

Presentations with Beamer

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Aim of the presentation

The aim of this presentation is to show how to make beautiful **presentations** with \LaTeX .

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The aim of this presentation is to show how to make beautiful **presentations** with \LaTeX .

We first focus on the common **errors** that are made while preparing a presentation and we will give some **tips** to avoid them.

Bad presentations: common errors for layout

Poor choice of decorating elements:

Bad presentations: common errors for layout

Poor choice of decorating elements:

- dark background (with gradient fill) and poor choice of font colours:



Bad presentations: common errors for layout

Poor choice of decorating elements:

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- slides overfull of content:



Bad presentations: common errors for layout

Poor choice of decorating elements:

- dark background (with gradient fill) and poor choice of font colours:



- slides overfull of content:



- great amounts of animations.



Bad presentations: common errors for layout

white font

yellow font

yellow font

white font

white font

yellow font

Bad presentations: common errors for organization

- Bad calculation of time

Bad presentations: common errors for organization

- Bad calculation of time
 - too many slides

Bad presentations: common errors for organization

- Bad calculation of time
 - too many slides
 - too many data

Bad presentations: common errors for organization

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 - too many slides
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 - too many or too few preliminary informations

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 - too many data
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- No practice of presentations:
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 - no underline of key terms

Bad presentations: common errors for organization

- Bad calculation of time
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- No practice of presentations:
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 - no underline of key terms
 - boring speaking style

Bad presentations: common errors for organization

- Bad calculation of time
 - too many slides
 - too many data
 - too many or too few preliminary informations
- No practice of presentations:
 - slides read word by word
 - no underline of key terms
 - boring speaking style
 - no contact with the audience.

Good presentations: Euclid tutorial

The Beamer class documentation begins with **Euclid's tutorial**: tips for a good presentation.

Good presentations: Euclid tutorial

The Beamer class documentation begins with **Euclid's tutorial**: tips for a good presentation.

- know the room

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- know the audience

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The Beamer class documentation begins with **Euclid's tutorial**: tips for a good presentation.

- know the room
- know the audience
- be aware of the time constraints

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- know the room
- know the audience
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- divide the presentation in

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- know the room
- know the audience
- be aware of the time constraints
- divide the presentation in **introduction**,

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- know the room
- know the audience
- be aware of the time constraints
- divide the presentation in **introduction**, **main body**,

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- know the room
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- divide the presentation in **introduction**, **main body**, **intermediate conclusions**,

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- know the room
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- divide the presentation in **introduction**, **main body**, **intermediate conclusions**, **final conclusions**

Good presentations: Euclid tutorial

The Beamer class documentation begins with **Euclid's tutorial**: tips for a good presentation.

- know the room
- know the audience
- be aware of the time constraints
- divide the presentation in **introduction**, **main body**, **intermediate conclusions**, **final conclusions**
- one slide \Leftrightarrow one concept.

The structure

- Preamble with all other packages and users' macros

The structure

- Preamble with all other packages and users' macros
- Body, divided into sections and subsections with **frames** inserted in each part.

The preamble

Preamble

```
\documentclass{beamer}
\mode<presentation>
{\usetheme{Boadilla}
\usecolortheme{albatross}}
\usefonttheme{serif}
\usepackage[english]{babel}
\usepackage[utf8]{inputenc}
\usepackage[T1]{fontenc}
\title[Short title] {Long Title}
\date{26th October 2019}
\author {Author 1 \inst{1}}
\institute[Politecnico di Torino]{
  \inst{1} Department of Mathematics\
  Politecnico di Torino}
\pgfdeclareimage[height=0.5cm]{logo}{File name}
\logo{\pgfuseimage{logo}}
```

