LABORATORY05: Report and Presentation of work on Tables

PELE TETE

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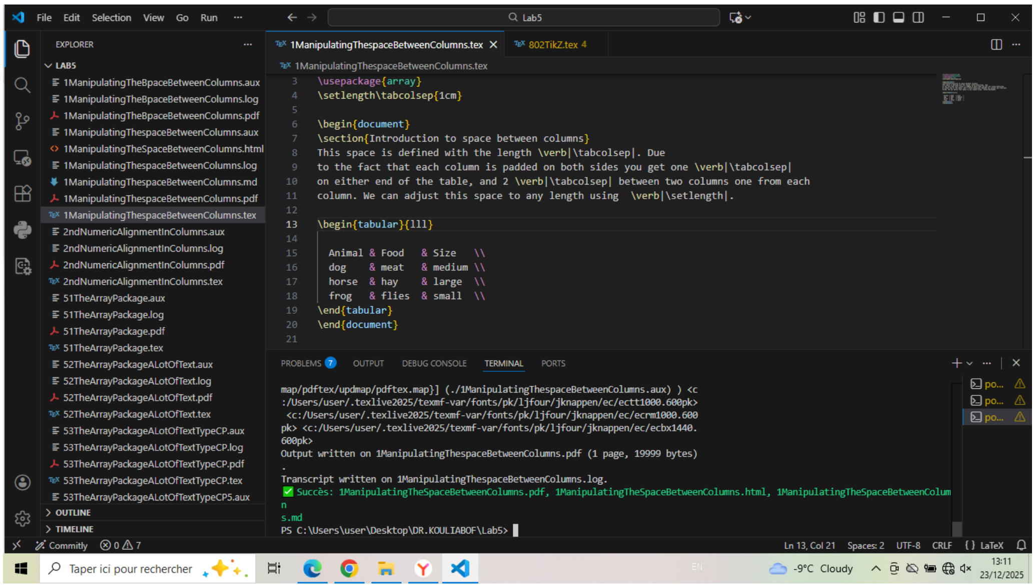
1 1ManipulatingThespaceBetweenColumns - Column Spacing

```
\documentclass{article}
\usepackage[T1]{fontenc}
\usepackage{array}
\setlength\tabcolsep{1cm}

\begin{document}
\section{Introduction to space between columns}
This space is defined with the length \verb|\tabcolsep|. Due
to the fact that each column is padded on both sides you get one \verb|\tabcolsep|
on either end of the table, and 2 \verb|\tabcolsep| between two columns one from each
column. We can adjust this space to any length using  \verb|\setlength|.

\begin{tabular}{lll}
  Animal & Food   & Size   \\
  dog    & meat   & medium \\
  horse  & hay    & large  \\
  frog   & flies  & small  \\
\end{tabular}
\end{document}
```

Generated figure

Table with increased column spacing (1cm).

Screenshot


File
Edit
Selection
View
Go
Run
Lab5
EXPLORER
LAB5
1ManipulatingTheBpaceBetweenColumns.aux
1ManipulatingTheBpaceBetweenColumns.log
1ManipulatingTheBpaceBetweenColumns.pdf
1ManipulatingThespaceBetweenColumns.aux
1ManipulatingTheSpaceBetweenColumns.html
1ManipulatingThespaceBetweenColumns.log
1ManipulatingThespaceBetweenColumns.md
1ManipulatingThespaceBetweenColumns.pdf
1ManipulatingThespaceBetweenColumns.tex
2ndNumericAlignmentInColumns.aux
2ndNumericAlignmentInColumns.log
2ndNumericAlignmentInColumns.pdf
2ndNumericAlignmentInColumns.tex
51TheArrayPackage.aux
51TheArrayPackage.log
51TheArrayPackage.pdf
51TheArrayPackage.tex
52TheArrayPackageALotOfText.aux
52TheArrayPackageALotOfText.log
52TheArrayPackageALotOfText.pdf
52TheArrayPackageALotOfText.tex
53TheArrayPackageALotOfTextTypeCP.aux
53TheArrayPackageALotOfTextTypeCP.log
53TheArrayPackageALotOfTextTypeCP.pdf
53TheArrayPackageALotOfTextTypeCP.tex
53TheArrayPackageALotOfTextTypeCP5.aux
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OUTPUT
DEBUG CONSOLE
TERMINAL
PORTS
po...
po...
po...
Commitly
⊗ 0 ⚠ 7
Ln 13, Col 21
Spaces: 2
UTF-8
CRLF
{ } LaTeX
Taper ici pour rechercher
EN
-9°C Cloudy
13:11
23/12/2025

```
\usepackage{array}
\setlength\tabcolsep{1cm}

\begin{document}
\section{Introduction to space between columns}
This space is defined with the length \verb|\tabcolsep|. Due
to the fact that each column is padded on both sides you get one \verb|\tabcolsep|
on either end of the table, and 2 \verb|\tabcolsep| between two columns one from each
column. We can adjust this space to any length using  \verb|\setlength|.

\begin{tabular}{lll}

  Animal & Food   & Size   \\
  dog    & meat   & medium \\
  horse  & hay    & large  \\
  frog   & flies  & small  \\
\end{tabular}
\end{document}

