Курсова Работа

Име на предмета Esse deserunt consequat

Име на университет Dolor eu et enim irure voluptate deserunt official

Тема:

Deserunt reprehenderit magna laborum dolor adipisicing in fugiat

Лого на унито:

August 7, 2021

Пешо Пешев Пешков

Фак. номер: 123456

Big Centered Text

1. Tiny noindent text:

Lorem ipsum dolor sit amet, consectetuer adipiscing elit. Etiam lobortis facilisis sem. Nullam nec mi et neque pharetra sollicitudin. Praesent imperdiet mi nec ante. Donec ullamcorper, felis non sodales commodo, lectus velit ultrices augue, a dignissim nibh lectus placerat pede. Vivamus nunc nunc, molestie ut, ultricies vel, semper in, velit. Ut porttitor. Praesent in sapien. Lorem ipsum dolor sit amet, consectetuer adipiscing elit. Duis fringilla tristique neque. Sed interdum libero ut metus. Pellentesque placerat. Nam rutrum augue a leo. Morbi sed elit sit amet ante lobortis sollicitudin. Praesent blandit blandit mauris. Praesent lectus tellus, aliquet aliquam, luctus a, egestas a, turpis. Mauris lacinia lorem sit amet ipsum. Nunc quis urna dictum turpis accumsan semper.

2. Scriptsize text with added additional 4cm indentation, which is then removed -4cm:

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3. Footnotesize flush right text:

Cillum proident aliquip ipsum do do cupidatat laboris. Mollit proident eiusmod adipisicing ad ipsum nulla consectetur esse. Incididunt laboris irure do eu ad dolore ad ea pariatur sint. Eu ea exercitation incididunt excepteur quis.

4. Normalsize flus left text:

Something. This paragraph contains no information and its purposes is to provide an example on how to insert white spaces and lines breaks. Right here -> \\
When a line break is inserted, the text is not indented, there are a couple of commands for line breaks. \newline
This paragraph contains full line break. \hfill and \break
For combining two commands

5. large centered text:

Nisi qui culpa pariatur velit deserunt nulla nulla dolor cillum est do nulla ut. Nisi qui culpa pariatur velit deserunt nulla nulla dolor cillum est do nulla ut.

6. Large text after 2 newlines (baselineskip) :

The environments center, flushleft, flushright, justify should only be used with text paragraphs. They can NOT format other LaTeX objects!

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List of Tables

8 Images and figures

Graphics with set width 0.3 of linewidth:

LaTeX includegraphics wrapped in a figure:

