

# INTRODUCTION

## L<sup>A</sup>T<sub>E</sub>X: A Professional Document Preparation System

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# AGENDA

## 1. Preliminary

1.1 Document Preparation Systems

1.2 TeX vs L<sup>A</sup>T<sub>E</sub>X

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1.4 Showcases

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2.3 Linux/Unix

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3.1 Structure Fundamentals

3.2 Typesetting

3.3 Adding Comments

# WYSISWG

## What-You-See-Is-What-You-Get

BA132\_Hywater\_Report - Word

File Home Insert Design Layout References Mailings Review View Design Layout Sign in

Header Row  First Column  
 Total Row  Last Column  
 Banded Rows  Banded Columns

Table Style Options Table Styles Borders

Who are these retailers? The NRF posts an annual list of the top one hundred retailers by retail sales. The top ten are listed in the table below.

Rank	Retailer	U.S. Headquarters	2014 Retail Sales
1	Walmart Stores	Bentonville, Arkansas	\$343,624,000
2	The Kroger Co.	Cincinnati, Ohio	\$103,033,000
3	Costco	Issaquah, Washington	\$79,694,000
4	The Home Depot	Atlanta, Georgia	\$74,203,000
5	Walgreen	Deerfield, Illinois	\$72,671,000
6	Target	Minneapolis, Minnesota	\$72,618,000
7	CVS Caremark	Woonsocket, Rhode Island	\$67,974,000
8	Lowe's Companies	Mooresville, North Carolina	\$54,805,000
9	Amazon.com	Seattle, Washington	\$49,353,000
10	Safeway	Pleasanton, California	\$36,330,000

The Retail Industry

The retail industry covers an enormous range of consumer needs. The retail industry is designed to create contact efficiency—allowing shoppers to buy what they want efficiently with a smaller number of

Page 1 of 2 564 words

# WYSIWYM

## What-You-See-Is-What-You-Mean

The screenshot shows a LaTeX editor interface with two main panes. The left pane, titled "Source", displays the LaTeX code for a document. The right pane, titled "Recompile", shows the resulting PDF output.

**Source (Left Pane):**

```
1 \documentclass[a4paper, 12pt]{article}
2 \usepackage[utf8]{inputenc}
3 \author{Dennis and Cosima}
4 \title{Your first document}
5 \date{\today}
6
7 \begin{document}
8 \maketitle
9
10 \section{This is a section}
11 Some intelligent text here.
12
13 \subsection{And a subsection}
14 More intelligent text here. As you can see, \LaTeX\ space
automatically enumerates your sections and
subsections.\footnote{Isn't it cool?}
15
16
17
18
19
20
21
22
23
24
25
26
```

**Recompile (Right Pane):**

Your first document

Dennis and Cosima

February 20, 2020

1 This is a section

Some intelligent text here.

1.1 And a subsection

More intelligent text here. As you can see, \LaTeX automatically enumerates your sections and subsections.<sup>1</sup>

<sup>1</sup>Isn't it cool?

# WHAT LATEX ?

- LaTeX (LAH-tekh or LAY-tekh, often stylized as LATEX) is a software system for document preparation.
- When writing, the writer uses **plain text**.
- The writer uses **markup** tagging conventions to define the general structure of a document to stylish text throughout a document (such as bold and italics), and to add citations and cross-references.

`\textbf{Bold Face}` → **Bold Face**

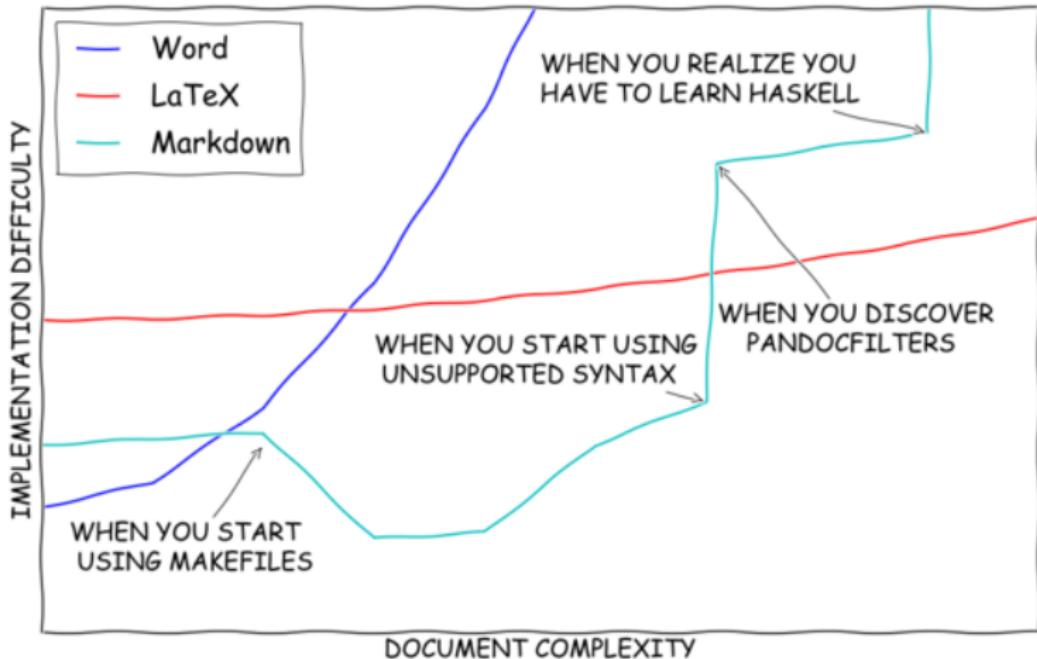
`\textit{Italic}` → *Italic*

`x_{n} = x_{n-1}^2` →  $x_n = x_{n-1}^2$

# WHY LATEX ?

- LATEX is widely used in academia for the communication and publication of scientific documents in many fields, including mathematics, computer science, engineering, physics, chemistry, economics, linguistics, quantitative psychology, philosophy, and political science.
- It also has a prominent role in the preparation and publication of books and articles that contain complex multilingual materials.
- LATEX uses the TEX typesetting program for formatting its output, and is itself written in the TEX macro language.

