Beamer Table – Full guide with examples

 By Admin August 31, 2021

Learn how to create and customize tables in Beamer. This includes content alignment, spacing, highlight cells with colors, resize tables and much more!

Contents :

1. Insert a table in Beamer

To insert a table inside a beamer frame, we have to use the tabular environment, that is commonly used for all kinds of LaTeX documents.

The tabular environment takes a mandatory argument that specifies the alignment for text in the different columns:

- **l** for left-aligned text,
- **c** for centered text,
- **r** for right-aligned text.

There should be the same number of alignment specifiers as columns.

Optionally, inside the mandatory argument can also appear pipe-line symbols | which put a vertical line extending the full height of the environment in the specified place.

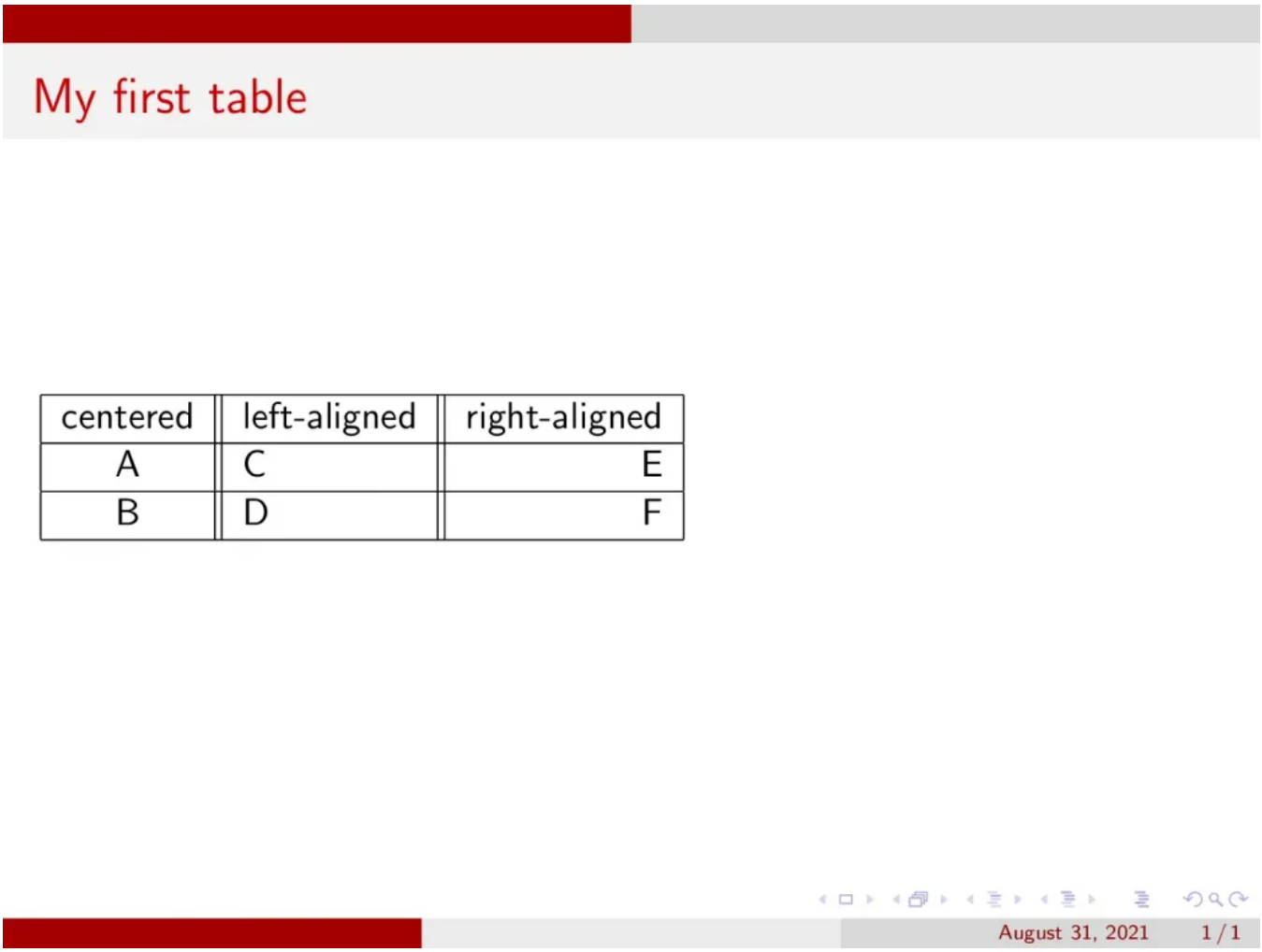
Inside the tabular environment, the contents that belong to different columns are separated with a & symbol, whereas the start of a new row is indicated using \\.