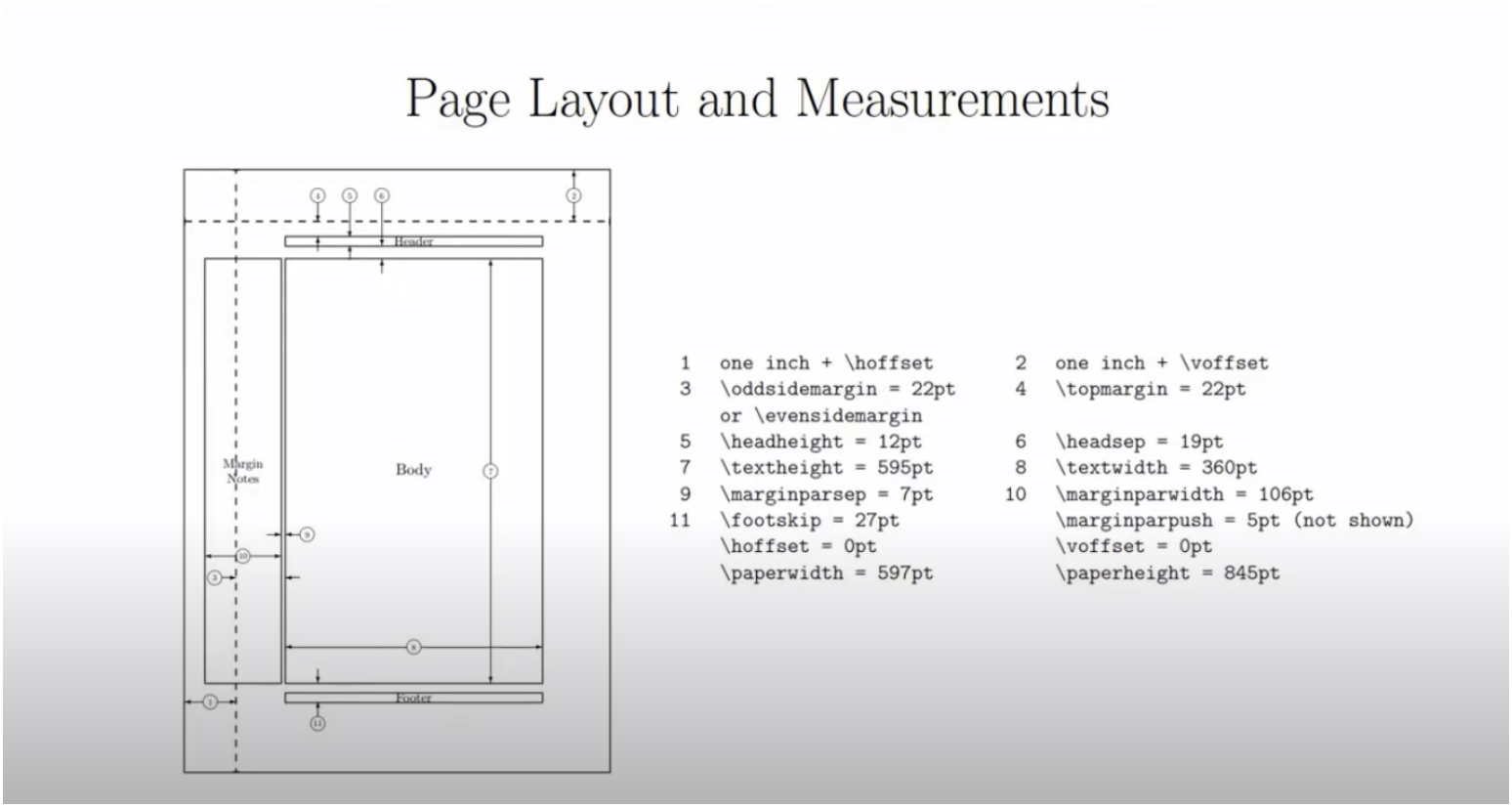

Figure 1: LaTeX Page layout and Measurements (width=linewidth)

9 Section with subsections

9.1 LARGE text

Nisi qui culpa pariatur velit deserunt nulla nulla dolor cillum est do nulla ut. Nisi qui culpa pariatur velit deserunt nulla nulla dolor cillum est do nulla ut.

9.2 huge text with bold, italic and standard underline

Nisi qui **culpa** *pariatur* velit deserunt nulla nulla dolor cillum est do nulla ut.

9.3 Huge text with combined bold, italic and standard underline

Nisi qui culpa pariatur velit deserunt ***nulla dolor cillum est*** do nulla ut.

9.4 This is what happens when you underline long text

Unerlining a long string of text is kinda hard in latex with the default underline so we can use ulem. Nisi qui culpa pari

9.5 We can fix the above problem with the package ulem using uline

Same with ulem. Nisi qui culpa pariatur velit deserunt nulla nulla dolor cillum est do nulla ut. Nisi qui culpa pariatur velit deserunt nulla nulla dolor cillum est do nulla ut.

ulem also has some other cool underlines.

9.6 Line fills and rules

Some text before fill

Fill by dots .....

Rule can create more customizeable lines:

9.7 Citation example

This citations is also in a subfile [1]

9.8 Quoting somebody

”Трябва да сме внимателни с развитието на Изкуственият Интелект. Както с това кой го използва и кой го контролира, и дали ще бъде в интерес на хората?”

— Елон Мъск

We must be careful with the development of Artificial Intelligence. As with who uses it and who controls it, and will it be in people’s interest?

— Elon Musk

9.9 References to labels

This number will take you to the specified label - 1

It can also be done as a hyperlink - Any Custom Lable Can Be A Hyperlink

The href command can be used for URL redirection - This link will go to example.com

9.10 Enumeration and listing

1 First Item

2 Second Item

1 First Sub Item

→ Custom label

2 Second Sub Item

3 Third Item

- First Item
- Second Item
  - First Sub Item
  - → Custom label
  - Second Sub Item
- Third Item

10 Basic Math Equations

10.1 Displaystyle math equation

$$\sum_{n=1}^{\infty} \frac{1}{n^2} = \frac{\pi^2}{6} \tag{1}$$

10.2 Inline math with display style mode

Ex qui anim eu consequat est excepteur ea est. Exercitation officia pariatur pariatur nostrud. Cillum cillum proident minim officia ex. Aliquip ut officia sit voluptate quis dolor sint proident tempor aliquip qui enim. $\sum_{n=1}^{\infty} \frac{1}{n^2} = \frac{\pi^2}{6}$ Elit veniam minim commodo proident do aliqua Lorem sunt ex dolore. Irure adipisicing enim eu velit eiusmod reprehenderit. Sit exercitation minim sunt et.