# LEARNING CURVES



Ville Klar., (2019). "Scientific writing in Latex".



# **T<sub>E</sub>X vs L<sub>A</sub>T<sub>E</sub>X**

**T<sub>E</sub>X**



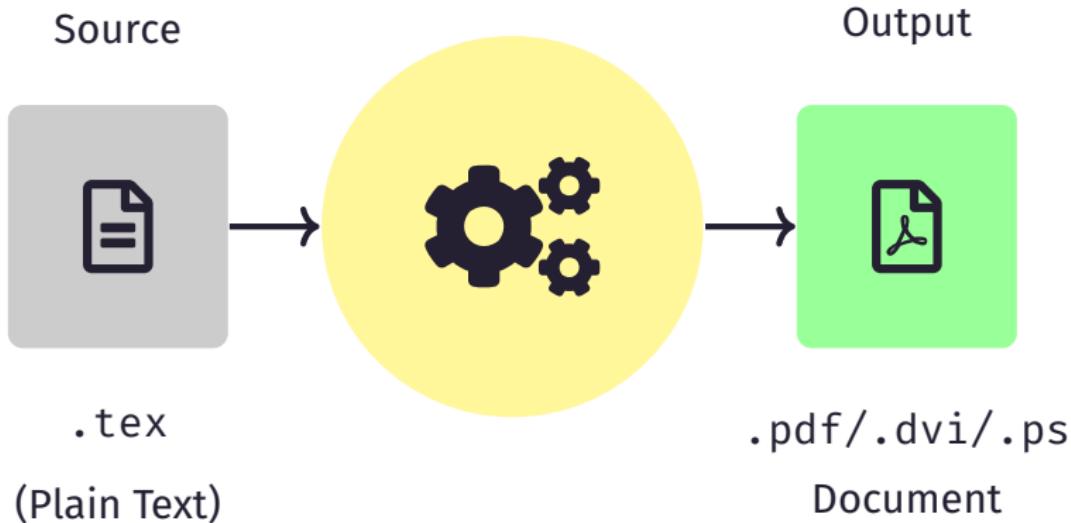
**L<sub>A</sub>T<sub>E</sub>X**



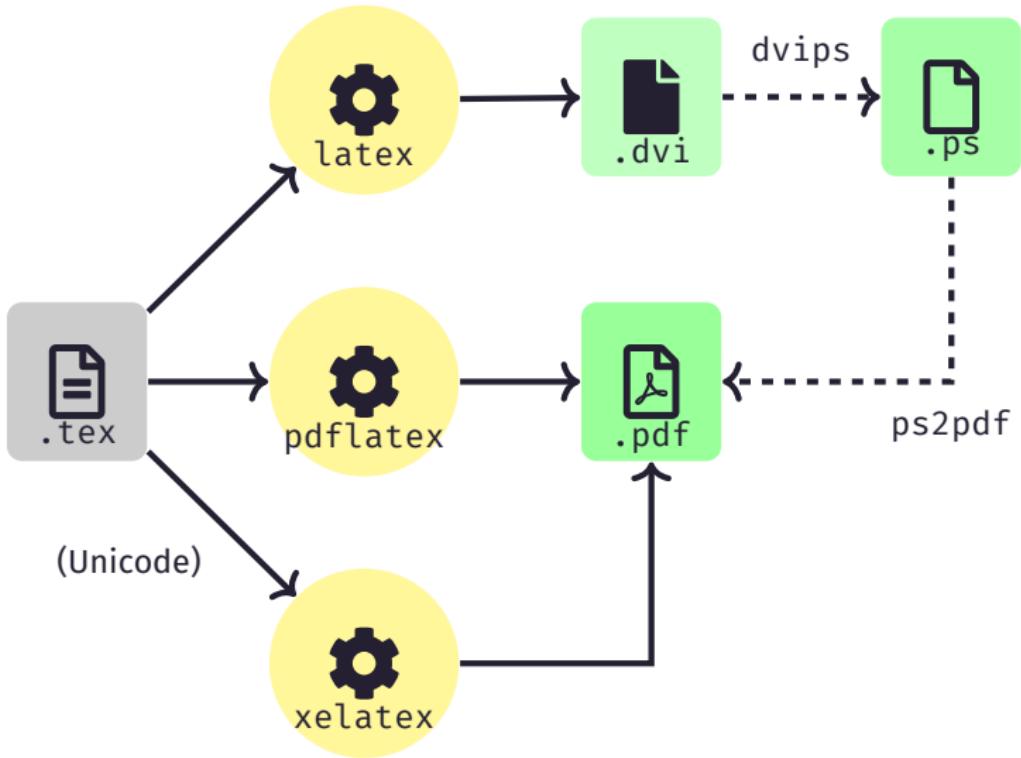
<b>Original</b>	<b>Donald Knuth</b>	<b>Leslie Lamport</b>
<b>Initial</b>	<b>1978</b>	<b>1984</b>
<b>Stable</b>	<b>Feb 2021</b>	<b>Nov 2022</b>
<b>User</b>	<b>Document Designers</b>	<b>Document Writers</b>
<b>Summary</b>	A typesetting system giving algorithms and commands to specify documents to look pretty.	A set of macros built on top of T <sub>E</sub> X giving a beautiful document and well structured, easier to read and write, for humans, source inputs.