Knowing this and using the **\hline** command to produce horizontal lines, we can already build a frame with a simple table; the following example shows how to do so:

```
% Beamer table
\documentclass{beamer}

% Theme choice
\usetheme{CambridgeUS}

\begin{document}

\begin{frame}{My first table}

\begin{tabular}{|c||l||r|}
\hline
    centered & left-aligned & right-aligned \\
\hline
    A & C & E\\
\hline
    B & D & F\\
\hline
\end{tabular}

\end{frame}

\end{document}
```

Copy

Compiling this code yields:



Let's now explore some more advanced functionalities of this tabular environment.

2. Horizontal lines and multicolumns in Beamer tables

From above, the command **`\hline`** draws a horizontal line from left to right of the table. If we don't want to draw a horizontal line that goes from end to end of the table, we can use the **`\cline{i-j}`** command, which draws a horizontal line across columns i through j, inclusive.

The command **`\multicolumn{n}{pos}{item}`** can be used to create items that expand for multiple columns where:

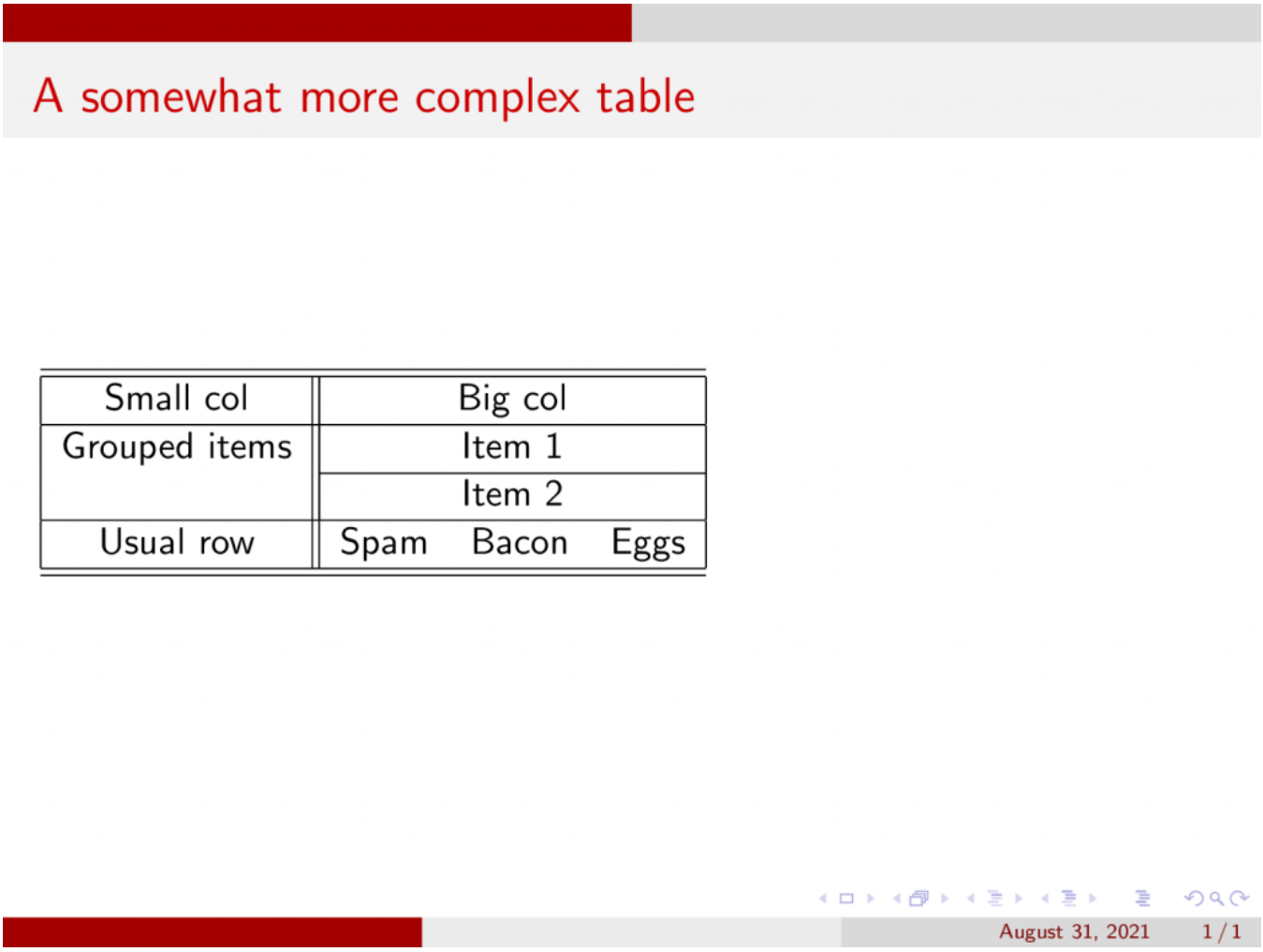
- **n** stands for the number of columns to be spanned,
- **pos** specifies the horizontal positioning of the item (using the same specifiers as
  in the mandatory argument of the environment **l**, **c**, and **r**)
- **item** is the content itself to be printed.

Observe that the **pos** argument replaces the one specified by the tabular environment argument corresponding to the n spanned columns, and it can also contain | characters.

