LaTeX Beamer Study Material

Prepared for latex lovers

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1 Beamer Basics: Frames, Blocks, Tables, Images, and Overlays

1. What is Beamer?

Beamer is a LaTeX class used to create **professional-looking presentations**. It allows you to create slides (frames) with:

- Bullet points
- Images
- Tables
- Blocks
- Columns
- Animations / overlays

2. Frames

Frames are the basic building block of a Beamer presentation. Each frame is a slide.

Example:

```
\begin{frame}{Introduction}
  Welcome to the first slide!
\end{frame}
```

3. Blocks

Blocks highlight specific content.

Example:

```
\begin{frame}{Blocks Example}
  \begin{block}{Normal Block}
    Standard content.
  \end{block}
  \begin{alertblock}{Alert Block}
    Important message!
  \end{alertblock}
  \begin{exampleblock}{Example Block}
    Demonstrates an example.
  \end{exampleblock}
\end{frame}
```

4. Bullet Points and Overlays

You can show bullet points step-by-step using overlays.

Example:

```
\begin{frame}{Benefits of LaTeX}
  \begin{itemize}
    \item<1-> Professional formatting
    \item<2-> Easy math integration
    \item<3-> Reusable content
  \end{itemize}
\end{frame}
```

5. Columns (Side-by-Side Content)

Example:

```
\begin{frame}{Columns Example}
  \begin{columns}
    \column{0.5\textwidth}
      \includegraphics[width=\linewidth]{image.png}
    \column{0.5\textwidth}
```

```
    \begin{itemize}
      \item Point A
      \item Point B
    \end{itemize}
  \end{columns}
\end{frame}
```

6. Tables

You can insert tables directly into slides.

Example:

```
\begin{frame}{Sample Table}
  \begin{tabular}{|c|c|}
    \hline
    Name & Score \\ \hline
    Alice & 95 \\
    Bob   & 88 \\ \hline
  \end{tabular}
\end{frame}
```

7. Images

Include images just like in normal LaTeX documents.

Example:

```
\begin{frame}{Sample Image}
  \centering
  \includegraphics[width=0.6\textwidth]{example-image}
\end{frame}
```

8. References in Beamer

You can cite references using BibTeX:

```
\begin{frame}[allowframebreaks]{References}
  \bibliographystyle{plain}
  \bibliography{references}
\end{frame}
```

2 Beamer Themes, Fonts, and Colors

1. Frame/Structure Themes

Beamer has multiple built-in themes that define the **overall layout of slides**, including headline, footline, navigation symbols, and blocks.

- AnnArbor , Antibes ,Bergen

- Berkeley , Berlin ,Boadilla

- CambridgeUS , Copenhagen ,Darmstadt

- Dresden , Frankfurt ,Goettingen

- Hannover , Ilmenau ,JuanLesPins

- Luebeck , Madrid ,Malmoe

- Marburg , Montpellier ,PaloAlto

- Pittsburgh , Rochester ,Singapore

- Szeged ,Warsaw

Example usage in Beamer:

```
\documentclass{beamer}
\usetheme{Madrid}
```

2. Color Themes

Color themes define colors for **blocks, headings, bullets, and links**.

- default, albatross, beaver, crane

- dolphin, seagull, whale

- beetle, lily, orchid

Example:

```
\usecolortheme{dolphin}
```

3. Font Themes

Font themes control the **text style** in slides.

- default, serif, structurebold

- structuresmallcapsserif

- professionalfonts

Example:

```
\usefonttheme{professionalfonts}
```

4. Inner and Outer Themes

- **Inner Themes:** Control bullet shapes and block appearances (rectangles, circles, rounded) - **Outer Themes:** Control headline/footer/navigation bars (miniframes, infolines, shadow, sidebar)

Example:

```
\useinnertheme{rounded}
\useoutertheme{miniframes}
```

Tip: You can mix themes, color themes, font themes, and inner/outer themes to create a unique presentation style.

Summary

- Beamer allows **full control over slides** in LaTeX. - Themes, colors, fonts, blocks, tables, images, and overlays make presentations professional. - You can mix these features creatively to tell a story.