Maximum of Matrix Columns, Sort Matrix Columns

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Max Value from a Matrix

Given a matrix of values, what is the maximum element, what are the row and column indexes of this max element of the matrix.

```
rng(123);
N = 3;
M = 4;
mt_rand = rand(M,N);
disp(mt_rand);
```

```
    0.6965    0.7195    0.4809
    0.2861    0.4231    0.3921
    0.2269    0.9808    0.3432
    0.5513    0.6848    0.7290
```

```
[max_val, max_idx] = max(mt_rand(:));
[max_row, max_col] = ind2sub(size(mt_rand), max_idx)
```

```
max_row = 3
max_col = 2
```

MAX Value from Each Column

There is a matrix with N columns, and M rows, with numerical values. Generate a table of sorted index, indicating in each column which row was the highest in value, second highest, etc. (1) sort each column. (2) show the row number from descending or ascending sort for each column as a matrix.

```
% Create a 2D Array
rng(123);
N = 2;
M = 4;
mt_rand = rand(M,N);
disp(mt_rand);
```

```
    0.6965    0.7195
    0.2861    0.4231
    0.2269    0.9808
    0.5513    0.6848
```

Use the maxk function to generate sorted index:

```
% maxk function
[val, idx] = max(mt_rand);
disp(val);
```

```
    0.6965    0.9808
```

```
disp(idx);
```

```
     1     3
```

MAXK Sorted Sorted Index for Each Column of Matrix

There is a matrix with N columns, and M rows, with numerical values. Generate a table of sorted index, indicating in each column which row was the highest in value, second highest, etc. (1) sort each column. (2) show the row number from descending or ascending sort for each column as a matrix.

```
% Create a 2D Array
rng(123);
N = 2;
M = 4;
mt_rand = rand(M,N);
disp(mt_rand);
```

```
    0.6965    0.7195
    0.2861    0.4231
    0.2269    0.9808
    0.5513    0.6848
```

Use the maxk function to generate sorted index:

```
% maxk function
[val, idx] = maxk(mt_rand, M);
disp(val);
```

```
    0.6965    0.9808
    0.5513    0.7195
    0.2861    0.6848
    0.2269    0.4231
```

```
disp(idx);
```

```
    1    3
    4    1
    2    4
    3    2
```