10.3 Inline math with text style mode

Ex qui anim eu consequat est excepteur ea est. Exercitation officia pariatur pariatur nostrud. Cillum cillum proident minim officia ex. Aliquip ut officia sit voluptate quis dolor sint proident tempor aliquip qui enim. $\sum_{n=1}^{\infty} \frac{1}{n^2} = \frac{\pi^2}{6}$ Elit veniam minim commodo proident do aliqua Lorem sunt ex dolore. Irure adipisicing enim eu velit eiusmod reprehenderit. Sit exercitation minim sunt et.

10.4 Brakets sizes

These are a bit unreadable:

$$(\sum_{n=0}^{N}(\frac{1}{a+b})^2)^2$$

We can use left and right braket:

$$\left(\sum_{n=0}^{N}\left(\frac{1}{a+b}\right)^2\right)^2$$

10.5 Substaking

$$\sum_{\substack{n=0 \\ n \text{ odd}}}^{\infty} a_n x^n$$

$$\sum\nolimits_{\substack{n=0 \\ n \text{ odd}}}^{\infty} a_n x^n$$

10.6 Spaces in equations

$$\int f(x)\mathrm{d}x$$
$$\int f(x)\,\mathrm{d}x$$
$$\iiint f(x,y,z)\mathrm{d}x\mathrm{d}y\mathrm{d}z$$
$$\iiint f(x,y,z)\,\mathrm{d}x\,\mathrm{d}y\,\mathrm{d}z$$

Spacing Commands:

$$f(x)\mathrm{d}x \quad f(x)\,\mathrm{d}x \quad f(x)\,\mathrm{d}x \quad f(x)\,\mathrm{d}x \quad f(x) \quad \mathrm{d}x$$

Using **hspace** and text to handle simple spacing issues:

$$x = 1000 \qquad \text{and} \qquad y = 200$$

10.7 Vectors

Vectors use the esvect package:

$$\overrightarrow{\text{proj}} \quad \vec{v_1} \quad \vec{v}_1$$

10.8 Radicals

$$\text{If } ax^2 + bx + c = 0 \text{ then } x = \frac{-b \pm \sqrt{b^2 - 4ac}}{2a}$$

$$\sqrt[10]{\frac{1}{2}} \quad \sqrt[\sqrt{7}]{\frac{\sqrt[3]{\sqrt[8]{1+2}}}{\sqrt{12x}}} \quad \left(\sqrt[7^{\sqrt{908}}]{12}^{\sqrt[2/8]{\frac{2}{1721}}} \right)^7$$

11 Negation

Build-in negations:

$$a \neq b$$
$$a \not> b$$
$$a \not< b$$
$$a \ngeq b$$
$$a \nleq b$$
$$a \not\approx b$$
$$P \not\Longleftrightarrow Q$$

For negation of symbols that do not have negation by default we can use **\usepackage{centernot}**:

$$a \not\approx b$$
$$P \not\Rightarrow Q$$

12 Overset and Underset

$$a \stackrel{?}{=} b \quad f(x) \underset{x\to\infty}{\longrightarrow} 0 \quad f(x) \xrightarrow[x\to\infty]{?} 0$$

12.1 Theorems

Theorem 1 (The Pythogorean Theorem)**.**

$$a^2 + b^2 = c^2$$

Lemma 2.

$$a = b, b = a$$

Definition 1.

$$\forall \mathrm{A} : \varnothing \subseteq \mathrm{A}$$

13 System of equations

Example with **\package{systeme}**:

$$\begin{cases} 3x_3 = 9 \\ x_1 + 5x_2 - 2x_3 = 2 \\ \frac{1}{3}x_1 + 2x_2 = 3 \end{cases}$$

$$\begin{aligned} \tfrac{1}{3}x_1 + 2x_2 &= 3 \\ x_1 + 5x_2 - 2x_3 &= 2 \\ 3x_3 &= 9 \end{aligned}$$

$$\begin{aligned} x + y &= 0 \quad p_1 \\ 2x - y + 3z &= 3 \quad p_2 \\ x - 2y - z &= 3 \quad p_3 \end{aligned}$$

$$\begin{aligned} x + y - z &= 3 \quad L'_1 \longleftarrow L_1 \\ 3x + 2y &= 7 \quad L'_2 \longleftarrow L_1 + L_2 \\ 3x + y &= 6 \quad L'_3 \longleftarrow 2L_1 + L_3 \end{aligned}$$

$$\begin{cases} a + b = 4 & L_1 \\ 2a - b = 5 & L_2 \end{cases} \quad \begin{cases} x - 3y = 0 & L_1 \\ 2x + y = 1 & L_2 \end{cases}$$

$$\begin{aligned} x_1 + 6x_2 &= 9 \\ -x_2 - 2x_3 &= -7 \\ x_3 &= 3 \end{aligned} \longrightarrow \begin{aligned} x_1 + 6x_2 &= 9 \\ x_2 &= 1 \\ x_3 &= 3 \end{aligned} \longrightarrow \begin{aligned} x_1 &= 3 \\ x_2 &= 1 \\ x_3 &= 3 \end{aligned}$$