```

```
map/pdftex/updmap/pdftex.map}] (./1ManipulatingThespaceBetweenColumns.aux) ) <c
:/Users/user/.texlive2025/texmf-var/fonts/pk/ljfour/jknappen/ec/ectt1000.600pk>
 <c:/Users/user/.texlive2025/texmf-var/fonts/pk/ljfour/jknappen/ec/ecrm1000.600
pk> <c:/Users/user/.texlive2025/texmf-var/fonts/pk/ljfour/jknappen/ec/ecbx1440.
600pk>
Output written on 1ManipulatingThespaceBetweenColumns.pdf (1 page, 19999 bytes)
.
Transcript written on 1ManipulatingThespaceBetweenColumns.log.
✅ Succès: 1ManipulatingTheSpaceBetweenColumns.pdf, 1ManipulatingTheSpaceBetweenColumns.html, 1ManipulatingTheSpaceBetweenColum
n
s.md
PS C:\Users\user\Desktop\DR.KOULIABOF\Lab5>
```

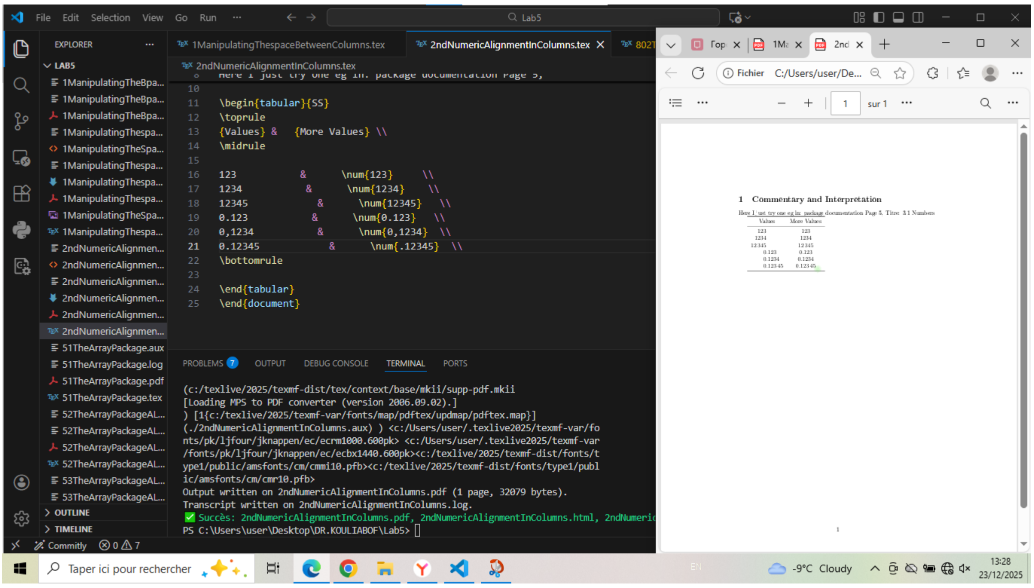
2 2ndNumericAlignmentInColumns - Numeric Alignment

```
\documentclass{article}
\usepackage[T1]{fontenc}
\usepackage{booktabs}
\usepackage{siunitx}
\begin{document}

\section{Commentary and Interpretation}
Here I just try one eg in: package documentation Page 5,
 Titre: 3.1 Numbers

\begin{tabular}{SS}
\toprule
{Values} &   {More Values} \\
\midrule
123             &       \num{123}      \\
1234             &       \num{1234}     \\
12345              &       \num{12345}    \\
0.123             &       \num{0.123}    \\
0,1234             &       \num{0,1234}   \\
0.12345              &       \num{.12345}   \\
\bottomrule
\end{tabular}
\end{document}
```

Generated figure

Numeric alignment with siunitx package.