Modes

- beamer

Modes

- beamer
- second

Modes

- beamer
- second
- handout

Modes

- beamer
- second
- handout
- **trans**

Modes

- beamer
- second
- handout
- trans
- **article**

Modes

- beamer
- second
- handout
- trans
- article
- all

Modes

- beamer
- second
- handout
- trans
- article
- all
- presentation

Themes

- *themes*

Themes

- *themes*
- *outher themes*

Themes

- *themes*
- *outher themes*
- *inner themes*

Themes

- *themes*
- *outher themes*
- *inner themes*
- *color themes*

Themes

- *themes*
- *outher themes*
- *inner themes*
- *color themes*
- *font themes*

The title section

Title section

```
\begin{frame}  
\titlepage  
\end{frame}
```

The body

The document is divided in **parts**, **sections** and **subsections**

The body

The document is divided in **parts**, **sections** and **subsections**

Structure

```
\section<beamer>{This section appears only in the ↵  
  beamer mode}  
\section<handout>{This section exists only in the ↵  
  handout mode}
```

Frames

Each part, section or subsection contains **frames**, that can be structured in

Frames

Each part, section or subsection contains **frames**, that can be structured in

- *a sidebar*

The screenshot shows a Beamer presentation slide with a blue header and a sidebar on the left. The main content area is white and contains the following text:

Theorem
There is no largest prime number.

Proof.

- **Suppose p were the largest prime number.**
- Let q be the product of the first p numbers.
- Then $q + 1$ is not divisible by any of them.
- **Thus $q + 1$ is also prime and greater than p .** □

The sidebar on the left contains the title 'There Is No Largest Prime Number' and a 'Table of Contents' button. The bottom of the slide features navigation icons and a footer with the text '© 2019'.

Frames

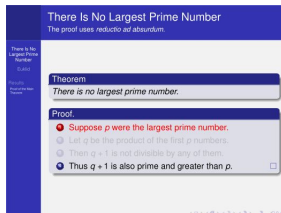
Each part, section or subsection contains **frames**, that can be structured in

- *a sidebar*
- *a navigation bar*

Frames

Each part, section or subsection contains **frames**, that can be structured in

- *a sidebar*
- *a navigation bar*
- *a bottom bar*



Frames

Each part, section or subsection contains **frames**, that can be structured in

- *a sidebar*
- *a navigation bar*
- *a bottom bar*
- *a upper bar*

The screenshot shows a Beamer slide with a blue header and footer. The main content area is white. The slide title is "There Is No Largest Prime Number" and the subtitle is "The proof uses reductio ad absurdum." The slide is divided into sections: "Theorem" and "Proof." The "Theorem" section contains the text "There is no largest prime number." The "Proof." section contains a list of steps: "Suppose p were the largest prime number.", "Let q be the product of the first p numbers.", "Then $q + 1$ is not divisible by any of them.", and "Thus $q + 1$ is also prime and greater than p ." The slide also features a sidebar on the left and navigation controls at the bottom.

Frames

Each part, section or subsection contains **frames**, that can be structured in

- *a sidebar*
- *a navigation bar*
- *a bottom bar*
- *a upper bar*
- *the frame title.*

Creating a frame

```
\begin{frame}[←
  allowframebreaks, ←
  allowdisplaybreak, ←
  {b,c,t},fragile, ←
  shrink]{Title}{←
  Subtitle}
your text here
\end{frame}
```

```
\begin{frame}[←
  allowframebreaks, ←
  allowdisplaybreak, ←
  {b,c,t},fragile, ←
  shrink]
\frametitle{Title}
your text here
\end{frame}
```



title
subtitle

your text here



Author Title

Overlays - 1

Content can be displayed in different steps.

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The main commands to achieve this purpose are:

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- `\pause`

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- `\pause`
- `\onslide<...>{text}`

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- `\pause`
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- `\only<...>{text}<...>`

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Content can be displayed in different steps.

The main commands to achieve this purpose are:

- `\pause`
- `\onslide<...>{text}`
- `\only<...>{text}<...>`
- `\uncover<...>{text}` (visible, invisible)

Overlays - 1

Content can be displayed in different steps.

The main commands to achieve this purpose are:

- `\pause`
- `\onslide<...>{text}`
- `\only<...>{text}<...>`
- `\uncover<...>{text}` (visible, invisible)
- `\alt<...>{default text}{alternative text}<...>`

Overlays - 1

Content can be displayed in different steps.