Systems can be aligned in specific order [tzxy]:

$$\begin{cases} t - 3z + x + 2y = 0 \\ 3t - z + 2x - y = 4 \\ 4t + 3z + 2y = -1 \\ -2t - 2z + 3x = 3 \end{cases}$$

14 Tables

14.1 Simple Tables

left justified	centered	right justified
l	c	r

Table with boarders

left justified	centered	right justified
l	c	r

Note that begin center is quite limited for tables, but can work for a quick and simple solution sometimes:

left justified	centered	right justified
l	c	r

14.2 Long text in column and other table packages

This problem:

long text in table long text in table long text in table long text in table long text in table long text in table long text in table long

Can be fixed like this, with 3 custom commands defined in the preamble:

For more advanced tables we can use the **\usepackage{booktabs}** - Provides extra commands to make tables more attractive	For more advanced tables we can use **\usepackage{tabularx}**, which provides another way to control the width of the columns	For more advanced tables we can use **\usepackage{colortbl}** to add color to tables, including line colors and cell background colors	For more advanced tables we can use **\usepackage{longtable}** for large tables that span across multiple pages

14.3 Multi-column tables

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Proident in culpa consequat fugiat.Anim dolor exercitation voluptate irure exercitation adipisicing proident veniam incididunt sit sunt.		
Testing	Laborum sit aliquip laborum commodo cupidatat.Exercitation fugiat dolore fugiat Lorem sit non enim.Pariatur nulla nulla non ullamco adipisicing velit.	

15 Multi-row tables

We can use the command

```
\multirow[vertical_aligment]{num_rows}{width}{content}
```

Row Merge	Text Text

Advanced multi-row example:

Text A	Text B	Text C	Text D	Text E
A	Text F	Text G	Text H	Text I
B	Text J	Text K	Text L	Text M
Text N	Text O	Text P	Text Q	Text R
		Text S	Text T	Text U
			Text V	Text Z

16 Arrays

16.1 Simple Arrays

Arrays are usually used for matrices:

$$\begin{bmatrix} a_{11} & a_{12} & a_{13} \\ a_{21} & a_{22} & a_{23} \end{bmatrix}$$

But it's easier and more versatile to use **pmatrix**, **bmatrix**, or some others from the **amsmath** package:

$$A_{m,n} = \begin{pmatrix} a_{1,1} & a_{1,2} & \cdots & a_{1,n} \\ a_{2,1} & a_{2,2} & \cdots & a_{2,n} \\ \vdots & \vdots & \ddots & \vdots \\ a_{m,1} & a_{m,2} & \cdots & a_{m,n} \end{pmatrix}$$

$$B = \begin{bmatrix} a & b & c \\ d & e & f \\ g & h & i \end{bmatrix}$$

$$\begin{Bmatrix} a_{11} & a_{12} & a_{13} \\ a_{21} & a_{22} & a_{23} \\ a_{31} & a_{32} & a_{33} \end{Bmatrix}$$

$$\overrightarrow{v} = \begin{pmatrix} 1 \\ 2 \\ 3 \end{pmatrix}$$

17 Formatting code

The simplest way to fromat code is to use verbatim:

```
a := int32(0)
for i := 0; i < a; i++ {
    fmt.Println(i)
}
```

More advanced way is with **\usepackage{minted}** witch has some level of syntax highlighting:

```
type Client struct {
    rawConn *limitconn.Wrapper
    handshake *clientHandshake
}

func (c *Client) Connect(ipv4 string, port uint16) error {
    addrss := fmt.Sprintf("%s:%d", ipv4, port)
    conn, err := net.Dial("tcp", addrss)
    if err != nil {
        return err
    }

    fmt.Printf("client connection on %d\n", port)
    c.rawConn = limitconn.Wrap(conn, "client_"+rand.GenString(32))
    c.rawConn.SetLimit(clientHandshakeLimit)
    c.handshake = NewClientHandshake(c.rawConn)
    if err := c.handshake.Handshake(); err != nil {
        c.rawConn.Close()
        return err
    }

    return nil
}
```

If needed, the minted package can also load snippets from files!

References

[1] Testing Test. Testing Stuff. URL: https://example.com. (published: 09.08.2020).