Screenshot



```
\begin{tabular}{SS}
\toprule
{Values} &   {More Values} \\
\midrule

123             &       \num{123}      \\
1234             &       \num{1234}     \\
12345              &       \num{12345}    \\
0.123             &       \num{0.123}    \\
0,1234             &       \num{0,1234}   \\
0.12345              &       \num{.12345}   \\
\bottomrule

\end{tabular}
\end{document}
```

```
(c:/texlive/2025/texmf-dist/tex/context/base/mkii/supp-pdf.mkii
[Loading MPS to PDF converter (version 2006.09.02).]
) [1{c:/texlive/2025/texmf-var/fonts/map/pdftex/updmap/pdftex.map}]
(./2ndNumericAlignmentInColumns.aux) ) <c:/Users/user/.texlive2025/texmf-var/fo
nts/pk/ljfour/jknappen/ec/ecrm1000.600pk> <c:/Users/user/.texlive2025/texmf-var
/fonts/pk/ljfour/jknappen/ec/ecbx1440.600pk><c:/texlive/2025/texmf-dist/fonts/t
ype1/public/amsfonts/cm/cmmi10.pfb><c:/texlive/2025/texmf-dist/fonts/type1/publ
ic/amsfonts/cm/cmr10.pfb>
Output written on 2ndNumericAlignmentInColumns.pdf (1 page, 32079 bytes).
Transcript written on 2ndNumericAlignmentInColumns.log.
✅ Succès: 2ndNumericAlignmentInColumns.pdf, 2ndNumericAlignmentInColumns.html, 2ndNumeric
PS C:\Users\user\Desktop\DR.KOULIABOF\Lab5> 
```

1 Commentary and Interpretation

Here I just try one eg in: package documentation Page 5, Titre: 3.1 Numbers

Values	More Values
123	123
1234	1234
12 345	12 345
0.123	0.123
0.1234	0.1234
0.123 45	0.123 45

1

---

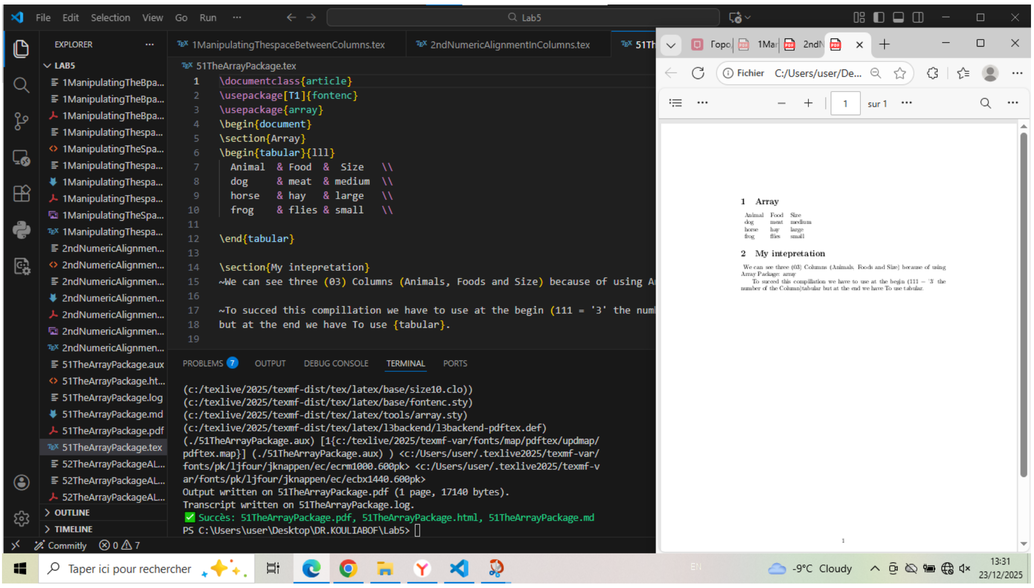
3 51TheArrayPackage - Basic Array Usage

```
\documentclass{article}
\usepackage[T1]{fontenc}
\usepackage{array}
\begin{document}
\section{Array}
\begin{tabular}{lll}
  Animal  & Food  &  Size   \\
  dog     & meat  & medium  \\
  horse   & hay   & large   \\
  frog    & flies & small   \\
\end{tabular}

\section{My intepretation}
~We can see three (03) Columns (Animals, Foods and Size) because of using
   Array Package: {array}

~To succed this compillation we have to use at the begin (111 = '3' the
   number of the Column){tabular}
but at the end we have To use {tabular}.
\end{document}
```

