

Create and Customize Columns in Beamer

 By Admin July 25, 2021

Learn how to create columns, add content and specify alignment in beamer.

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1. Creating columns with different widths

To create columns in beamer, we use the `columns` environment. Then, at the point to begin a column we use the `\column` command followed by the width of the columns (or `\begin{column} ... \end{column}`).

In the following example, we have created two columns with different widths:

- ```
1. % Columns in beamer
2. \documentclass{beamer}
3.
4. % Theme choice:
5. \usetheme{CambridgeUS}
```

Copy

```
6.
7. \begin{document}
8.
9. \begin{frame}{Columns in beamer}
10. \begin{columns}
11. \column{0.6\textwidth}
12. \centering
13. This is column one with 0.75 text width.
14. \column{0.4\textwidth}
15. \centering
16. This is column two with 0.25 text width.
17. \end{columns}
18. \end{frame}
19.
20. \end{document}
```

Compiling this code yields:

## Columns in beamer

This is column one with 0.6 text width.

This is column two with 0.4 text width.

Comments:

- We used **CambridgeUS** theme, loaded by the command `\usetheme{CambridgeUS}`.
- The frame has the title “Columns in beamer”.
- We created two columns: one with 60% of text width and the second with 40% text width.
- Text inside each column is centered using the command `\centering`.

## 2. Figure next to text in beamer

With the same manner as above, we can add text and image in the same slide as follows:

```

1. % Image and text in beamer (same slide)
2. \documentclass{beamer}
3.
4. % Theme choice:
5. \usetheme{CambridgeUS}
6.
7. \begin{document}
8.
9. \begin{frame}{Text and Image in beamer}
10. \begin{columns}
11. \column{0.4\textwidth}
12. This is an example of text and image in the same slide
using columns environment.
13. \column{0.6\textwidth}
14. \begin{figure}
15. \centering
16. \includegraphics[width=\textwidth]{Neural-Network.jpg}
17. \caption{Neural Network with 5 neurons in the hidden layer.
}
18. \end{figure}
19. \end{columns}
20. \end{frame}
21.
22. \end{document}

```

Compiling this code yields:

## Text and Image in beamer

This is an example of text and image in the same slide using columns environment.

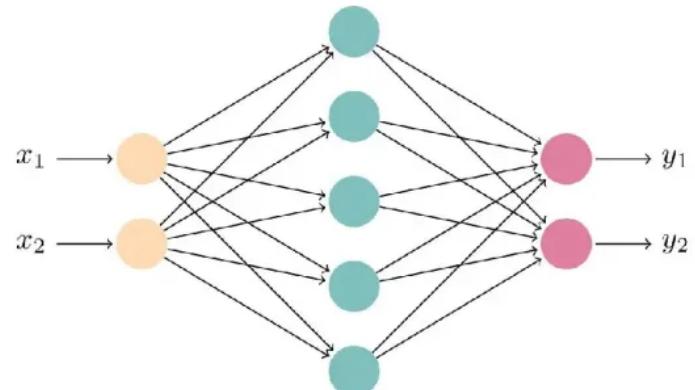


Figure: Neural Network with 5 neurons in the hidden layer.

The image of the Neural Network can be downloaded from here: [NN.jpg](#). This illustration is drawn in LaTeX using TikZ package, [read this post!](#)

### 3. Vertical line between columns

To distinctively separate the two (or more) columns from each other we can create a vertical line between them. This can be done simply by adding a \rule command in an intermediate column with a small width. In the example below two columns are separated with a vertical line using this method.

```
1. % Vertical line between columns
2. \documentclass{beamer}
3.
4. % Theme choice:
5. \usetheme{CambridgeUS}
6.
7. \begin{document}
8.
```

