Interfaces of two-dimensional dense matrix:

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Constructors

CMatrix2D *(void)*
Basic constructor. Creates empty matrix with number of rows and columns equal to 0.

CMatrix2D *(unsigned rows, unsigned columns)*
Creates new matrix with specified number of rows and columns. All data will be set to 0.

Functions to work with dimensions

void Resize *(unsigned rows, unsigned columns)*
Sets new dimensions to the matrix.

unsigned Rows *()*
Returns number of rows in the matrix.

unsigned Cols *()*
Returns number of columns in the matrix.

Functions to get data

double operator[][] *(unsigned row, unsigned column)*
Returns data by the specified indexes.

vector<double> GetRow *(unsigned row)*
Returns vector of data for specified row. Returns empty vector if such row does not exist.

vector<double> GetCol *(unsigned column)*
Returns vector of data for specified column. Returns empty vector if such column does not exist.

vector<vector<double>> GetMatrix *()*
Returns all data in form of vector-of-vectors.

Functions to set data

double operator[][] *(unsigned row, unsigned column)* = value
Sets data *value* by the specified indexes.

void SetRow *(unsigned row, vector<double> values)*
Sets data *values* to a specified row.

void SetCol *(unsigned column, vector<double> values)*
Sets data *values* to a specified column.

void SetMatrix *(vector< vector<double>> matrix)*
Sets all values in form vector-of-vectors *matrix* to matrix. *matrix* must have the same dimensions as the matrix itself.

Other functions

void Normalize *()*
Normalizes the matrix so that the sum of all elements equals to 1.

void Fill *(double value)*
Sets all data in matrix equal to *value*.

void Clear *()*
Removes all data and sets number of rows and columns equal to 0.