Here we put into practice the previous commands:

Copy

```
% Draw Horizontal lines in tables
\documentclass{beamer}

% Theme choice
\usetheme{CambridgeUS}

\begin{document}

\begin{frame}{A somewhat more complex table}

\begin{tabular}{|c||ccc|}
\hline \hline
    Small col & \multicolumn{3}{|c|}{Big col} \\
\hline
    Grouped items & \multicolumn{3}{|c|}{Item 1} \\
\cline{2-4}
    & \multicolumn{3}{|c|}{Item 2} \\
\hline
    Usual row & Spam & Bacon & Eggs \\
\hline\hline
\end{tabular}

\end{frame}

\end{document}
```



A more complex table inside a beamer frame.

When the environment argument has | characters, it's not obvious which of them get replaced by a **`\multicolumn`**'s positioning argument. In this case, the rule that LaTeX follows is: the part of the environment argument corresponding to any column other than the first, begins with an **`l`**, **`r`** or **`c`** character.

This means that the argument of the previous example `|c||ccc|` is split into `|c||` , `c`, `c`, and `c|` . For this reason, the `|c|` specifier inside the \multicolumn environment can be changed for `c|` and the result will be the same.

3. Table environment

The tabular environment produces a box, which is the fundamental object that the underlying system TeX uses to build the document. This means

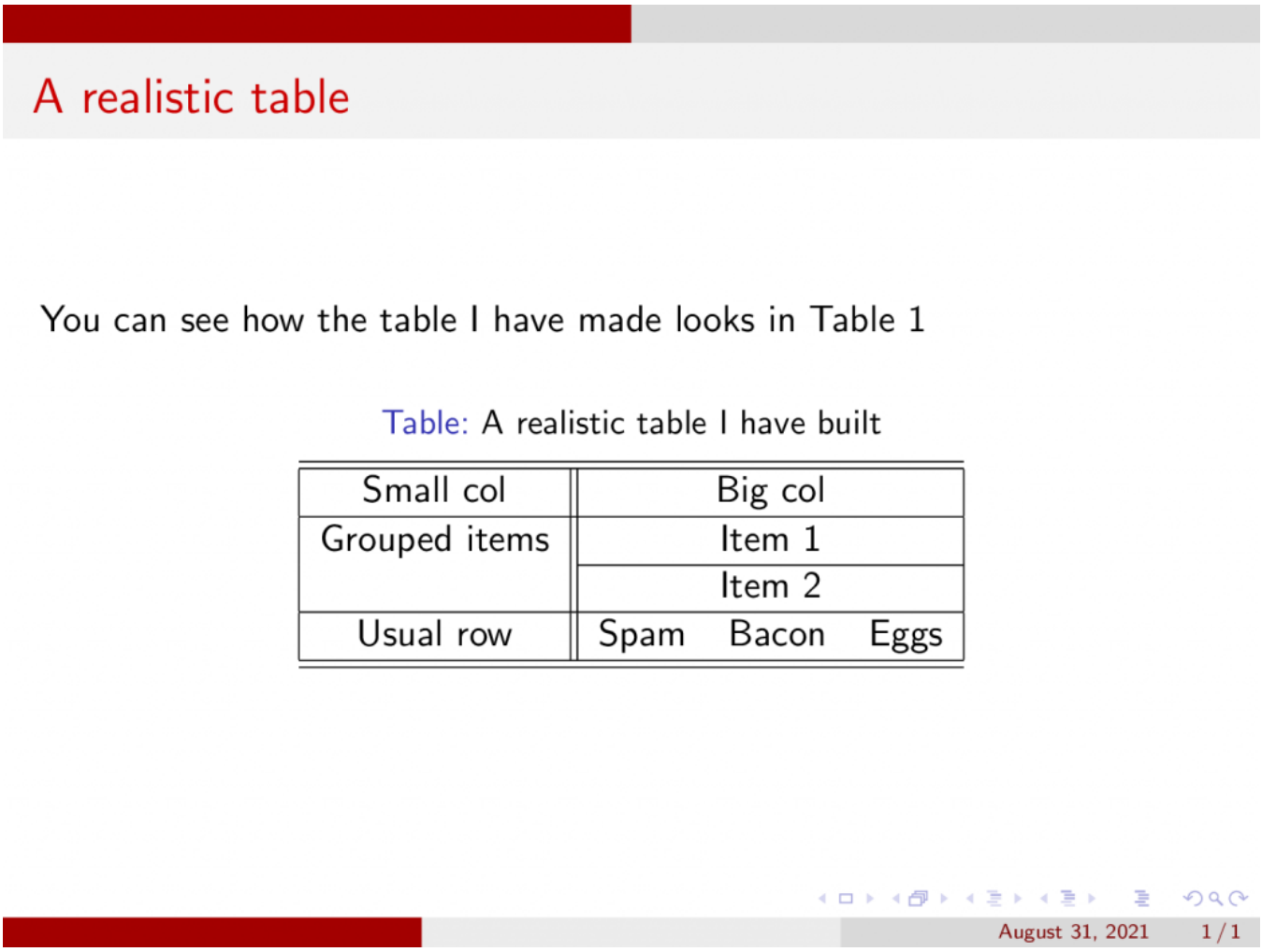
that a table produced by this environment is no different that a letter typed, which makes possible to print tables in a middle of a paragraph, sentence or word. But that would look a bit strange.