Generated figure

Basic table with three columns.

Screenshot



```
\documentclass{article}
\usepackage[T1]{fontenc}
\usepackage{array}
\begin{document}
\section{Array}
\begin{tabular}{lll}
  Animal  & Food  &  Size   \\
  dog     & meat  & medium  \\
  horse   & hay   & large   \\
  frog    & flies & small   \\

\end{tabular}

\section{My intepretation}
~We can see three (03) Columns (Animals, Foods and Size) because of using A

~To succed this compillation we have to use at the begin (111 = '3' the num
but at the end we have To use {tabular}.
```

```
(c:/texlive/2025/texmf-dist/tex/latex/base/size10.clo))
(c:/texlive/2025/texmf-dist/tex/latex/base/fontenc.sty)
(c:/texlive/2025/texmf-dist/tex/latex/tools/array.sty)
(c:/texlive/2025/texmf-dist/tex/latex/l3backend/l3backend-pdftex.def)
(./51TheArrayPackage.aux) [1{c:/texlive/2025/texmf-var/fonts/map/pdftex/updmap/
pdftex.map}] (./51TheArrayPackage.aux) ) <c:/Users/user/.texlive2025/texmf-var/
fonts/pk/ljfour/jknappen/ec/ecrm1000.600pk> <c:/Users/user/.texlive2025/texmf-v
ar/fonts/pk/ljfour/jknappen/ec/ecbx1440.600pk>
Output written on 51TheArrayPackage.pdf (1 page, 17140 bytes).
Transcript written on 51TheArrayPackage.log.
✅ Succès: 51TheArrayPackage.pdf, 51TheArrayPackage.html, 51TheArrayPackage.md
PS C:\Users\user\Desktop\DR.KOULIABOF\Lab5>
```

1 Array

Animal	Food	Size
dog	meat	medium
horse	hay	large
frog	flies	small

2 My intepretation

We can see three (03) Columns (Animals, Foods and Size) because of using Array Package: array

To succed this compillation we have to use at the begin (111 = '3' the number of the Column)tabular but at the end we have To use tabular.