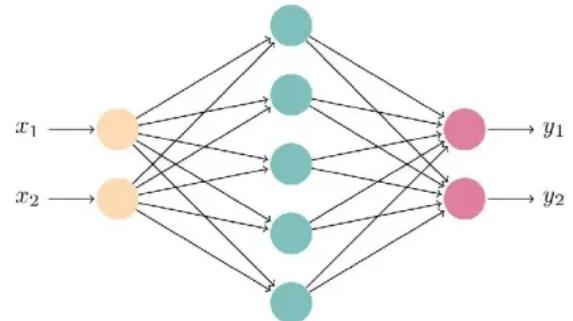
Copy

```
9. \begin{frame}{Vertical line between columns}
10.
11. \begin{columns}
12. % Column 1
13. \begin{column}{0.49\textwidth}
14.
15. \begin{itemize}
16. \item Input layer: 2 neurons.
17. \item Hidden layer: 5 neurons.
18. \item Output layer: 2 neurons.
19. \end{itemize}
20.
21. \end{column}
22.
23. % Column 2 (vertical line)
24. \begin{column}{.02\textwidth}
25. \rule{.1mm}{0.7\textheight}
26. \end{column}
27.
28. % Column 3
29. \begin{column}{0.49\textwidth}
30. \includegraphics[width=\textwidth]{Neural-Network.jpg}
31. \end{column}
32.
33. \end{columns}
34. \end{frame}
35.
36. \end{document}
```

Compiling this code yields:

## Vertical line between columns

- Input layer: 2 neurons.
- Hidden layer: 5 neurons.
- Output layer: 2 neurons.



Comments:

- We have created 3 columns of widths 0.49, 0.02, 0.49 of the slide text width, respectively.
- The first column has an unordered list, the second column contains the vertical line and the third column contains an image.
- The vertical line has a width of 0.1mm and a height of 70% of the text height. This is achieved by the command `\rule{<width>}{<height>}`.



Previously we used `\column` command and in this example we used `\begin{column} ... \end{column}`, which are equivalent.

## 4. Vertical alignment of columns

The vertical alignment of column content is very important for the beautification of a presentation. The text and the figures can be placed in three position in a frame, i.e. top, bottom, and center. By specifying [c ], [T], or [b] after beginning the column environment will automatically position the short content to the center, top, or bottom respectively.

## – Top alignment

```
1. % Vertical alignment columns
2. \documentclass{beamer}
3.
4. % Theme choice:
5. \usetheme{CambridgeUS}
6.
7. \begin{document}
8.
9. \begin{frame}{Vertical alignment (top)}
10.
11. \begin{columns}[T]
12. % Column 1
13. \begin{column}{0.5\textwidth}
14. This is a neural network with two inputs and two outputs. It
15. has the following parameters:
16. \begin{itemize}
17. \item Input layer: 2 neurons.
18. \item Hidden layer: 5 neurons.
19. \item Output layer: 2 neurons.
20. \end{itemize}
21. The neural network is drawn in \LaTeX{} using Ti\textit{k}Z
22. package. Check latexdraw.com for more details.
23. \end{column}
24. % Column 2
25. \begin{column}{0.5\textwidth}
26. \includegraphics[width=\textwidth]{Neural-Network.jpg}
27. \end{column}
28. \end{columns}
29. \end{frame}
30.
31. \end{document}
```

Copy

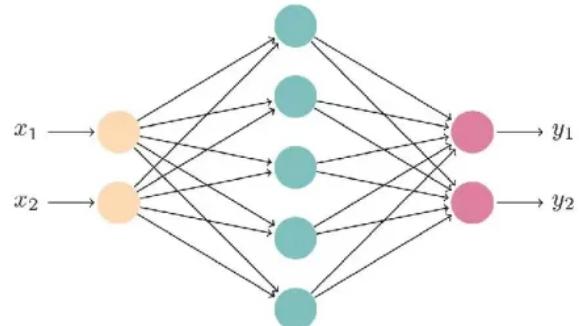
which yields to top alignment of different columns' contents. In this case, we have text and an image as shown below:

## Vertical alignment (top)

This is a neural network with two inputs and two outputs. It has the following parameters:

- Input layer: 2 neurons.
- Hidden layer: 5 neurons.
- Output layer: 2 neurons.

The neural network is drawn in  $\text{\LaTeX}$  using TikZ package. Check [latexdraw.com](http://latexdraw.com) for more details.