Usually the tabular environment is inserted inside the table environment, which makes it a floating object. This means that you can add positioning specifiers to the floating object, a caption and a label to reference it.

This is how our previous table would look in a more realistic use of the environment:

Copy

```
% Draw Horizontal lines in tables
\documentclass{beamer}

% Theme choice
\usetheme{CambridgeUS}

\begin{document}

\begin{frame}{A realistic table}
You can see how the table I have made looks in Table \ref{tab:table}

\begin{table}
\caption{A realistic table I have built}
\label{tab:table}

\begin{tabular}{|c||ccc|}
\hline \hline
    Small col & \multicolumn{3}{|c|}{Big col} \\
\hline
    Grouped items & \multicolumn{3}{|c|}{Item 1} \\
\cline{2-4}
    & \multicolumn{3}{|c|}{Item 2} \\
\hline
    Usual row & Spam & Bacon & Eggs \\
\hline\hline
\end{tabular}
\end{table}

\end{frame}

\end{document}
```



How a realistic table looks in beamer

4. Set the table size

We have already seen how to create a table in beamer using the tabular environment. When doing so, it was mentioned that technically, for TeX, the output of the tabular environment is the same as a letter; for the system, it is just a box.

And as all boxes in TeX, it can be resized using the command **`\resizebox`**. Here is an example of this command in action to fit inside a single frame a very big table:

```
% Large table resized in Beamer table
\documentclass{beamer}

% Theme choice
\usetheme{CambridgeUS}

\begin{document}
```

Copy

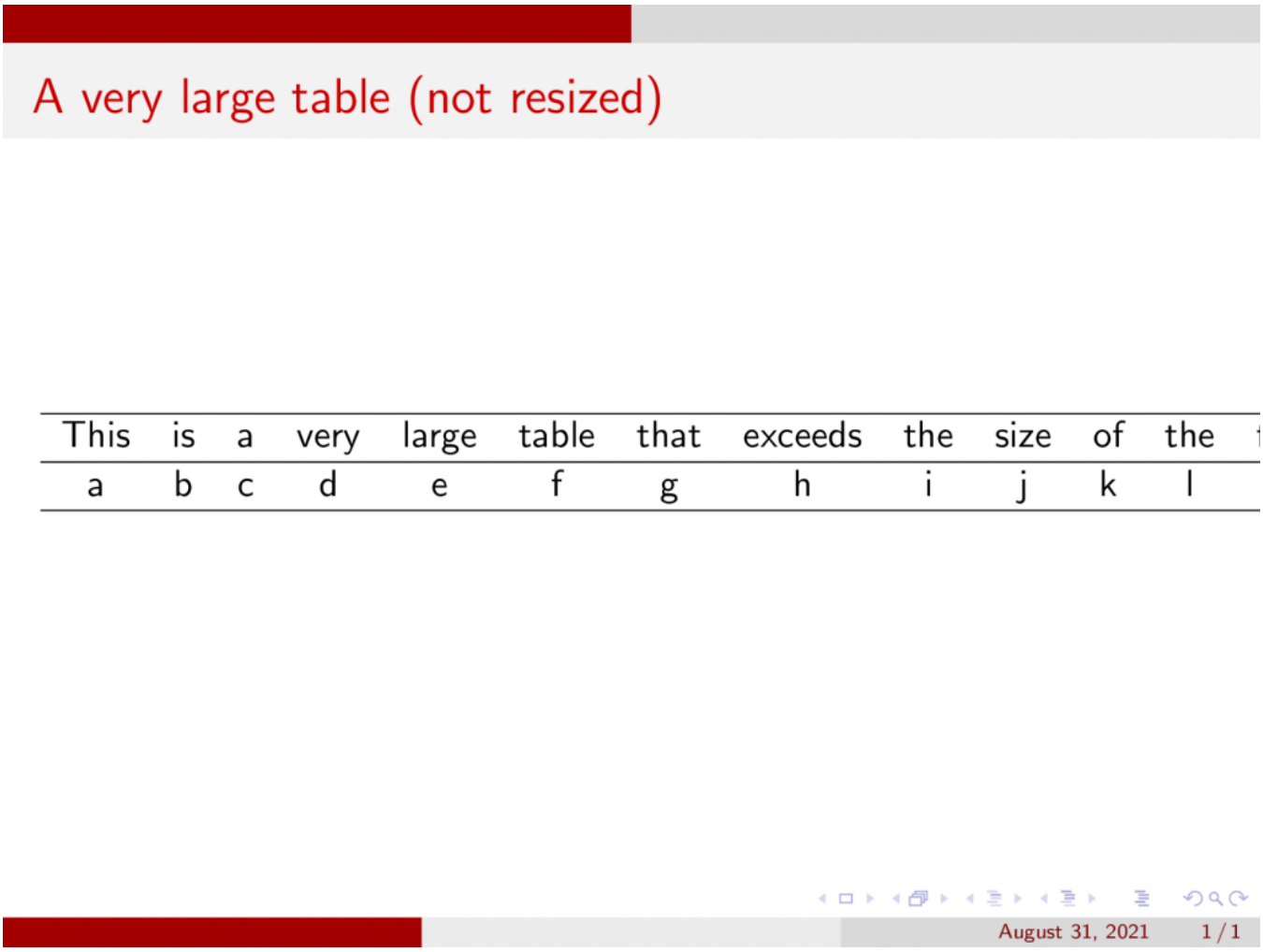
```
8.
9.    \begin{frame}{A very large table (resized)}
10.   \resizebox{10cm}{!}
11.   {
12.   \begin{tabular}{cccccccccccc}
13.   \hline
14.       This & is & a & very & large & table & that & exceeds & the &
      size & of & the & frame\\
15.   \hline
16.       a & b & c & d & e & f & g & h & i & j & k & l & m\\
17.   \hline
18.   \end{tabular}
19.   }
20.
21.   \end{frame}
22.
23.   \end{document}
```

