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Multi Dimensional Cell Array

Asked by xplore29 on 1 May 2013
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Can we create a single multi-dimensional cell array of variable size dimensions.

I have matrices (all of same dimensions) A1,A2,A3,A4
AA1,AA2,AA3,AA4,BB1,BB2,BB3,BB4

I was wondering if whether I can store these matrices like

cellarray{1,1,1}=A1 cellarray{1,2,1}=A2.....cellarray{1,4,1}=A4

cellarray{1,1,2}=AA1 cellarray{1,2,2}=AA2.....cellarray{1,4,2}=AA4

cellarray{2,1,2}=BB1 cellarray{2,2,2}=BB2.....cellarray{2,4,2}=BB4

I understand that cells are good for storing data of variable dimensions but for this problem its the dimensions which are variable instead of data itself

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Jan Simon on 1 May 2013

I do not understand the question. You have posted the code required to create `cellarray` already. This implies, that the answer is:

```
Yes, obviously it is possible that you can store the m
```

I assume, you want something more general.

Tags

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2 Answers

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Answer by Azzi Abdelmalek on 1 May 2013

```
cellarray={A1,A2,A3,A4,AA1,AA2,AA3,AA4,BB1,BB2,BB3,B
```

2 Comments

Jan Simon on 1 May 2013

The question contains the detail, that e.g. BB4 should be found at the index [1,2,1]. Does your answer address this? If not, are there any reasons to omit this?

Azzi Abdelmalek on 1 May 2013

I think this is the simple way to store those matrices, maybe we have to store also their names:

```
cellarray_names={'A1','A2',...}.
```

I do not know exactly what are the OP intentions. I was hoping he comments my answer

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Answer by Babak on 1 May 2013

```
maxsize1 = 100;
maxsize2 = 100;
maxsize3 = 100;
```

```
mycell = cell(maxsize1 ,maxsize2 ,maxsize3 );
```

```
mycell{1,1,1} = A1;
mycell{1,2,1} = A2;
mycell{1,4,1} = A4;
```

```
mycell{1,1,2} = AA1;
mycell{1,2,2} = AA2;
mycell{1,4,2} = AA4;
```

```
mycell{2,1,2} = BB1;
mycell{2,2,2} = BB2;
mycell{2,4,2} = BB4;
```

```
// eventually you can chop the unused part of the m
```

```
mycell = mycell(1:2,1:4,1:2);
```

3 Comments

xplore29 on 2 May 2013

> Your answer is closest to what I had been thinking. But the point remains that a SINGLE multidimensional cell cannot have variable dimensions i-e for this example we cannot create a cell with 1 rows and 4 cols in 1st entry in 3rd dimension (1,4,1) and 2 row and 4 col in second entry in 3rd dimension (2,4,2).

Jan Simon on 2 May 2013

> @xplore29: This sound very strange. The dimensions of the multi-dimensional (cell) array are fixed.
> Otherwise it would not be something you should call "array", because this term means, that the data are arranged regularily.

I assume, a nested array should satisfy your needs:

```
X = cell(1,2,3);
Y = cell(3,4,5);
C = {X, Y};
```

Babak on 2 May 2013

@xplore29: cell is the only type of variable in MATLAB that I know of, which can have "empty" elements. Say cell(2,3) you get a 2 by 3 array of empty elements. If you don't need to use those elements it's quite OK. Just keep track of which elements are you filling up so you know you only use those later in your code.

```
A = cell(2,3);
A{1,1} = 6;
A{1,2} = [ 3 4 5;3 4 5];
A{2,2} = '34';
A{2,3} = 'somename';
```

```
A
```

A(2,1) is an empty cell, element of A. Not filled up and won't be used in future.