# WORKFLOW FUNDAMENTALS

## Typesetting



# LATEX TYPESETTINGS



# A LATEX EXAMPLE: SOURCE

```
1 \documentclass{article}
2
3 \title{My first LaTeX document}
4 \author{John Doe}
5 \date{1 October 2022}
6
7 \begin{document}
8 \maketitle
9
10 LaTeX was created in the early 1980s
11 by Leslie Lamport, when he was working at SRI.
12 He needed to write TeX macros for his own use,
13 and thought that with a little extra effort
14 he could make a general package usable by others.
15
16 Peter Gordon, an editor at Addison-Wesley, convinced
17 him to write a LaTeX user's manual for publication
18 (Lamport was initially skeptical that anyone would pay money for it);
19 it came out in 1986 and sold hundreds of thousands of copies.
20 Meanwhile, Lamport released versions of his LaTeX macros
21 in 1984 and 1985.
22
23 \end{document}
```

# A LATEX EXAMPLE: OUTPUT

My first LaTeX document

John Doe

1 October 2022

LaTeX was created in the early 1980s by Leslie Lamport, when he was working at SRI. He needed to write TeX macros for his own use, and thought that with a little extra effort he could make a general package usable by others. Peter Gordon, an editor at Addison-Wesley, convinced him to write a LaTeX user's manual for publication (Lamport was initially skeptical that anyone would pay money for it); it came out in 1986 and sold hundreds of thousands of copies. Meanwhile, Lamport released versions of his LaTeX macros in 1984 and 1985.

On 21 August 1989, at a TeX Users Group (TUG) meeting at Stanford, Lamport agreed to turn over maintenance and development of LaTeX to Frank Mittelbach. Mittelbach, along with Chris Rowley and Rainer Schöpf, formed the LaTeX3 team; in 1994, they released LaTeX2e, the current standard version. LaTeX3 itself has since been cancelled with version features intended for that version being back-ported to LaTeX 2e since 2018.

# SHOWCASES

## A duplicating of a 16th century French Bible



### Le premier liure de Moysé, Diſt Genefé.



#### ARGUMENT.

*Ce premier liure comprend l'origine & cause de toutes choses, principalement la creation de l'homme, qu'il a esté du commencement, sa chente & rebuement : comment d'un tou ont esté procreés, & pour leurs enormes pechés Dieu les a confumés, par le deluge, refreñé huict, dont la femme a remplit toute la terre. Puis il deforça les vies, fautes, religion, & lignees des saints Patriarches, qui ont refu devant la Loy : Les bennedictions, promeffas, & alliances des Seigneur faites avec ieuex : Comment de le la terre de Chanaan font defendu en Egypte. Aucuns ont appelle ce liure, le liure des Iudees. Toutefois ceci a obenu entre nos predeceſſeurs & nous, qu'il est appelle Genefé, qui est en mot Greç, signifiant generation & origine : d'autant qu'en ieuil est deferte l'origine & procreation de toutes choses : & nommément des Peres ancienx, qui ont esté tant devant qu'apres le deluge, & en regard à IESVS CHRIST descendu d'ieuil selon la chair.*

I Ce premier chapitre & son difficle & difficile cause, il estat defenda entre les Hebreux de le lire & intercepors devenit illage de tems ans.

a Fit de rime, & sans aucune matiere.

b Leb 38,4. Pfeau.  
33,6. & 93,12.  
115,5. Endyngliſh.  
13,4. All. 14,9.  
(cf. 73,4).

b Tout premiers-  
ment, & aussi qu'il  
y eut autre crea-  
ture, sans rac-

2 Hebe 8,3.

c Le ciel & la  
terre, les eaux, les  
arbres, & tout ce  
qui pour une  
meille chose : alyc  
pour une matiere

*Creation des ciel & de la terre. II. m. & de tout ce qui y est compri-  
prois. 3,4 De la lumiere ayggi, 16 & de l'homme, 17 Auquel  
tous es affigierti. 2,2. 28 Dieu benit toutes ses aurores, yl gell  
a accomplies en ses iouer.*



*Ieu a crea-  
b au com-  
mence-  
ment le  
ciel & la*

les eaux, qui estoient sous leſtendue, d'aucelles, qui estoient sur leſtendue. Et fut ainsi fait.

8 Et Dieu appela leſtendue, Ciel. Lors fut fait le foir & le matin du fecond iour.

9 Puis Dieu dit, <sup>4</sup> Que les eaux, qui sont sous le ciel, foient assemblees en vn lieu, & que le fec apparoisse. Et fut

pourquoy les He-  
breux commenç-  
ent la leur narratif le  
foir apres le soleil couchant.

g Ce mot d'Elle  
est commandé pour  
ce que le soleil ne  
defois nous, sit en  
la regne celeste  
qu'assezasse.

h Il est si pur  
de deux manieres  
dous : au poir,  
y estoit tout  
libernez, comme  
la mer, les fleuves,  
& autres qui font  
fur la mer & sur  
la terre, fur  
Bibendum, comme  
font les noyes plie-  
nes d'eau q'a fait

# SHOWCASES

## A lecture note

**Quadro 1 Tema di riferimento**

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ma con assi costantemente orientati secondo le tre direzioni geografiche standard: Nord, Est e centro della Terra (Down).