---

4 52TheArrayPackageALotOfText - Long Text in Columns

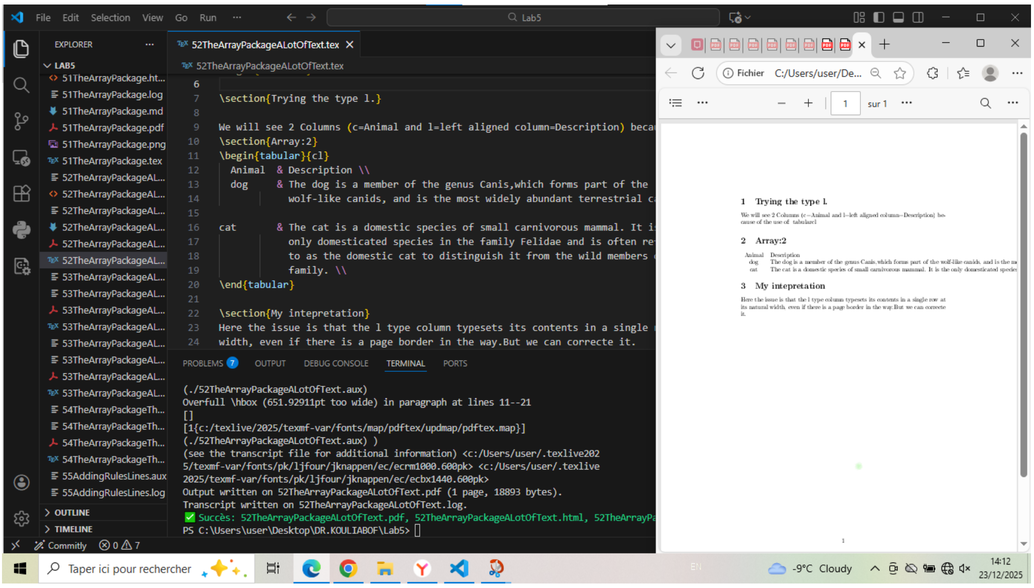
```
\documentclass{article}
\usepackage[T1]{fontenc}
\usepackage{array}
```

```
\begin{document}

\section{Trying the type l.}

We will see 2 Columns (c=Animal and l=left aligned column=Description)
    because of the use of: {tabular}{cl}
\section{Array:2}
\begin{tabular}{cl}
   Animal   & Description \\
   dog      & The dog is a member of the genus Canis,which forms part of the
              wolf-like canids, and is the most widely abundant terrestrial
                  carnivore. \\
cat         & The cat is a domestic species of small carnivorous mammal. It is
     the
              only domesticated species in the family Felidae and is often
                  referred
              to as the domestic cat to distinguish it from the wild members
                  of the
              family. \\
\end{tabular}

\section{My intepretation}
Here the issue is that the l type column typesets its contents in a single
    row at its natural
width, even if there is a page border in the way.But we can correcte it.
\end{document}
```

Generated figure

Table with long text in left-aligned column.

Screenshot



```
\section{Trying the type l.}

We will see 2 Columns (c=Animal and l=left aligned column=Description) becau
\section{Array:2}
\begin{tabular}{cl}
  Animal  & Description \\
  dog     & The dog is a member of the genus Canis,which forms part of the
            wolf-like canids, and is the most widely abundant terrestrial ca

cat       & The cat is a domestic species of small carnivorous mammal. It is
            only domesticated species in the family Felidae and is often re
            to as the domestic cat to distinguish it from the wild members o
            family. \\
\end{tabular}

\section{My intepretation}
Here the issue is that the l type column typesets its contents in a single
width, even if there is a page border in the way.But we can correcte it.
```

```
(./52TheArrayPackageALotOfText.aux)
Overfull \hbox (651.92911pt too wide) in paragraph at lines 11--21
[]
[1{c:/texlive/2025/texmf-var/fonts/map/pdftex/updmap/pdftex.map}]
(./52TheArrayPackageALotOfText.aux) )
(see the transcript file for additional information) <c:/Users/user/.texlive202
5/texmf-var/fonts/pk/ljfour/jknappen/ec/ecrm1000.600pk> <c:/Users/user/.texlive
2025/texmf-var/fonts/pk/ljfour/jknappen/ec/ecbx1440.600pk>
Output written on 52TheArrayPackageALotOfText.pdf (1 page, 18893 bytes).
Transcript written on 52TheArrayPackageALotOfText.log.
✅ Succès: 52TheArrayPackageALotOfText.pdf, 52TheArrayPackageALotOfText.html, 52TheArrayPa
PS C:\Users\user\Desktop\DR.KOULIABOF\Lab5>
```

1 Trying the type l.

We will see 2 Columns (c=Animal and l=left aligned column=Description) because of the use of tabularcl

2 Array:2

Animal	Description
dog	The dog is a member of the genus Canis,which forms part of the wolf-like canids, and is the m
cat	The cat is a domestic species of small carnivorous mammal. It is the only domesticated specie

3 My intepretation

Here the issue is that the l type column typesets its contents in a single row at its natural width, even if there is a page border in the way.But we can correcte it.

