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ALGORITHMIC AND PROGRAMMATIC PROVIDING DECISION SYSTEMS OF LINEAR EQUALIZATIONS

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The system of equalizations it comfortably to present in a vectorial form [1-5]

$$A\overline{x} = \overline{b}, \qquad (1)$$

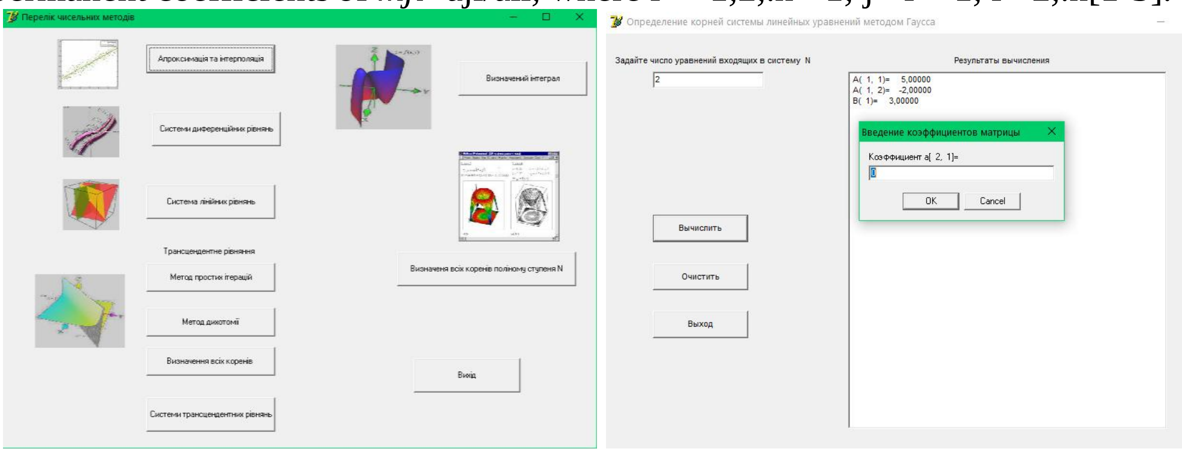
where *An* is a matrix of coefficients *m* x *n*; $\overline{x}$ - determined n - component vector; $\overline{b}$ - set m - component vector.

Below prominent tasks (the number of unknown equals the number of possible equalizations *of m=n* will be examined only static[2-4].

Determinant (determinant) of matrix of coefficients *A* will define equality

$$\Delta = det\ A = \begin{Vmatrix} a_{11} & a_{12} & \dots & a_{1n} \\ a_{21} & a_{22} & \dots & a_{2n} \\ \dots & \dots & \dots & \dots \\ a_{n1} & a_{n2} & \dots & a_{nn} \end{Vmatrix} \qquad (2)$$

Method of successive exception of unknown Gausse based on the successive defiation of the system due to the exception of unknown *x1 ... xn - 1* in linear equalizations. It results in the receipt of matrix of coefficients *of aij* of three-cornered kind. This sequence of procedures is characterized as direct motion of exception of variables. For his realization it is necessary consistently to subtract the first equalization from further, increasing him the left and right parts on permanent coefficients that present private from the division of permanent coefficients of *mji*=aji/aii, where i = 1,2,.n - 1; j= i + 1, i +2,.n[1-3].



Picture 1 - are the Basic forms of the program

The eventual system of equalizations looks like on direct motion

$$\begin{aligned} a_{11}x_1 + a_{12}x_2 + \ldots + a_{1n}x_n = b_1, \\ a_{22}^{(1)}x_2 + \ldots + a_{2k}^{(1)}x_k + \ldots + a_{2n}^{(1)}x_n = b_2^{(1)}, \\ \ldots\ldots\ldots\ldots\ldots\ldots\ldots\ldots\ldots\ldots\ldots\ldots \\ a_{kk}^{(k-1)}x_k + \ldots + a_{kn}^{(k-1)}x_n = b_k^{(k-1)}, \\ \ldots\ldots\ldots\ldots\ldots\ldots\ldots\ldots\ldots\ldots\ldots\ldots \\ a_{nn}^{(n-1)}x_n = b_n^{(n-1)}, \end{aligned} \qquad (3)$$

where

$$a_{22}^{(1)} = a_{22} - \frac{a_{21}}{a_{11}}a_{12};\ldots a_{2k}^{(1)} = a_{2k} - \frac{a_{21}}{a_{11}}a_{1k};\ldots a_{2n}^{(1)} = a_{2n} - \frac{a_{21}}{a_{11}}a_{1n};b_2^{(1)} = b_2 - \frac{a_{21}}{a_{11}}b_1;$$

$$a_{kk}^{(k-1)} = a_{kk}^{(k-2)} - \frac{a_{kk-1}^{(k-2)}}{a_{k-1k-1}^{(k-2)}}a_{k-1k-1}^{(k-2)};\ldots a_{kn}^{(k-1)} = a_{kn}^{(k-2)} - \frac{a_{kk-1}^{(k-2)}}{a_{k-1k-1}^{(k-2)}}a_{k-1n}^{(k-2)};b_k^{(k-1)} = b_k^{(k-2)} - \frac{a_{kk-1}^{(k-2)}}{a_{k-1k-1}^{(k-2)}}b_{k-1}^{(k-2)};$$

$$a_{nn}^{(n-1)} = a_{nn}^{(n-2)} - \frac{a_{nn-1}^{(n-2)}}{a_{n-1n-1}^{(n-2)}}a_{n-1n}^{(n-2)};b_n^{(n-1)} = b_n^{(n-2)} - \frac{a_{nn-1}^{(n-2)}}{a_{n-1n-1}^{(n-2)}}b_{n-1}^{(n-2)}.$$

On picture of 1 the basic forms of the program are presented.

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