**1.7 Assi vento**  
(Wind Axes, W)

La terza assi vento  $\bar{y}_W$  è una terza trirrettangolare levigata con origine nel baricentro del velivolo (punto  $G = C$ ) ed avente l'asse vento longitudinale  $x_W$  diretto secondo la direzione della velocità  $V = V_0$  del velivolo, con verso positivo nel senso del moto (figura 1.13). L'asse vento  $z_W$  è definito dall'intersezione del piano verticale  $\pi_V$  contenente  $V$  e con il piano  $\pi_x$  normale alla traiettoria in  $G$ , con verso positivo verso il basso. L'asse trasversale  $y_W$  è tale da completare la terza  $\{G, x_W, y_W, z_W\}$ .

**DRAFT** (ver. 2022.4) Copyright © A. De Marco, D. P. Coro

**Figura 1.13 Tema di assi vento  $\bar{y}_W = \{G, x_W, y_W, z_W\}$  (assi traiettoria). In questa particolare circostanza la traiettoria del baricentro è orizzontale e l'orientamento del velivolo non è simmetrico rispetto al piano verticale  $\pi_V$ .**

A. De Marco, D. P. Coro - Laurea Magistrale in Ingegneria Aerospaziale, Università degli Studi di Napoli "Federico II"

**1.7 Assi vento**

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**Figura 1.14 Evoluzione del moto di un velivolo con traiettoria del baricentro.**  
Sono rappresentati gli orientamenti nello spazio in cinque istanti successivi. La terza assi vento  $\bar{y}_W = \{G, x_W, y_W, z_W\}$  (assi traiettoria) è rappresentata nell'istante  $t_1$ . In questa circostanza la traiettoria è curva e l'angolo di rampe  $\gamma$  è non nullo (negativo).

Si noti che, secondo la definizione data sopra, l'asse vento trasversale  $y_W$  è sempre orizzontale. Esso è la normale al piano  $\{G, x_W, z_W\}$  che è, per definizione, costantemente verticale come si osserva dalle figure 1.13, 1.14 e 1.15.

Nella figura 1.13, è rappresentato il caso particolare in cui la traiettoria del baricentro è orizzontale. Si osserva che, anche per un orientamento del velivolo non simmetrico rispetto al piano verticale  $\pi_V$ , in questa circostanza gli assi vento presentano un asse  $z_W$  verticale (allineato con la forza peso  $mg$ ).

Nella figura 1.14, è rappresentata un'evoluzione in cui la traiettoria del baricentro si inclina e nello stesso tempo l'orientamento del velivolo è non simmetrico rispetto al piano verticale  $\pi_V$ . L'asse vento  $x_W$ , per definizione tangente alla traiettoria, è non orizzontale e l'asse  $z_W$  è non verticale. Naturalmente — come da definizione — anche in questo caso, in cui il piano  $\pi_V$  non è verticale, l'asse vento  $y_W$  è orizzontale.

Tale particolarità evidenzia un'importante differenza fra la definizione data in questa sede e la definizione di assi vento che si ritrova in diversi libri di testo americani e anglosassoni. Secondo questi ultimi [13, 9, 30] l'asse longitudinale coincide con  $x_W$ ; il terzo

Dinamica e simulazione di volo - Quaderno delle letture

# SHOWCASES

## A game booklet



**PODERES**

son, psicóloga, biólogo, etc.) y a otras profesiones reciben el nombre de **judíos** porque son los padres de la mayoría de los que nacen en Israel durante la crisis. La **preferencia**, que incluye lo socialmente deseable, pero que impide que se realice la preferencia de **Ma'aleh**, es un poder, un personaje o una personalidad durante un tiempo de acuerdo a **la variable**. Los padres

**Las personas a distancia** se componen de las siguientes etapas:  
- **La fase inicial:** se trata de la fase de conocimiento y familiarización con el otro. Se caracteriza por la ausencia de contacto directo entre las personas. Puede durar desde una hora hasta un mes.  
- **La fase de desarrollo:** es la etapa en la que las personas comienzan a establecer vínculos más profundos y duraderos. Puede durar entre 1 y 3 años.  
- **La fase de consolidación:** es la etapa en la que las personas ya tienen una relación estable y emocionalmente fuerte. Puede durar entre 3 y 5 años.  
- **La fase final:** es la etapa en la que las personas ya tienen una relación estable y emocionalmente fuerte. Puede durar entre 3 y 5 años.

**S PARA EL DIRECTOR DE JUEZ**

S PARA EL DIRECTOR DE JUEGO

**TRANSFONDOS**  
Los profesores jugaban ésta entre ellos y entre los alumnos. Un buen trámite para la socialización y que habrá de ser recordado por todos. Los profesores de la Universidad de los Andes lo recordaron con cariño. A los dos profesores les gustaba mucho el tema y se apoyó hasta final.

En forma similar se dieron las **TRABAJOS EN EQUIPO**. A veces, algunos de los profesores trataban de **Walker en su taller** para aumentar sus probabilidades de éxito en la realización de estos trabajos. Ellos eran conscientes de que el trabajo en equipo es bueno para el grupo. Sin embargo, cada uno de los profesores que participó en este trabajo consideró que era necesario que el profesor dirigiera el seguimiento y control, ya que no

10

Page 1

Si embargo, no necesitas darte buenas con modificaciones allí o los Pdus serán demasiado duras. Los Pdus tienen la ventaja de nunca quedarse sin agua y nunca tienen que respirar hondo. A cambio, deberás ser creativo (igualmente menos problemático). Asimismo, los traumas no son tan importantes para ellos y se restan directamente de la salud.

**BESTARIO**

Las siguientes criaturas de ejemplo no deberían tomarse como indicación de que RSPCA/ASVA se limita solamente a festejar en clínica.

ESTADIO

SCIENTIA

NEPAJUN no ha sido diseñado para ver crecer a los personajes durante el transcurso de una campaña. Si pasa un periodo de tiempo significativo

Las habilidades de los personajes definen, no solo su apariencia, sino también su personalidad y su desarrollo. Si el personaje es un experto en ciencias, probablemente sea más inteligente y más habilidoso que el resto de los jugadores.