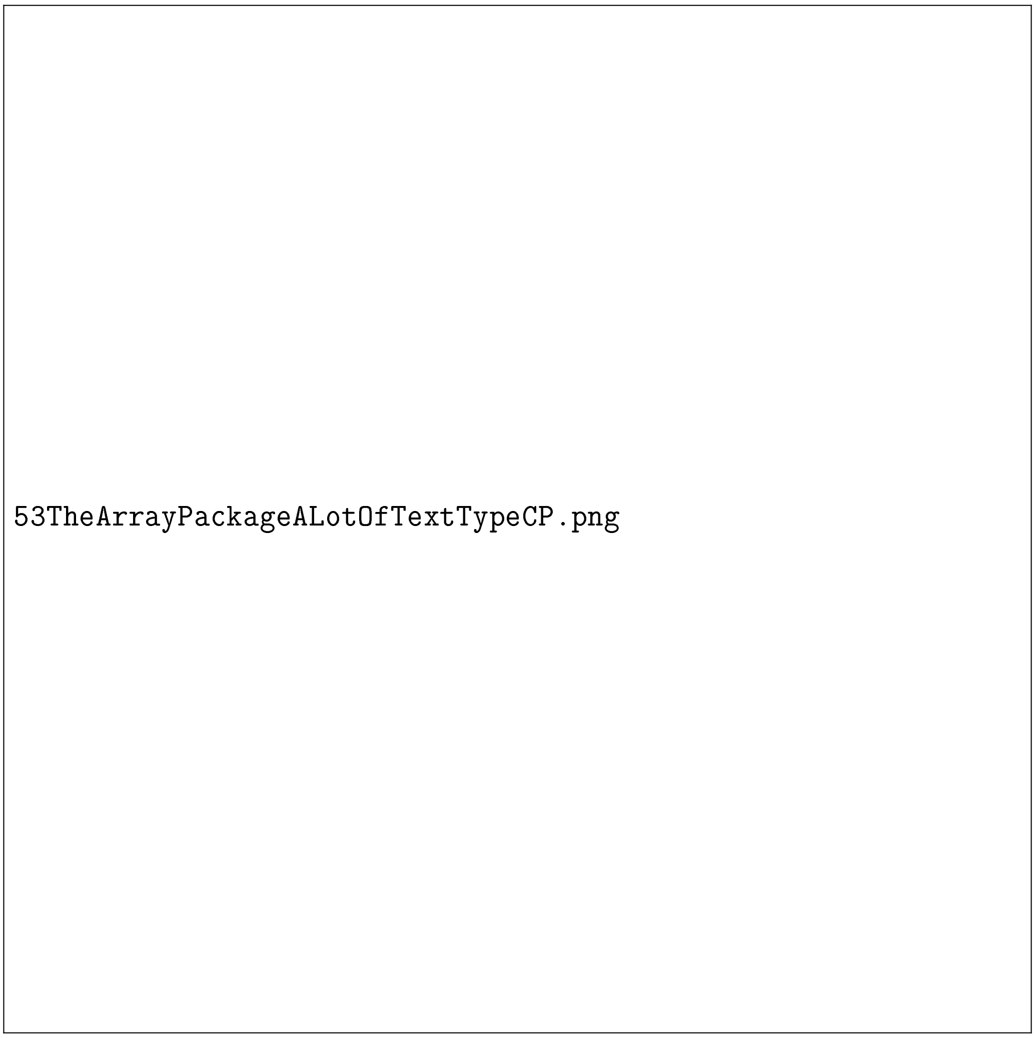
5 53TheArrayPackageALotOfTextTypeCP - Paragraph Columns (9cm)

```
\documentclass{article}
\usepackage[T1]{fontenc}
\usepackage{array}

\begin{document}

\section{Trying the type cp: {9cm.}}

We will see 2 Columns (c=Animal and p=column fully justified=Description)
   because of the use of: {tabular}{cp}
\section{Array:2}
\begin{tabular}{cp{9cm}} % We are going to use "cp" to justifie the text
  Animal  & Description \\
  dog     & The dog is a member of the genus Canis, which forms
      part of the
          wolf-like canids, and is the most widely abundant
            terrestrial
          carnivore. \\
  cat     & The cat is a domestic species of small carnivorous
     mammal. It is the
          only domesticated species in the family Felidae and
            is often referred
          to as the domestic cat to distinguish it from the
             wild members of the
          family. \\
\end{tabular}

\section{My intepretation}
Here the text will be
automatically line wrapped and fully justified
m{9cm} like p, but vertically centered compared to the rest of the
row.
will try for 5cm and see in the next file.
\end{document}
```

Generated figure

Table with paragraph column (9cm width).

