Your Guide to Beamer Blocks

By Admin   August 10, 2021

Sometimes we need to display some information that convey some special messages. As an example, an information box with a title and some background color can deliver an important scientific fact. In Beamer, it is possible to execute by few ways and in this tutorial, we will focus on blocks!

1. Create a Simple block in Beamer

It can be useful to treat some content differently by putting it into a block. In Beamer, we can separate a specific section of text or graphics from the rest of the frame using "`block`" environment:

```
1.   % Block environment
2.   \documentclass{beamer}
3.
```

Copy

```latex
4.    % Theme choice
5.    \usetheme{Madrid}
6.
7.    \begin{document}
8.
9.    \begin{frame}{Block environment}{Madrid theme}
10.
11.    \begin{block}{Block title}
12.        It can be useful to treat some content differently by putting
      it into a block. This can be done by using blocks!
13.    \end{block}
14.
15.    \end{frame}
16.
17.    \end{document}
```

We used `Madrid` theme for our presentation and inside a `frame` we added a `block` environment with title "Block title". Here is the obtained result:
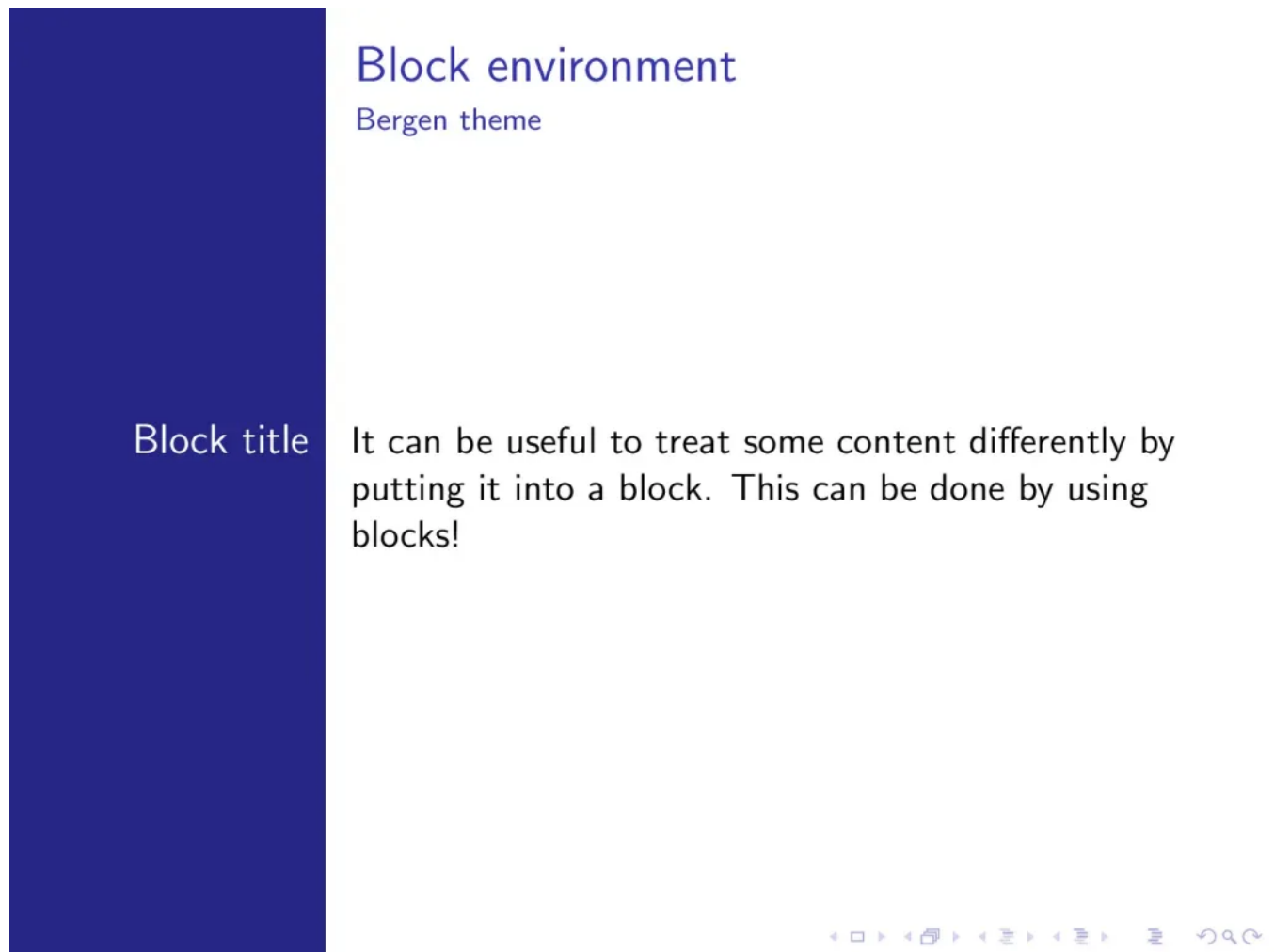