1

ma contiene Plus con las aptitudes adecuadas. Si los personajes son goblins, un humano fiel ca-  
sando destrozos en su guarda sería tan poderoso como un troll. El Director de Juego debería comprobar estos personajes y los PAs de manera regular.  
Los PAs deberían ser conscientes de que sus

Si los personajes se consideran en su mejor momento de la noche a la mañana, esto no debería reflejarse mejorando a los personajes - el Director de Juego debería en su lugar modificar el mundo y degradar a los PC's.

4

# SHOWCASES

## A text book

### GENERALIZED MODEL OF THE IDEAL GAS

When generalizing the model of an ideal gas, the first step is to determine whether a parametric<sup>6</sup> or an explicit notation<sup>7</sup> is desirable. Later in the exercise, explicit notations are used exclusively, suggesting the use of an explicit answer. Since the unit axis  $\mathbf{v}_x$  in velocity space can be chosen arbitrarily in three dimensions, we can for instance state for the velocity distribution along the  $x$ -axis<sup>8</sup>

$$g(v_x) \propto e^{-mv_x^2/2k_B T}.$$

The above expression is a velocity distribution of molecules, with for each value of the length of vector  $\mathbf{v}_x$ . The expression defines a proportion of the number of molecules corresponding to that condition. To calculate this proportion, we can take an piece of the velocity distribution of width  $dv_x$ , to consequently multiply it thereafter. The small size of the infinitesimal causes  $g(v)$  to not change in value across such a small part of the  $x$ -axis. As such, the expression can be visualized as a bar of height  $g(v_x)$  and width  $dv_x$ . When integrating across multiple dimensions, the area which is between the limits  $v_x$  and  $v_x + dv_x$ ,  $v_y$  and  $v_y + dv_y$ , and  $v_z$  and  $v_z + dv_z$ , then encloses the region in velocity space of  $v$  and  $v + dv$ . Multiplication of each bar so to say ‘filters’ the right volume in velocity space<sup>9</sup>. Translating this to an expression, we can derive the proportionality in velocity space to be

$$g(v)dv = g(v_x)g(v_y)g(v_z)dv_x \cdot dv_y \cdot dv_z.$$

Filling in the relation given in the exercise description, we find

$$g(v)dv \propto e^{-m(v_x^2/v_{x0}^2)}e^{-m(v_y^2/v_{y0}^2)}e^{-m(v_z^2/v_{z0}^2)}dv_x \cdot dv_y \cdot dv_z.$$

By virtue of the pythagorean theorem, we may use relation  $v^2 = v_x^2 + v_y^2 + v_z^2$  to rewrite common terms, for a final relation of

$$g(v)dv \propto e^{-mv^2/2k_B T}dv.$$

### 2

<sup>6</sup> A notation of the form  $g(\mathbf{v}) = (g(v_x), g(v_y), g(v_z))$ .

<sup>7</sup> This is a single expression for  $g(v) = \dots$ , which can be integrated as is.

<sup>8</sup> Since the  $x$ - and  $y$ -axis can be interchanged arbitrarily. Furthermore, the same goes for the velocity distribution along the  $z$ -axis.

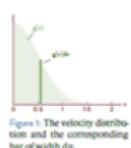


Figure 1: The velocity distribution and the corresponding bar of width  $dv$ .

<sup>9</sup> This is the process of multiple integration.

**B**

The region in velocity space previously mentioned can now be calculated, by visualizing the volume as a shell of a sphere. The volume of this shell can be obtained by evaluating the well-known formula for the volume of a sphere, between lower limit  $v$  and upper limit  $v + dv$ . Evaluating the upper and lower limit, we find that one term cancels. First, we subtract the upper limit from the lower limit of our known formula<sup>10</sup>,

$$V = \frac{4}{3}\pi |(v + dv)^3 - v^3|.$$

Using the binomial theorem<sup>11</sup>, the expression for volume after cancellation of terms is given by

$$V = \frac{8}{3}\pi |3v^2dv + 3v(vdv)^2 + (dv)^3|.$$

Since in real case scenarios the infinitesimal approaches zero, within the limit of  $\lim_{dv \rightarrow 0}$ , we may pose that powers of these infinitesimals equal zero in this limit<sup>12</sup>, for our expression of volume to become

$$V = 8\pi v^2 dv. \quad (2)$$



Figure 2: Each of the spheres has a volume  $V$  corresponding to respectively  $r = v \cdot dr$  (green) and  $r = v + dr$  (purple). The element  $dv$  is the region in space enclosed by these two spheres.

<sup>10</sup> The binomial expansion here is  $(v + dv)^3 = v^3 + 3v^2dv + 3v(vdv)^2 + (dv)^3$ .

<sup>11</sup> That is,  $(v + dv)^n \approx v^n$  and  $(dv)^n \approx 0$ .