which yields the following result:

A very large table (resized)

This	is	a	very	large	table	that	exceeds	the	size	of	the	frame
a	b	c	d	e	f	g	h	i	j	k	l	m

Here is the non resized version:



Observe that the command takes three mandatory arguments:

- the horizontal size of the new box,
- the vertical size of the new box
- the box to be resized.

When one of the two size arguments contains the symbol ! (as in the example above) the value of this argument is selected by LaTeX so that the aspect ratio of the box is preserved. It is highly recommended to use it unless you know what you are doing; in other case you may get some ugly results.

5. Change font size for tables

When resizing the box generated by a tabular environment using `\resizebox`, the font size is automatically scaled to fit the size needed. However, you may want to set a fixed font size for the table, to make it

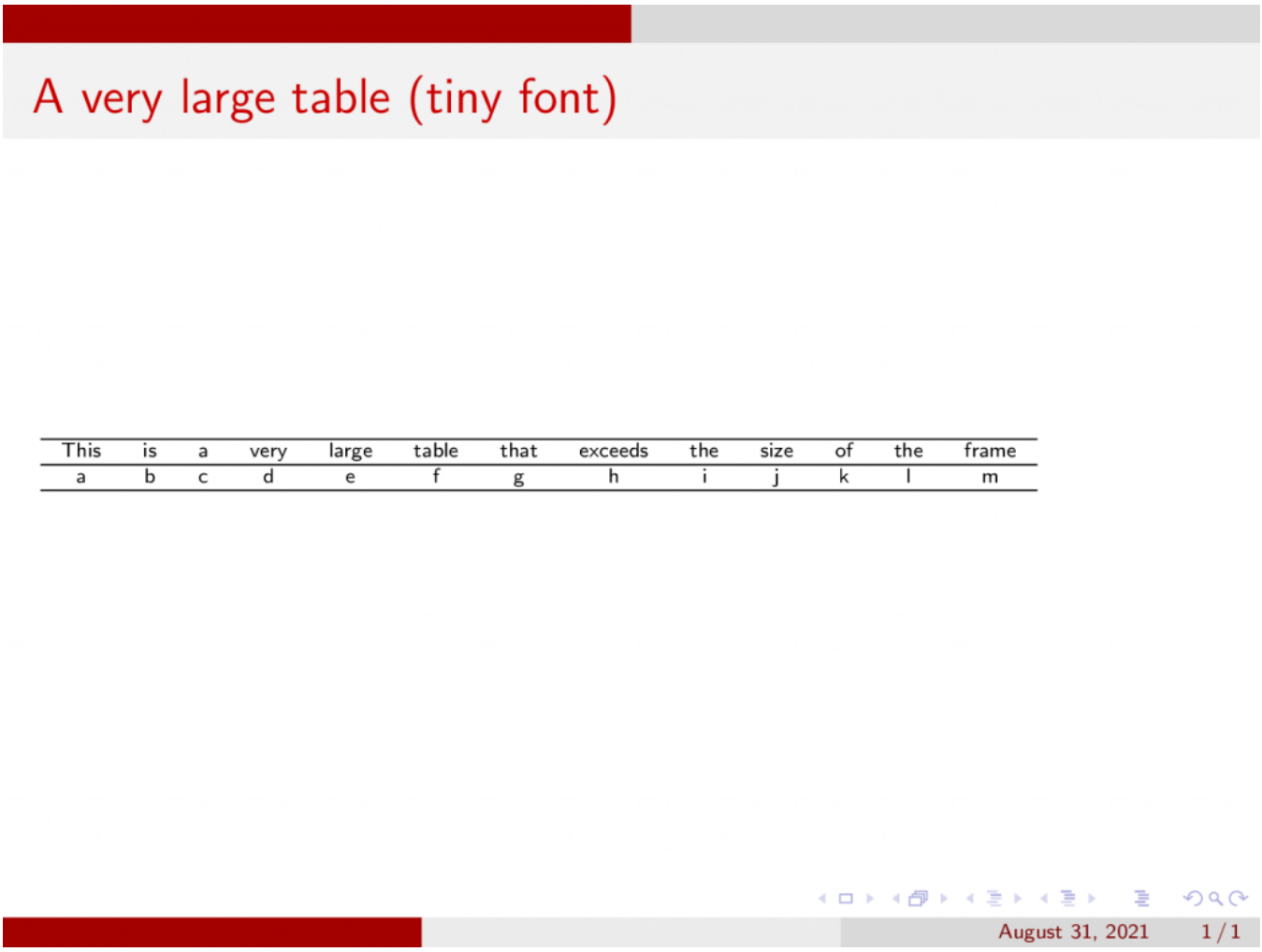
larger or smaller, using one of the predefined LaTeX sizes: **\tiny**, **\scriptsize**, **\footnotesize**, **\small**, **\normalsize**, **\large**, **\Large**, **\LARGE**, **\huge** and **\Huge**.