Block environment
Madrid theme

Block title
ss It can be useful to treat some content differently by putting it into a block. This can be done by using blocks!

It should be noted that the block style depends on the used theme and theme color. Let us consider the same code as above and we change only the them to **Bergen**. The obtained result is shown below:

? You may wonder, are there other predefined styles for blocks in Beamer? The answer is in the next section!

2. Main styles of blocks in Beamer

There are three basic types of blocks : Standard/Generic block, Alert block, and Example block. There are also special blocks for math environments like Theorem, Definition, Proof, Corollary, Example, etc.

The following table illustrates different blocks with sample code syntax in beamer:

Content type	Block	Syntax
Generic/Standard	block	\begin{block}...\end{block}
Highlighted Alert	alertblock	\begin{alertblock}...\end{alert
Examples 1	exampleblock	\begin{exampleblock} ... \end{b
Theorems	theorem	\begin{theorem} ... \end{theore
Definition	definition	\begin{definition} ... \end{definition}
Proofs	proof	\begin{proof} ... \end{proof}
Lemmas	lemma	\begin{lemma} ... \end{lemma}
Corollaries	corollary	\begin{corollary} ... \end{coro
Examples 2	example	\begin{example} ... \end{exampl

Different types of block elements

Here is an example code using different types of blocks in a Beamer presentation:

```
1.   % Different styles of blocks
2.   \documentclass{beamer}
3.
4.   % Theme choice
5.   \usetheme{Copenhagen}
6.
7.   \begin{document}
8.
9.   % Frame 1
10.  \begin{frame}{Basic Blocks}
11.      \begin{block}{Standard Block}
12.          This is a standard block.
13.      \end{block}
14.
15.      \begin{alertblock}{Alert Message}
16.          This block presents alert message.
```

Copy

```
17.        \end{alertblock}
18.
19.        \begin{exampleblock}{An example of typesetting tool}
20.            Example: MS Word, \LaTeX{}
21.        \end{exampleblock}
22.    \end{frame}
23.
24.    % Frame 2
25.    \begin{frame}{Mathematical Environment Blocks}
26.        \begin{definition}
27.            This is a definition.
28.        \end{definition}
29.
30.        \begin{theorem}
31.            This is a theorem.
32.        \end{theorem}
33.
34.        \begin{lemma}
35.            This is a proof idea.
36.        \end{lemma}
37.    \end{frame}
38.
39.    % Frame 3
40.    \begin{frame}{Mathematical Environment Blocks-Continued}
41.        \begin{proof}
42.            This is a proof.
43.        \end{proof}
44.
45.        \begin{corollary}
46.            This is a corollary
47.        \end{corollary}
48.
49.        \begin{example}
50.            This is an example
51.        \end{example}
52.    \end{frame}
53.
54.    \end{document}
```

Compiling this code yields the following:

Basic Blocks

Standard Block
This is a standard block.

Alert Message
This block presents alert message.

An example of typesetting tool
Example: MS Word, $\LaTeX$

Mathematical Environment Blocks

Definition
This is a definition.

Theorem
This is a theorem.

Lemma
This is a proof idea.

Mathematical Environment Blocks-Continued

Proof.

This is a proof. □

Corollary

This is a corollary

Example

title This is an example

Example of basic and mathematical blocks.

Using Boadilla theme instead of Copenhagen, we get the following style for different beamer blocks:

Basic Blocks

Standard Block

This is a standard block.