When considering the fraction of the molecules travelling in any direction in space, the expression  $g(v)$  previously calculated can be interpreted as a weighting factor for each infinitesimal unit of volume  $dV$ . Interpreting this shell, it contains a set of vectors about  $v$  and  $v + dv$ , but the amount of molecules  $N$  corresponding with that speed varies with how large a given  $v$  is. The size of  $N$  for a particular  $v$  is then described by our expression  $g(v)$ . When we want to know what amount of molecules corresponds to a particular element  $dV$  in  $v$ -space, we must evaluate

$$dN = g(v) \cdot dV.$$

**C**

To combine our previously calculated result from equation 1, we must first cancel the infinitesimals on both sides of the proportionality sign. Observing that volume  $V$  from equation 7 is already an integrand, we may denote the desired expression to be

$$dN \propto g(v)e^{-mv^2/2k_B T} dv,$$

where  $dN$  is the non-normalized fraction  $f(v)dv$ . The desired expression for  $f(v)dv$  is the same as the expression above, with an equals sign rather than a proportionality sign. To obtain this result, simply add in a constant on the right hand side of the relation,

$$f(v)dv = 4\pi C v^2 e^{-mv^2/2k_B T} dv.$$

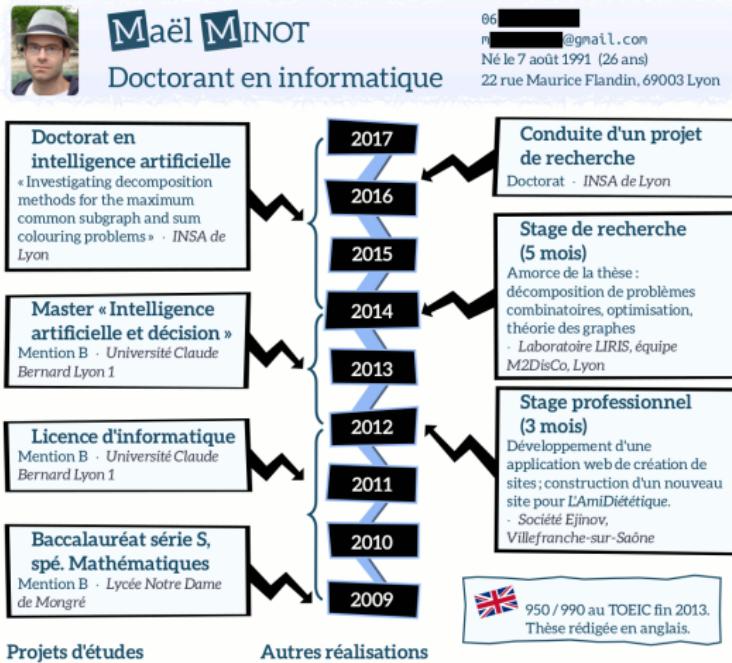
# SHOWCASES

## A presentation

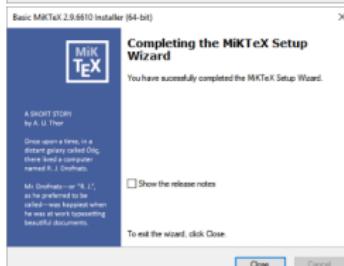
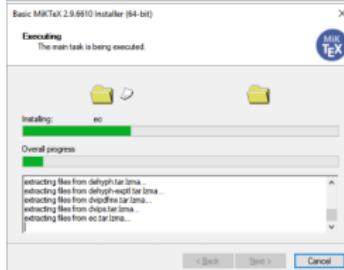
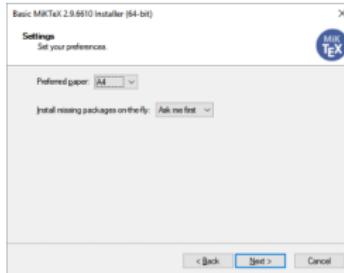


# SHOWCASES

## A CV/resume



# INSTALLATION: MS WINDOWS 10/11



MiKTeX

<https://miktex.org/download>

- Download the latest **Windows Basic MiKTeX Installer** (approx. 150 MB).
- Run the installer and proceed with the displayed instruction.
- For installation of missing packages on the fly, choose “**Always**”.
- The installation will take a few minutes. The progress bar shows an approximate percentage of completion.
- On completing of the setup wizard, click “**Close**” to finish the setup.

# INSTALLATION: MACOS



## MacTeX

<https://www.tug.org/mactex/mactex-download.html>

- Download the latest **MacTeX.pkg** (approx. 5 GB) with Safari.
- After downloading, double click it to install.
- Follow the straightforward instructions.
- On the custom installation, the GUI-Applications can be excluded.