The main commands to achieve this purpose are:

- `\pause`
- `\onslide<...>{text}`
- `\only<...>{text}<...>`
- `\uncover<...>{text}` (visible, invisible)
- `\alt<...>{default text}{alternative text}<...>`
- `\temporal<...>{before slide text}{default text}{after ←
slide text}`

Overlays - 2

```
\setbeamercovered{↔  
  transparent=10}  
\begin{itemize}  
\uncover<1>{\item a}  
\only<3>{\item b}  
\visible<4>{\item d}  
\uncover<2-3>{\item c}  
\end{itemize}
```

● a

● c

Overlays - 2

```

\setbeamercovered{↔
  transparent=10}
\begin{itemize}
\uncover<1>{\item a}
\only<3>{\item b}
\visible<4>{\item d}
\uncover<2-3>{\item c}
\end{itemize}

```

● a

● c

Overlays - 2

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\setbeamercovered{↔
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\begin{itemize}
\uncover<1>{\item a}
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\uncover<2-3>{\item c}
\end{itemize}

```

● a

● b

● c

Overlays - 2

```
\setbeamercovered{↔
  transparent=10}
\begin{itemize}
\uncover<1>{\item a}
\only<3>{\item b}
\visible<4>{\item d}
\uncover<2-3>{\item c}
\end{itemize}
```

- a
- d
- c

Commands with overlay specification

```

\begin{frame}
\textbf{bold line in all}↔
  overlays}
\textbf<2>{bold line ↔
  only on the second ↔
  overlay}
\textbf<3>{bold line ↔
  only in the third ↔
  overlay}
\end{frame}

```

bold line in all overlays

bold line only on the
second overlay

bold line only in the third
overlay

Commands with overlay specification

```

\begin{frame}
\textbf{bold line in all}↔
  overlays}
\textbf<2>{bold line ↔
  only on the second ↔
  overlay}
\textbf<3>{bold line ↔
  only in the third ↔
  overlay}
\end{frame}

```

bold line in all overlays
bold line only on the second overlay
 bold line only in the third overlay

Commands with overlay specification

```

\begin{frame}
\textbf{bold line in all}↵
  overlays}
\textbf<2>{bold line ↵
  only on the second ↵
  overlay}
\textbf<3>{bold line ↵
  only in the third ↵
  overlay}
\end{frame}

```

bold line in all overlays

bold line only on the
second overlay

**bold line only in the
third overlay**

Commands with overlay specification

```

\begin{frame}
\begin{theorem}<1->[↔
  Lagrange]
  text of the theorem
\end{theorem}
\begin{proof}<2->
  proof of the theorem
\end{proof}
\end{frame}

```

Theorem (Lagrange)

text of the theorem

Commands with overlay specification

```

\begin{frame}
\begin{theorem}<1->[↔
  Lagrange]
  text of the theorem
\end{theorem}
\begin{proof}<2->
  proof of the theorem
\end{proof}
\end{frame}

```

Theorem (Lagrange)

text of the theorem

Proof.

proof of the theorem

List environments with overlay specification

```

\begin{itemize}[<+>]
\item This item appears ←
    from the first ←
    overlay.
\item This item appears ←
    from the second ←
    overlay.
\item<1-> This item ←
    appears in the first ←
    overlay, as it is ←
    specified in the ←
    option of the item ←
    itself.
\item This item appears ←
    from the third ←
    overlay.
\end{itemize}

```

- This item appears from the first overlay.
- This item appears in the first overlay, as it is specified in the option of the item itself.

List environments with overlay specification

```

\begin{itemize}[<+>]
\item This item appears ←
  from the first ←
  overlay.
\item This item appears ←
  from the second ←
  overlay.
\item<1-> This item ←
  appears in the first ←
  overlay, as it is ←
  specified in the ←
  option of the item ←
  itself.
\item This item appears ←
  from the third ←
  overlay.
\end{itemize}

```

- This item appears from the first overlay.
- This item appears from the second overlay.
- This item appears in the first overlay, as it is specified in the option of the item itself.

List environments with overlay specification