### – Center alignment

```
1. % Vertical alignment columns
2. \documentclass{beamer}
3.
4. % Theme choice:
5. \usetheme{CambridgeUS}
6.
7. \begin{document}
8.
9. \begin{frame}{Vertical alignment (center)}
10.
11. \begin{columns}[c]
12. % Column 1
13. \begin{column}{0.5\textwidth}
14. This is a neural network with two inputs and two outputs. It
15. has the following parameters:
16. \begin{itemize}
17. \item Input layer: 2 neurons.
18. \item Hidden layer: 5 neurons.
19. \item Output layer: 2 neurons.
20. \end{itemize}
21. The neural network is drawn in \LaTeX{} using Ti\textit{k}Z
22. package. Check latexdraw.com for more details.
```

```

21. \end{column}
22.
23. % Column 2
24. \begin{column}{0.5\textwidth}
25. \includegraphics[width=\textwidth]{Neural-Network.jpg}
26. \end{column}
27.
28. \end{columns}
29. \end{frame}
30.
31. \end{document}

```

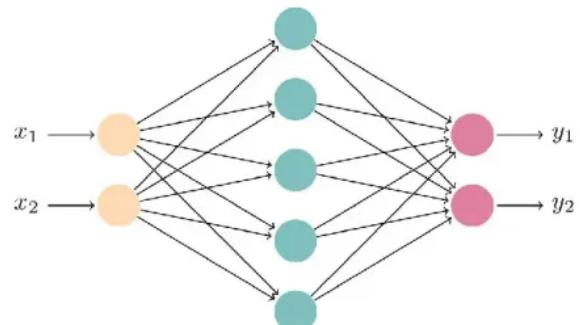
which yields to center alignment of different columns' contents as shown below:

## Vertical alignment (center)

This is a neural network with two inputs and two outputs. It has the following parameters:

- Input layer: 2 neurons.
- Hidden layer: 5 neurons.
- Output layer: 2 neurons.

The neural network is drawn in  $\text{\LaTeX}$  using TikZ package. Check [latexdraw.com](http://latexdraw.com) for more details.



## – Bottom alignment

```

1. % Vertical alignment columns
2. \documentclass{beamer}
3.
4. % Theme choice:
5. \usetheme{CambridgeUS}

```

Copy

```
6.
7. \begin{document}
8.
9. \begin{frame}{Vertical alignment (bottom)}
10.
11. \begin{columns}[b]
12. % Column 1
13. \begin{column}{0.5\textwidth}
14. This is a neural network with two inputs and two outputs. It
has the following parameters:
15. \begin{itemize}
16. \item Input layer: 2 neurons.
17. \item Hidden layer: 5 neurons.
18. \item Output layer: 2 neurons.
19. \end{itemize}
20. The neural network is drawn in \LaTeX{} using Ti\textit{k}Z
package. Check latexdraw.com for more details.
21. \end{column}
22.
23. % Column 2
24. \begin{column}{0.5\textwidth}
25. \includegraphics[width=\textwidth]{Neural-Network.jpg}
26. \end{column}
27.
28. \end{columns}
29. \end{frame}
30.
31. \end{document}
```

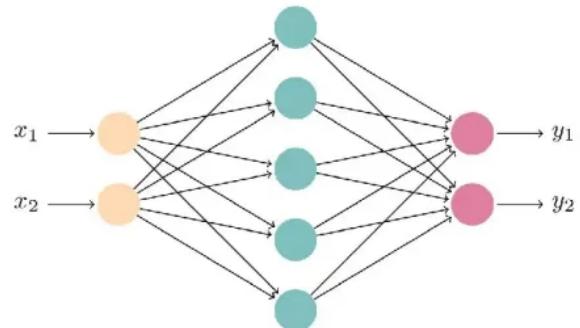
Compiling this code yields:

## Vertical alignment (bottom)

This is a neural network with two inputs and two outputs. It has the following parameters:

- Input layer: 2 neurons.
- Hidden layer: 5 neurons.
- Output layer: 2 neurons.

The neural network is drawn in  $\text{\LaTeX}$  using TikZ package. Check [latexdraw.com](http://latexdraw.com) for more details.



## Summary

- Creating columns in beamer can be achieved by column environment. We can create columns inside the main column with a predefined width which is achieved using `\begin{columns}{<width>} ... \end{columns}`
- Vertical line between columns can be created using the command `\rule{<width>}{<height>}` inside an intermediate column with a small width.
- Content alignment of different columns can be achieved by adding [T], [b] or [c] for top alignment, bottom alignment and center alignment, respectively, just after the main column environment.

Next Lesson: 07 Your Guide to Beamer Blocks

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