# INSTALLATION: LINUX/UNIX

TeX Live

<https://www.tug.org/texlive/>

```
[root@texlive ~]# time ./install-tl-20190501
installing [0077/445], Time/total: 0:11:02/35:52] auctex [57k]
installing [0078/445], Time/total: 0:16:02/38:08] automega [25k]
installing [0079/445], Time/total: 0:16:02/38:08] biber [25k]
installing [0080/445], Time/total: 0:07:02/39:22] bibtex [3k]
installing [0081/445], Time/total: 0:10:02/40:48] anyfontsize [28k]
installing [0082/445], Time/total: 0:10:02/40:48] arabs [28k]
installing [0083/445], Time/total: 0:15:02/42:12] amsmath [59k]
installing [0084/445], Time/total: 0:24:02/44:19] amsmtx [5k]
installing [0085/445], Time/total: 0:05:02/47:09] apache [75k]
installing [0086/445], Time/total: 0:05:02/47:09] apf [28k]
installing [0087/445], Time/total: 0:05:02/47:09] apptex [28k]
installing [0088/445], Time/total: 0:05:02/47:09] aps [28k]
installing [0089/445], Time/total: 0:05:02/47:09] apslike [28k]
installing [0090/445], Time/total: 0:05:02/47:09] apslikebeamer [28k]
installing [0091/445], Time/total: 0:05:02/47:09] appendix [28k]
installing [0092/445], Time/total: 0:09:02/50:21] arabic [60k]
installing [0093/445], Time/total: 0:09:02/50:21] arabicb [60k]
installing [0094/445], Time/total: 0:40:02/53:09] arabtex [39k]
installing [0095/445], Time/total: 0:09:02/53:09] arctex [35k]
installing [0096/445], Time/total: 0:17:02/53:09] arcs [5k]
installing [0097/445], Time/total: 0:22:02/55:16] arxiv [145k]
installing [0098/445], Time/total: 0:05:02/55:16] ariphic [204k]
installing [0099/445], Time/total: 0:05:02/55:16] ariphic [204k]
```

```
[root@texlive ~]# time ./install-tl-20190501
installing [0077/445], Time/total: 0:11:02/35:52] auctex [57k]
installing [0078/445], Time/total: 0:16:02/38:08] automega [25k]
installing [0079/445], Time/total: 0:16:02/38:08] biber [25k]
installing [0080/445], Time/total: 0:07:02/39:22] bibtex [3k]
installing [0081/445], Time/total: 0:10:02/40:48] anyfontsize [28k]
installing [0082/445], Time/total: 0:10:02/40:48] arabs [28k]
installing [0083/445], Time/total: 0:15:02/42:12] amsmath [59k]
installing [0084/445], Time/total: 0:24:02/44:19] amsmtx [5k]
installing [0085/445], Time/total: 0:05:02/47:09] apache [75k]
installing [0086/445], Time/total: 0:05:02/47:09] apf [28k]
installing [0087/445], Time/total: 0:05:02/47:09] apptex [28k]
installing [0088/445], Time/total: 0:05:02/47:09] aps [28k]
installing [0089/445], Time/total: 0:05:02/47:09] apslike [28k]
installing [0090/445], Time/total: 0:05:02/47:09] apslikebeamer [28k]
installing [0091/445], Time/total: 0:05:02/47:09] appendix [28k]
installing [0092/445], Time/total: 0:09:02/50:21] arabic [60k]
installing [0093/445], Time/total: 0:09:02/50:21] arabicb [60k]
installing [0094/445], Time/total: 0:40:02/53:09] arabtex [39k]
installing [0095/445], Time/total: 0:09:02/53:09] arctex [35k]
installing [0096/445], Time/total: 0:17:02/53:09] arcs [5k]
installing [0097/445], Time/total: 0:22:02/55:16] arxiv [145k]
installing [0098/445], Time/total: 0:05:02/55:16] ariphic [204k]
installing [0099/445], Time/total: 0:05:02/55:16] ariphic [204k]
```

```
[root@texlive ~]# time ./install-tl-20190501
installing [0077/445], Time/total: 0:11:02/35:52] auctex [57k]
installing [0078/445], Time/total: 0:16:02/38:08] automega [25k]
installing [0079/445], Time/total: 0:16:02/38:08] biber [25k]
installing [0080/445], Time/total: 0:07:02/39:22] bibtex [3k]
installing [0081/445], Time/total: 0:10:02/40:48] anyfontsize [28k]
installing [0082/445], Time/total: 0:10:02/40:48] arabs [28k]
installing [0083/445], Time/total: 0:15:02/42:12] amsmath [59k]
installing [0084/445], Time/total: 0:24:02/44:19] amsmtx [5k]
installing [0085/445], Time/total: 0:20:02/45:54] apf [59k]
installing [0086/445], Time/total: 0:05:02/47:09] apptex [28k]
installing [0087/445], Time/total: 0:05:02/47:09] aps [28k]
installing [0088/445], Time/total: 0:05:02/47:09] apslike [28k]
installing [0089/445], Time/total: 0:05:02/47:09] apslikebeamer [28k]
installing [0090/445], Time/total: 0:05:02/47:09] appendix [28k]
installing [0091/445], Time/total: 0:09:02/50:21] arabic [60k]
installing [0092/445], Time/total: 0:09:02/50:21] arabicb [60k]
installing [0093/445], Time/total: 0:36:02/59:18] arabtex [59k]
installing [0094/445], Time/total: 0:09:02/53:09] arctex [35k]
installing [0095/445], Time/total: 0:09:02/53:09] arctex [35k]
installing [0096/445], Time/total: 0:17:02/53:09] arcs [5k]
installing [0097/445], Time/total: 0:22:02/55:16] arxiv [145k]
installing [0098/445], Time/total: 0:05:02/59:27] ariphic [204k]
installing [0099/445], Time/total: 0:05:02/59:27] ariphic [204k]
```

- cd /tmp

- wget

[https://mirror.ctan.org/systems/\\_texlive/tlnet/install-tl-unx.tar.gz](https://mirror.ctan.org/systems/_texlive/tlnet/install-tl-unx.tar.gz)

- zcat install-tl-unx.tar.gz | tar xf

-

- cd install-tl-\*

- perl ./install-tl --no-interaction

- Finally, prepend

/usr/local/texlive/YYYY/bin/PLATFORM  
to your PATH.

# TESTING

After a successful installation, the following command line can be used to test if the system is ready for typesetting.

- In Command Prompt/Terminal, use

```
tex --version
```

or

```
latex --version
```

- The output should be something like these:

```
TeX 3.141592653 (TeX Live 2022)
```

or

```
pdfTeX 3.141592653-2.6-1.40.24 (TeX Live 2022)
```

Otherwise, there is something wrong in the installation process.

# LATEX DOCUMENT STRUCTURE

```
1 \documentclass{article}
2
3 \begin{document}
4 First document.
5 This is a simple example,
6 with no extra parameters or
7 packages included.
8 \end{document}
```

# LATEX DOCUMENT STRUCTURE

```
1 \documentclass{article}
2
3 \begin{document}
4 First document.
5 This is a simple example,
6 with no extra parameters or
7 packages included.
8 \end{document}
```

Document Template

# LATEX DOCUMENT STRUCTURE

```
1 \documentclass{article}
2
3 \begin{document}
4 First document.
5 This is a simple example,
6 with no extra parameters or
7 packages included.
8 \end{document}
```

← Document Contents

# TYPESETTING

- To typeset filename.tex, use the command:

```
pdflatex filename.tex
```

or

```
pdflatex -interaction=nonstopmode filename.tex
```

In case of successfully typesetting, the output filename.pdf will be produced.

