



# EXERCISES — Null terminated arrays

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version #



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# 1 Null terminated arrays

## Files to submit:

- null\_terminated\_arrays/null\_terminated\_arrays.c
- null\_terminated\_arrays/null\_terminated\_arrays.h

## Provided files:

- null\_terminated\_arrays/null\_terminated\_arrays.h

**Authorized headers:** You are only allowed to use the functions defined in the following headers:

- stddef.h
- assert.h
- err.h
- errno.h

## 1.1 Goal

In this exercise you will manipulate arrays whose end is marked by a NULL pointer.

Write the function `reverse_matrix`, which takes an array of string arrays and reverses the main array as well as all the nested arrays, you should not reverse the string itself.

```
void reverse_matrix(const char ***matrix);
```

`matrix` is a null-terminated array of null-terminated string arrays. The strings stored in each array are valid and null-terminated strings.

- `matrix (const char **)` is ended by a NULL pointer : the array of arrays.
- `matrix[0] (const char *)` is ended by a NULL pointer : the array of strings.
- `matrix[0][0] (const char *)` is ended by a `\0` character: the string (array of chars).

This means that in order to find the size of an array, you have to find the NULL element that marks the end of the array.

## 1.2 Example

### 1.2.1 Input:

```
{
  { "1", "2", "3", NULL },
  { "4", "5", NULL },
  { "6", "7", "8", "9", NULL },
  NULL
}
```

### 1.2.2 Output:

```
{  
  { "9", "8", "7", "6", NULL },  
  { "5", "4", NULL },  
  { "3", "2", "1", NULL },  
  NULL  
}
```

### 1.2.3 Remarks

- Notice how the NULL still marks the end of the array.
- None of the strings can be NULL, because that would be breaking the end marker.
- Do not reverse the string itself.

*It is my job to make sure you do yours.*