```

\begin{itemize}[<+>]
\item This item appears ←
    from the first ←
    overlay.
\item This item appears ←
    from the second ←
    overlay.
\item<1-> This item ←
    appears in the first ←
    overlay, as it is ←
    specified in the ←
    option of the item ←
    itself.
\item This item appears ←
    from the third ←
    overlay.
\end{itemize}

```

- This item appears from the first overlay.
- This item appears from the second overlay.
- This item appears in the first overlay, as it is specified in the option of the item itself.
- This item appears from the third overlay.

HighLighting - 1

```

\begin{itemize}[<+ -| ←
  alert@+>]
\item This item appears ←
  in the first overlay ←
  colored in blue.
\item This item appears ←
  in the second overlay ←
  colored in blue, ←
  while the first one ←
  becomes black.
\item This item appears ←
  in the third overlay ←
  colored in blue, ←
  while the first and ←
  second ones become ←
  black.
\end{itemize}

```

- This item appears in the first overlay colored in blue.

HighLighting - 1

```

\begin{itemize}[<+ -| ←
  alert@+>]
  \item This item appears ←
    in the first overlay ←
    colored in blue.
  \item This item appears ←
    in the second overlay ←
    colored in blue, ←
    while the first one ←
    becomes black.
  \item This item appears ←
    in the third overlay ←
    colored in blue, ←
    while the first and ←
    second ones become ←
    black.
\end{itemize}

```

- This item appears in the first overlay colored in blue.
- This item appears in the second overlay colored in blue, while the first one becomes black.

HighLighting - 1

```

\begin{itemize}[<+ -| ←
  alert@+>]
\item This item appears ←
  in the first overlay ←
  colored in blue.
\item This item appears ←
  in the second overlay ←
  colored in blue, ←
  while the first one ←
  becomes black.
\item This item appears ←
  in the third overlay ←
  colored in blue, ←
  while the first and ←
  second ones become ←
  black.
\end{itemize}

```

- This item appears in the first overlay colored in blue.
- This item appears in the second overlay colored in blue, while the first one becomes black.
- This item appears in the third overlay colored in blue, while the first and second ones become black.

HighLighting - 2

```

\begin{itemize}
\item<2->\alert<2> {Item↵
  1 appears on the ↵
  second overlay, in ↵
  blue.}
\item<2->\alert<3> {Item↵
  2 appears on the ↵
  second overlay, and ↵
  it is blue on the ↵
  third one.}
\item<2->\alert<4> {Item↵
  3 appears on the ↵
  second overlay, and ↵
  it is blue on the ↵
  fourth one.}
\end{itemize}

```

HighLighting - 2

```

\begin{itemize}
\item<2->\alert<2> {Item↵
  1 appears on the ↵
  second overlay, in ↵
  blue.}
\item<2->\alert<3> {Item↵
  2 appears on the ↵
  second overlay, and ↵
  it is blue on the ↵
  third one.}
\item<2->\alert<4> {Item↵
  3 appears on the ↵
  second overlay, and ↵
  it is blue on the ↵
  fourth one.}
\end{itemize}

```

- Item 1 appears on the second overlay, in blue.
- Item 2 appears on the second overlay, and it is blue on the third one.
- Item 3 appears on the second overlay, and it is blue on the fourth one.

HighLighting - 2

```

\begin{itemize}
\item<2->\alert<2> {Item 1 appears on the second overlay, in blue.}
\item<2->\alert<3> {Item 2 appears on the second overlay, and it is blue on the third one.}
\item<2->\alert<4> {Item 3 appears on the second overlay, and it is blue on the fourth one.}
\end{itemize}

```

- Item 1 appears on the second overlay, in blue.
- Item 2 appears on the second overlay, and it is blue on the third one.
- Item 3 appears on the second overlay, and it is blue on the fourth one.

HighLighting - 2

```

\begin{itemize}
\item<2->\alert<2> {Item 1 appears on the second overlay, in blue.}
\item<2->\alert<3> {Item 2 appears on the second overlay, and it is blue on the third one.}
\item<2->\alert<4> {Item 3 appears on the second overlay, and it is blue on the fourth one.}
\end{itemize}

```

- Item 1 appears on the second overlay, in blue.
- Item 2 appears on the second overlay, and it is blue on the third one.
- Item 3 appears on the second overlay, and it is blue on the fourth one.

HighLighting - 3