Screenshot



53TheArrayPackageALotOfTextTypeCP.png

---

6 53TheArrayPackageALotOfTextTypeCP5 - Paragraph Columns (5cm)

```
\documentclass{article}
\usepackage[T1]{fontenc}
\usepackage{array}

\begin{document}

\section{Trying the type cp: {5cm.}}

We will see 2 Columns (c=Animal and p=column fully justified=Description)
   because of the use of: {tabular}{cp}
\section{Array:2}
\begin{tabular}{cp{5cm}} % My own Eg to make justification between 5cm
  Animal  & Description \\
  dog     & The dog is a member of the genus Canis, which forms
      part of the
          wolf-like canids, and is the most widely abundant
             terrestrial
          carnivore. \\
  cat     & The cat is a domestic species of small carnivorous
     mammal. It is the
          only domesticated species in the family Felidae and
             is often referred
          to as the domestic cat to distinguish it from the
             wild members of the
          family. \\
\end{tabular}

\section{My intepretation}
Here the text will be
automatically line wrapped and fully justified
m{5cm} like p, but vertically centered compared to the rest of the
row.
Here We  can see for 5cm.
\end{document}
```

Generated figure

Table with narrower paragraph column (5cm width).

Screenshot

53TheArrayPackageALotOfTextTypeCP5.png

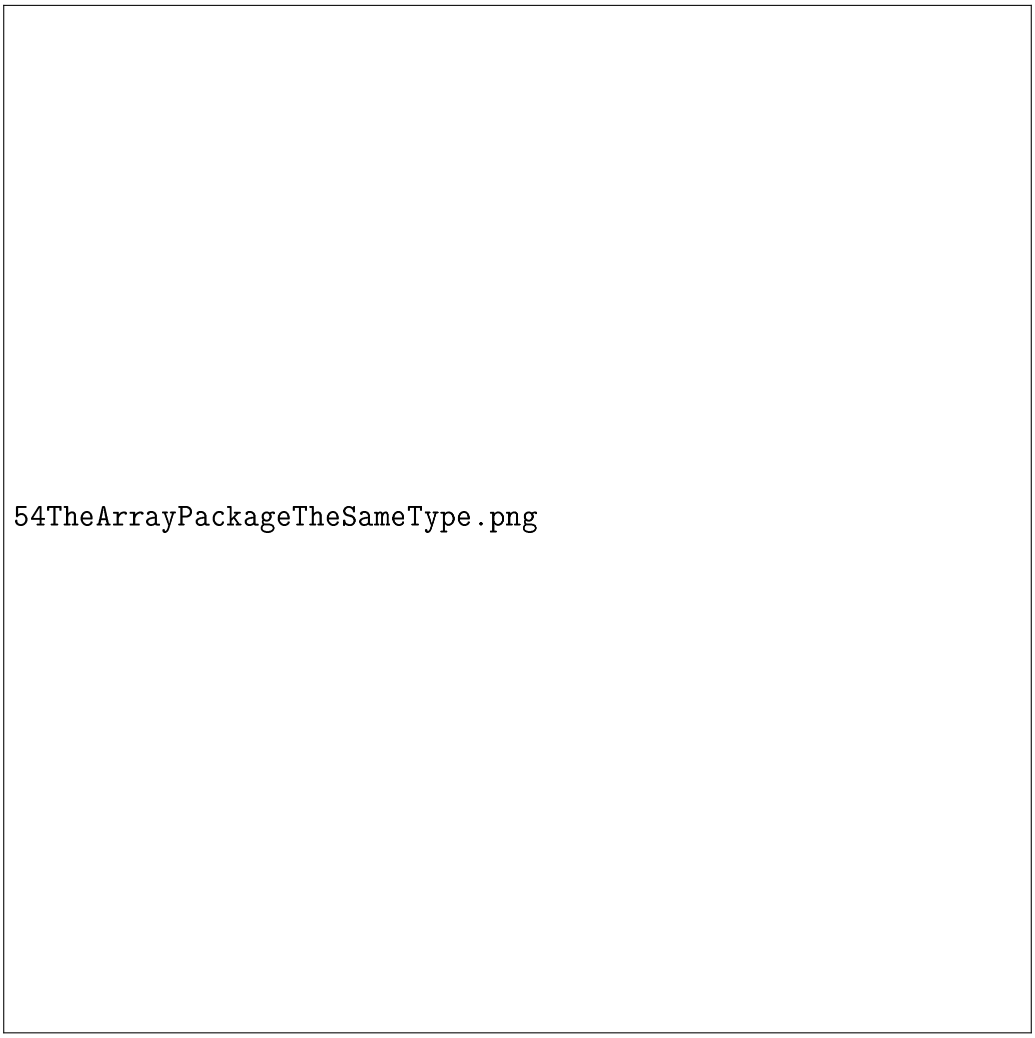
7 54TheArrayPackageTheSameType - Multiple Same Type Columns

```
\documentclass{article}
\usepackage[T1]{fontenc}
\usepackage{array}

\begin{document}

\section{Trying the type cp:{6}{c} the same type}

We will see 2 Columns: c=Animal and p=column fully justified=Description,
because of the use of: \verb|{tabular}{6}{c}| same type.
\section{Array:2}
\begin{tabular}{6}{c}
  Animal  & Description \\
  dog     & The dog is a member of the genus Canis, which forms
      part of the
          wolf-like canids, and is the most widely abundant
            terrestrial
          carnivore. \\
  cat     & The cat is a domestic species of small carnivorous
     mammal. It is the
          only domesticated species in the family Felidae and
            is often referred
          to as the domestic cat to distinguish it from the
             wild members of the
          family. \\
\end{tabular}

\section{My intepretation}
Here the text will be
automatically line wrapped and fully justified
m{6cm} like p, but vertically centered compared to the rest of the
row.And at the end the number of table has many columns of the same type.
Here We  can see for {6}{c}cm.
\end{document}
```