To do so, you only have to put the tabular environment inside a block containing the font size declaration that you want. For example, here I fit the previous table inside the frame using this new approach:

```
% Large table resized in Beamer table
\documentclass{beamer}

% Theme choice
\usetheme{CambridgeUS}

\begin{document}

\begin{frame}{A very large table (tiny font)}

{\tiny
\begin{tabular}{cccccccccccc}
\hline
    This & is & a & very & large & table & that & exceeds & the & size & of & the & frame\\
\hline
    a & b & c & d & e & f & g & h & i & j & k & l & m\\
\hline
\end{tabular}
}

\end{frame}

\end{document}
```

Copy

and the result in this case is shown below:



How the large table looks when the size of the font is set to `\tiny`.

6. Spacing in tables

a. Vertical spacing

To change the vertical spacing of a beamer table, we just have to change the value of the `\arraystretch` command. By default, its value is 1, so for instance using: `\renewcommand{\arraystretch}{1.5}` will increase the separation of the different rows in the array by a 50%.

b. Horizontal spacing

To change the horizontal spacing of a beamer table, we have to change the `\tabcolsep` length of LaTeX. To so so, we have to use the

command: `\setlength{\tabcolsep}{dim}` where `dim` is a valid LaTeX dimension.

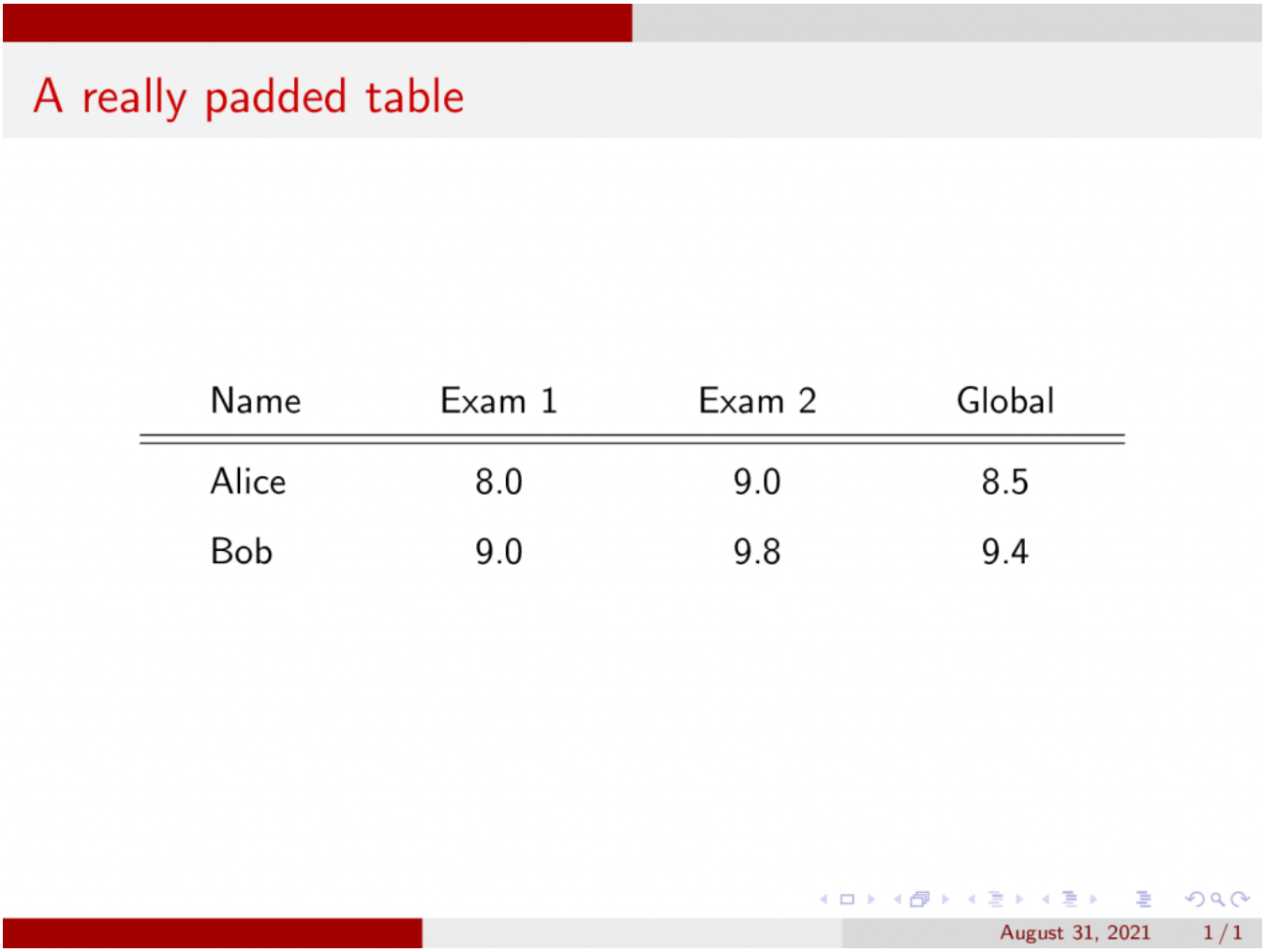
If we redefine this command and dimension in the document preamble, they will be changed throughout all the document. However, if we do it inside an environment or a `{}` group, they will only affect the scope of the environment or group. This is useful when we want to use the default settings for our document, but we wish to fine tune a given table that looks odd.

