1[i, j] := R[j, i];

Writeln('Array R\_1:');

FOR i := 1 TO N DO

BEGIN

FOR j := 1 TO N DO Write(R\_1[i, j], ' ');

Writeln

END;

Readln

END;

PROCEDURE Composition;

VAR l: byte;

i, j: TIndex;

S: TZIndex;

BEGIN

FOR i := 1 TO N DO

FOR j := 1 TO N DO

BEGIN

S := 0;

FOR l := 1 TO N DO S := S + R[i, l]\*R\_1[l, j];

K[i, j] := S

END;

Writeln('Array K:');

FOR i := 1 TO N DO

BEGIN

FOR j := 1 TO N DO Write(K[i, j], ' ');

Writeln

END;

Readln;

FOR i := 1 TO N DO

FOR j := 1 TO N DO

IF K[i, j] > 1 THEN K[i, j] := 1;

Writeln('Array K:');

FOR i := 1 TO N DO

BEGIN

FOR j := 1 TO N DO Write(K[i, j], ' ');

Writeln

END

END;

BEGIN

Init;

D1d1;

C1d1;

Composition

END.

Висновки: Мною були закріплені навички створення програм на мові програмування Pascal, які ілюструють виконання поставлених задач. Я удосконалив навички побудови блок-схем алгоритмів.