- **Always pay attention to errors.** You will find them a lot. The system should give some useful clues to solve the errors.

# OUTPUT

First document. This is a simple example, with no extra parameters or packages included.

# LATEX DOCUMENT STRUCTURE

```
1 \documentclass{article}
2
3 \begin{document}
4
5 LaTeX was created in the early 1980s
6 by Leslie Lamport, when he was working at SRI.
7 He needed to write TeX macros for his own use,
8 and thought that with a little extra effort
9 he could make a general package usable by others.
10
11 Peter Gordon, an editor at Addison-Wesley, convinced
12 him to write a LaTeX user's manual for publication
13 (Lamport was initially skeptical that anyone would pay money
14 → for it);
15 it came out in 1986 and sold hundreds of thousands of
16 → copies.
17 Meanwhile, Lamport released versions of his LaTeX macros
18 in 1984 and 1985.
19 \end{document}
```

# OUTPUT

LaTeX was created in the early 1980s by Leslie Lamport, when he was working at SRI. He needed to write TeX macros for his own use, and thought that with a little extra effort he could make a general package usable by others.

Peter Gordon, an editor at Addison-Wesley, convinced him to write a LaTeX user's manual for publication (Lamport was initially skeptical that anyone would pay money for it); it came out in 1986 and sold hundreds of thousands of copies. Meanwhile, Lamport released versions of his LaTeX macros in 1984 and 1985.

# LATEX DOCUMENT STRUCTURE

```
1 \documentclass{article}
2 \title{My first LaTeX document}
3 \author{John Doe}
4 \date{1 October 2022}
5 \begin{document}
6 \maketitle
7 LaTeX was created in the early 1980s
8 by Leslie Lamport, when he was working at SRI.
9 He needed to write TeX macros for his own use,
10 and thought that with a little extra effort
11 he could make a general package usable by others.
12
13 Peter Gordon, an editor at Addison-Wesley, convinced
14 him to write a LaTeX user's manual for publication
15 (Lamport was initially skeptical that anyone would pay money
→ for it);
16 it came out in 1986 and sold hundreds of thousands of
→ copies.
17 Meanwhile, Lamport released versions of his LaTeX macros
18 in 1984 and 1985.
19 \end{document}
```

# OUTPUT

## My first LaTeX document

John Doe

1 October 2022

LaTeX was created in the early 1980s by Leslie Lamport, when he was working at SRI. He needed to write TeX macros for his own use, and thought that with a little extra effort he could make a general package usable by others. Peter Gordon, an editor at Addison-Wesley, convinced him to write a LaTeX user's manual for publication (Lamport was initially skeptical that anyone would pay money for it); it came out in 1986 and sold hundreds of thousands of copies. Meanwhile, Lamport released versions of his LaTeX macros in 1984 and 1985.

On 21 August 1989, at a TeX Users Group (TUG) meeting at Stanford, Lamport agreed to turn over maintenance and development of LaTeX to Frank Mittelbach. Mittelbach, along with Chris Rowley and Rainer Schöpf, formed the LaTeX3 team; in 1994, they released LaTeX2e, the current standard version. LaTeX3 itself has since been cancelled with version features intended for that version being back-ported to LaTeX 2e since 2018.

# THE PREAMBLE PART

```
1 \documentclass{article}
2 \title{My first LaTeX document}
3 \author{John Doe}
4 \date{1 October 2022}
5 \begin{document}
```

## Preamble Part

```
6 \maketitle
7 LaTeX was created in the early 1980s
8 by Leslie Lamport, when he was working at SRI.
```

### Macro: make title

```
9 He needed to write TeX macros for his own use,
10 and thought that with a little extra effort
11 he could make a general package usable by others.
```

```
12
13 Peter Gordon, an editor at Addison-Wesley, convinced
14 him to write a LaTeX user's manual for publication
15 (Lamport was initially skeptical that anyone would pay money
→ for it);
16 it came out in 1986 and sold hundreds of thousands of
→ copies.
```

```
17 Meanwhile, Lamport released versions of his LaTeX macros
18 in 1984 and 1985.
```

```
19 \end{document}
```

# ADDING COMMENTS

```
1 \documentclass{article}
2 \title{My first LaTeX document}
3 \author{John Doe}
4 \date{1 October 2022}
5 \begin{document}
6 \maketitle
7 LaTeX was created in the early 1980s
8 by Leslie Lamport, when he was working at SRI.
9 %He needed to write TeX macros for his own use,
10 %and thought that with a little extra effort
11 %he could make a general package usable by others.
12
13 Peter Gordon, an editor at Addison-Wesley, convinced
14 him to write a LaTeX user's manual for publication
15 (Lamport was initially skeptical that anyone would pay money
16 → for it);
17 it came out in 1986 and sold hundreds of thousands of
18 → copies.
19 Meanwhile, Lamport released versions of his LaTeX macros
in 1984 and 1985.
\end{document}
```

# OUTPUT

## My first LaTeX document

John Doe

1 October 2022

LaTeX was created in the early 1980s by Leslie Lamport, when he was working at SRI.

Peter Gordon, an editor at Addison-Wesley, convinced him to write a LaTeX user's manual for publication (Lamport was initially skeptical that anyone would pay money for it); it came out in 1986 and sold hundreds of thousands of copies. Meanwhile, Lamport released versions of his LaTeX macros in 1984 and 1985.

# Ratthaprom PROMKAM

RMUTT, March 25, 2023

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