**extract**

*Function of extracting elements from matrix or vector by numbers.*

**Syntax:**

*C* = **extract**(*M,A,B*);

*D* = **extract**(*X,Y*);

**Arguments:**

*M* – input matrix,

*A* – input array of numbers of strings of extracted matrix *M* elements,

*B* – input array of numbers of columns of extracted matrix *M* elements,

*X* – input vector,

*Y* – input array of numbers of extracted vector *X* elements.

**Description:**

*extract(M, A, B)* – function of extracting elements from matrix, which are determined by the numbers of strings and columns.

*extract(X, Y)* – function of extracting elements from vector, which are determined by the numbers in vector.

Input arrays *X*, *Y*, *A*, *B* can be assigned:

* as variables of array type determined earlier:

*D* = **extract**(*X,Y*);

* as variables of array type consisting of variables *double* determined earlier:

*D* = **extract***(*[*x1,x2,x3,x4*]*,*[*y1,y2,y3,y4*]);

*D* = **extract**([*x1,x2,x3,x4*],Y);

*D* = **extract**(X,[*y1,y2,y3,y4*]);

* as constant arrays:

*D* = **extract**([-1.80, -1.60, -1.40, -1.20],*Y*);

*D* = **extract**(*X*,[-1.80, -1.60, -1.40, -1.20]);

*D* = **extract**([-1.80, -1.60, -1.40, -1.20],[-1.40, -0.78,-0.53,-0.35]);

**Result:**

*С* – output matrix comprising elements of input matrix obtained as a result of extracting elements from input matrix, which are determined by the numbers of strings and columns,

*D* – output array comprising elements of input vector, which are determined by the numbers of elements.

**Example 1:**

*Extracting elements from matrix:*

|  |  |
| --- | --- |
|  | //arrays of matrix elements  **const**M = [[1, -3, 4], [4, -7, 8], [6, -7, 7]];  C = **extract**(M, [2, 3], [1,3]); |

As a result elements of matrix *C* will be assigned values [[4 ,8] [6, 7]].

**Example 2:**

*Extracting elements from vector:*

|  |  |
| --- | --- |
|  | //arrays of vector elements  **const**X = [1, -3, 4, 4, -7, 8, 6, -7, 7];  D = **extract**(X, [2, 3]); |

As a result elements of matrix *D* will be assigned values [-3, 4] corresponding to the elements of array *X* with numbers 2 and 3.