c. Illustrative example

In the following example, we use the previous commands to increase the padding in our table:

Copy

```
% Spacing in Beamer tables
\documentclass{beamer}

% Theme choice
\usetheme{CambridgeUS}

% Change horizontal spacing
\setlength{\tabcolsep}{20pt}

% Change vertical spacing
\renewcommand{\arraystretch}{1.5}

\begin{document}

\begin{frame}{A really padded table}
\centering
\begin{tabular}{lccc}
    Name & Exam 1 & Exam 2 & Global \\
\hline\hline
    Alice & 8.0 & 9.0 & 8.5 \\
    Bob & 9.0 & 9.8 & 9.4 \\
\end{tabular}

\end{frame}

\end{document}
```



A table with large separation between rows and columns.

7. How to use colors to highlight tables in Beamer

A lot of color functionality is already integrated inside beamer, without the necessity of explicitly loading external packages such as xcolor. The reason for this is rather obvious: colors play a very important role in any beamer presentation; a black and white presentation is not exactly what we are looking for when using beamer.

We could try to use those beamer color capabilities to produce a table where we highlight some features. For instance, it may be interesting to highlight the header of the table, or even every even column, so that we can differentiate them without using lines. For this functionalities we will have to load the colortbl package.

First, let's see an example of this package in action, and then I will explain in more detail the main commands it provides :

Copy

```
% Colored columns and rows in Beamer table
\documentclass{beamer}

% Theme choice
\usetheme{CambridgeUS}

\usepackage{colortbl}

% define new colors
\definecolor{LightRed}{RGB}{252,160,140}
\definecolor{LightBlue}{RGB}{140,186,252}

% use the colortbl package to define a new column
\newcolumntype{a}{>{\columncolor{LightRed}}c}

\begin{document}

\begin{frame}{Colored tables}

\centering
\begin{tabular}{lrara}
\hline
\rowcolor{LightBlue}
    The variables & \multicolumn{4}{c}{The data}\\ \hline
    var 1 & 1 & 2 & 3 & 4 \\ \hline
    var 2 & 1 & 2 & 3 & 4 \\ \hline
    var 3 & 1 & 2 & 3 & 4 \\ \hline
\end{tabular}

\end{frame}

\end{document}
```

The result of this code can be seen below:

Colored tables

The variables	The data			
var 1	1	2	3	4
var 2	1	2	3	4
var 3	1	2	3	4

Let's jump into the details of the code:

- First of all, we defined some colors as it is usually done with the xcolor package; nevertheless, we didn't load it, since beamer does it for us.
- In this case, we defined the colors using a RGB tuple, but there are other ways available (HTML, greyscale, etc).
- Then we defined a new kind of column, that is, a new kind of column specifier for the tabular environment. This definition, in spite of its complex notation, is very simple: we just specify the color of the column inside **`\columncolor`** and then we select its alignment with the common **`l`**, **`r`** and **`c`** specifiers. Then this specifier is used for the columns that we want to color.
- Coloring rows is even simpler: we just have to use the command **`\rowcolor`** inside the row we want to color. As you can see, the color of the row has preference over the column color.