Alert Message

This block presents alert message.

An example of typesetting tool

Example: MS Word, LATEX

Mathematical Environment Blocks

Definition

This is a definition.

Theorem

This is a theorem.

Lemma

This is a proof idea.

Mathematical Environment Blocks-Continued

Proof.

This is a proof. ☐

Corollary

This is a corollary

Example

This is an example

Example of basic and mathematical blocks (Boadilla theme).

3. German block environment

Here is a list of German blocks in Beamer: Problem, Loesung, Definition, Satz, Beweis, Folgerung, Lemma, Fakt, Beispiel, Beispiele.

Here is an illustrative example:

```
1.   % German block environment
2.   \documentclass{beamer}
3.
4.   % Theme choice
5.   \usetheme{AnnArbor}
6.
7.   \begin{document}
8.
9.   \begin{frame}[fragile]{Basic Blocks}
10.      \begin{Problem}
11.          This block can be used for problems description.
12.      \end{Problem}
13.
```

Copy

```latex
14.        \begin{Loesung}
15.            This block can be used for presenting a solution.
16.        \end{Loesung}
17.
18.        \begin{Definition}
19.            This block is equivalent to \verb|Definition| block
20.        \end{Definition}
21.    \end{frame}
22.
23.    \begin{frame}[fragile]{Mathematical Environment Blocks}
24.        \begin{Satz}
25.            This is equivalent to \verb|theorem| block
26.        \end{Satz}
27.
28.        \begin{Beweis}
29.            This is equivalent to \verb|proof| block
30.        \end{Beweis}
31.
32.        \begin{Folgerung}
33.            This is equivalent to \verb|lemma| block
34.        \end{Folgerung}
35.    \end{frame}
36.
37.    \begin{frame}[fragile]{Mathematical Environment Blocks-Continued}
38.        \begin{Lemma}
39.            This is equivalent to \verb|lemma| block
40.        \end{Lemma}
41.
42.        \begin{Fakt}
43.            This is equivalent to \verb|fact| block
44.        \end{Fakt}
45.
46.        \begin{Beispiel}
47.            This is equivalent to \verb|Example| block
48.        \end{Beispiel}
49.
50.         \begin{Beispiele}
51.            This is equivalent to \verb|Examples| block
52.        \end{Beispiele}
53.    \end{frame}
54.
55.    \end{document}
```

This code yields the following:

Basic Blocks

Problem

This block can be used for problems description.

Lösung

This block can be used for presenting a solution.

Definition

This block is equivalent to Definition block

Mathematical Environment Blocks

Satz

This is equivalent to theorem *block*

Beweis.

This is equivalent to proof block

Folgerung

This is equivalent to lemma *block*

Lemma

This is equivalent to `lemma` *block*

Fakt

This is equivalent to `fact` *block*

Beispiel

This is equivalent to `Example` block

Beispiele

This is equivalent to `Examples` block

In this example, we used AnnArbor theme and you may remarked the frame option `[fragile]` which allows us to use verbatim style inside a frame.

ⓘ   Other blocks are available: `fact`, `definitions`, and `examples`.

4. Customization and Basic blocks

We can modify blocks' shapes by playing with the command:
\setbeamertemplate{blocks}[Options]. Here are available pre-defined options for this command:

- `[default]`: This default value typesets the block title on its line.

- `[rounded]`: makes the blocks' corners rounded.

- **[shadow=true]**: If the shadow is set as true, a shadow is portrayed behind the block.

Here is an illustrative example:

```
1.   % Customize blocks
2.   \documentclass{beamer}
3.
4.
5.   % Default style
6.   %\setbeamertemplate{blocks}[default]
7.
8.   % Shadow mode of blocks
9.   \setbeamertemplate{blocks}[rounded][shadow=true]
10.
11.  \begin{document}
12.
13.  \begin{frame}{Basic Blocks Example}
14.
15.  \begin{block}{Standard Block}
16.      This is an standard block with shadow
17.  \end{block}
18.
19.  \begin{alertblock}{Alert Message}
20.      This block presents alert message.
21.  \end{alertblock}
22.
23.  \begin{exampleblock}{An example of typesetting tool}
24.      Example: MS Word, Latex
25.  \end{exampleblock}
26.
27.  \end{frame}
28.
29.  \end{document}
```

Copy

Here is the output:

Basic Blocks Example

Standard Block
This is an standard block with shadow

Alert Message
This block presents alert message.