```
\textbf<2>{Bold text}
```

```
\textit<2>{Italic text}
```

```
\textcolor<2>{magenta}{↵  
Magenta text}
```

```
\alert<2>{Text ↵  
highlighted with the ↵  
command \texttt{alert↵  
}}
```

```
\structure<2>{Text ↵  
highlighted with the ↵  
command \texttt{↵  
structure}}
```

Bold text

Italic text

Magenta text

Text highlighted with the
command alert

Text highlighted with the
command structure

HighLighting - 3

```
\textbf<2>{Bold text}
```

```
\textit<2>{Italic text}
```

```
\textcolor<2>{magenta}{↔  
Magenta text}
```

```
\alert<2>{Text ↔  
highlighted with the ↔  
command \texttt{alert↔  
}}
```

```
\structure<2>{Text ↔  
highlighted with the ↔  
command \texttt{↔  
structure}}
```

Bold text

Italic text

Magenta text

Text highlighted with the
command alert

Text highlighted with the
command structure

Verbatim mode

```
\begin{frame}[fragile]
\begin{verbatim}
  verbatim text
\end{verbatim}
\end{frame}
```

Verbatim mode

```
\begin{frame}[fragile]
\begin{verbatim}
  verbatim text
\end{verbatim}
\end{frame}
```

```
\begin{frame}
\begin{semiverbatim}
  verbatim text
\end{semiverbatim}
\end{frame}
```

Images

```

\includegraphics[scale=.1]{←
  leone-1}%% this image ←
  appears on all overlays
\includegraphics<2->{duck←
  -42-48}%% this image ←
  appears from the second ←
  overlay
\pgfdeclareimage[width=4←
  cm]{image3}{linux_PNG←
  9}
\pgfdeclareimage[width=2cm]{←
  image4}{CCFB_Kindle.0}
\uncover<3>{\pgfuseimage{←
  image3}}%% this image ←
  appears from the third ←
  overlay
\only<4>{\pgfuseimage{image←
  4}}%% this image appears←
  only on the fourth ←
  overlay

```



Images

```

\includegraphics[scale=.1]{←
  leone-1}%% this image ←
  appears on all overlays
\includegraphics<2->{duck←
  -42-48}%% this image ←
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  overlay
\pgfdeclareimage[width=4←
  cm]{image3}{linux_PNG←
  9}
\pgfdeclareimage[width=2cm]{←
  image4}{CCFB_Kindle.0}
\uncover<3>{\pgfuseimage{←
  image3}}%% this image ←
  appears from the third ←
  overlay
\only<4>{\pgfuseimage{image←
  4}}%% this image appears←
  only on the fourth ←
  overlay
  
```



Images

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\includegraphics[scale=.1]{←
  leone-1}%% this image ←
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\includegraphics<2->{duck←
  -42-48}%% this image ←
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  overlay
\pgfdeclareimage[width=4←
  cm]{image3}{linux_PNG←
  9}
\pgfdeclareimage[width=2cm]{←
  image4}{CCFB_Kindle.0}
\uncover<3>{\pgfuseimage{←
  image3}}%% this image ←
  appears from the third ←
  overlay
\only<4>{\pgfuseimage{image←
  4}}%% this image appears←
  only on the fourth ←
  overlay

```



Images

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\includegraphics[scale=.1]{←
  leone-1}%% this image ←
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\pgfdeclareimage[width=4←
  cm]{image3}{linux_PNG←
  9}
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  image4}{CCFB_Kindle.0}
\uncover<3>{\pgfuseimage{←
  image3}}%% this image ←
  appears from the third ←
  overlay
\only<4>{\pgfuseimage{image←
  4}}%% this image appears←
  only on the fourth ←
  overlay

```



Fonts

The package lxfonts by Claudio Beccari

```
\usefonttheme{↔  
  professionalfonts}  
\usepackage{lxfonts}
```

LXfonts-demo