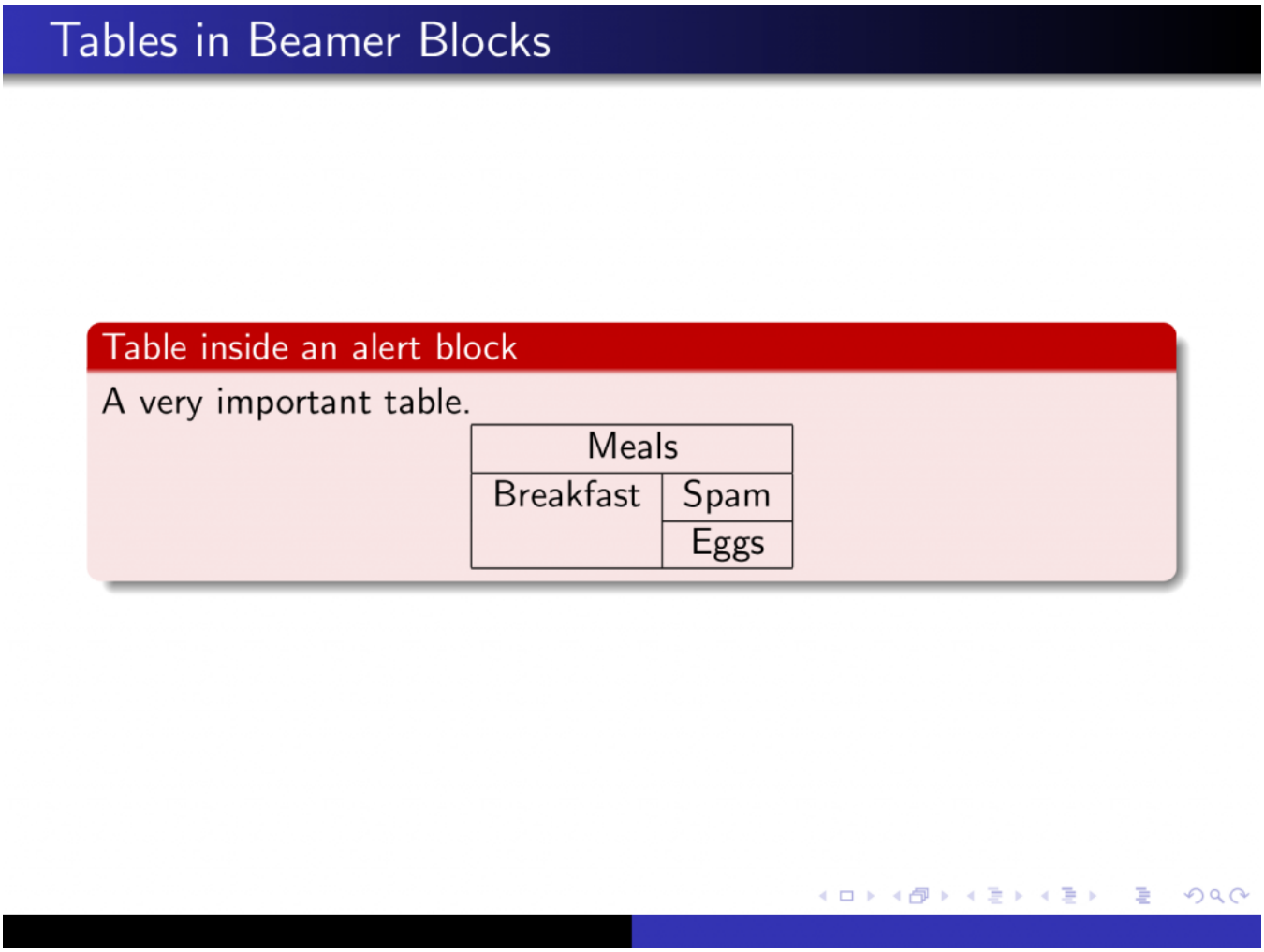
8. Tables inside blocks

We can insert without any trouble a tabular environment inside a block. In the following example we use the Warsaw theme to have styled blocks and we print a table inside an **`alertblock`**:

Copy

```
% Beamer table inside a block
\documentclass{beamer}

% Theme choice
\usetheme{Warsaw}

\begin{document}

\begin{frame}{Tables in Beamer Blocks}

\begin{alertblock}{Table inside an alert block}
A very important table.

\centering
\begin{tabular}{|c|c|}
\hline
    \multicolumn{2}{|c|}{Meals} \\ \hline
    Breakfast & Spam \\ \cline{2-2}
    & Eggs \\ \hline
\end{tabular}
\end{alertblock}

\end{frame}

\end{document}
```

which produces the following image:



A table inside a Warsaw-themed block.

Summary

In this lesson, we learned how to create tables in beamer using the tabular environment. We highlighted different alignment and spacing options and how one can highlight cells with different colors.

Next Lesson: 15 Figures in Beamer – A detailed tutorial

Search

About LaTeX-Beamer.com

LaTeX-Beamer.com is a personal website about creating stylish and modern presentations in LaTeX, through step-by-step lessons.