An example of typesetting tool
Example: MS Word, Latex

Default style for blocks in Beamer

Basic Blocks Example

Standard Block
This is an standard block with shadow

Alert Message
This block presents alert message.

An example of typesetting tool
Example: MS Word, Latex

Shading and rounded corners blocks in beamer

5. Change colors of blocks

From above, we know that blocks' style depends on the used theme and In this part, we will learn how to change the blocks colors without changing the theme.

For each block (e.g. `alertblock`), we distinguish two parts: the `title` and the **body** of the block. For each part, we can change the background color and the foreground color. These options can be modified using the command `\setbeamercolor`.

In the next example, we changed colors of standard block, alert block and example block. Check the obtained result:

Basic Blocks Example

Blocks' colors modified by \setbeamercolor

And here is piece of codes of each block customization:

-1- Customize standard block colors

```
1.   % Change standard block colors
2.
3.   % 1- Block title (background and text)
4.   \setbeamercolor{block title}{bg=cyan, fg=white}
5.
6.   % 2- Block body (background)
7.   \setbeamercolor{block body}{bg=cyan!10}
```

Copy

-2- Customize alert block colors

```
1.   % Change alert block colors
2.
3.   % 1- Block title (background and text)
4.   \setbeamercolor{block title alerted}{fg=white, bg=orange}
5.
6.   % 2- Block body (background)
7.   \setbeamercolor{block body alerted}{bg=orange!25}
```

Copy

-3- Customize example block colors

```
1.    % Change example block colors
2.
3.    % 1- Block title (background and text)
4.    \setbeamercolor{block title example}{fg=white, bg=teal}
5.
6.    % 2- Block body (background)
7.    \setbeamercolor{block body example}{bg=teal!25}
```

Copy

The fill code of the above image is:

```
1.    % Change color of Beamer blocks
2.    \documentclass{beamer}
3.
4.    % Change example block colors
5.
6.    % 1- Block title (background and text)
7.    \setbeamercolor{block title example}{fg=white, bg=teal}
8.
9.    % 2- Block body (background and text)
10.   \setbeamercolor{block body example}{ bg=teal!25}
11.
12.   % Change alert block colors
13.
14.   % 1- Block title (background and text)
15.   \setbeamercolor{block title alerted}{fg=white, bg=orange}
16.
17.   % 2- Block body (background and text)
18.   \setbeamercolor{block body alerted}{ bg=orange!25}
19.
20.   % Change standard block colors
21.
22.   % 1- Block title (background and text)
23.   \setbeamercolor{block title}{bg=cyan, fg=white}
24.
25.   % 2- Block body (background)
26.   \setbeamercolor{block body}{bg=cyan!10}
27.
28.   \begin{document}
29.
30.   \begin{frame}{Basic Blocks Example}
31.
32.   \begin{block}{Standard block}
33.       Observation through sound or listening can tell us about our
      surrounding environment.
34.   \end{block}
35.
36.   \begin{alertblock}{Alert block}
```

Copy

```
37.       A-weighting mirrors the range of hearing, with frequencies of
     20 Hz to 20,000 Hz.
38.   \end{alertblock}
39.
40.   \begin{exampleblock}{Example block}
41.       Recommendations for leisure noise in 2018 were conditional and
     based on the equivalent sound pressure level during an average 24
     hour period in a year without weights for nighttime noise.
42.   \end{exampleblock}
43.
44.   \end{frame}
45.
46.   \end{document}
```

Summary

- Beamer provides different blocks to highlight ideas and present results. This includes standard blocks, alert blocks and example blocks.
- For mathematicians, we have blocks for: theorems, corollaries, proofs, lemmas and much more!
- We can change the color of each block which consists of a title and body parts using the command **\setbeamercolor**.
- We can also change the block style: rounded corners and add shading which is achieved by the command **\setbeamertemplate**.

Next Lesson: 08 Beamer Themes — Full List

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.