Generated figure

Table with multiple same-type columns (error demonstration).

Screenshot



54TheArrayPackageTheSameType.png

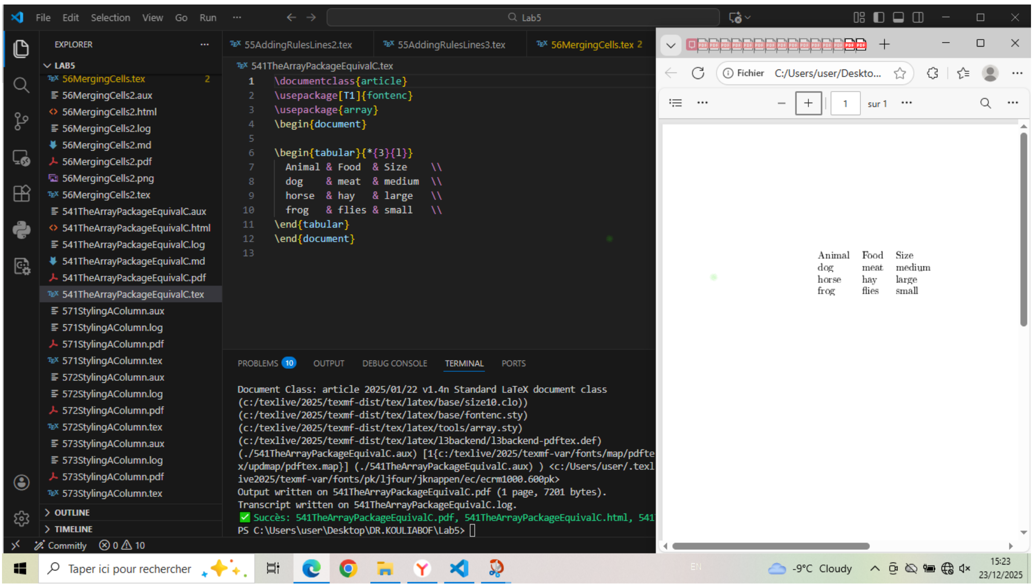
8 541TheArrayPackageEquivalC - Using *ntype Syntax

```
\documentclass{article}
\usepackage[T1]{fontenc}
\usepackage{array}
\begin{document}

\begin{tabular}{*{3}{l}}
  Animal & Food  & Size    \\
  dog    & meat  & medium  \\
  horse  & hay   & large   \\
  frog   & flies & small   \\
\end{tabular}
\end{document}
```

Generated figure

Table with *3l syntax for three left-aligned columns.

Screenshot



541TheArrayPackageEquivalC.tex

```
\documentclass{article}
\usepackage[T1]{fontenc}
\usepackage{array}
\begin{document}

\begin{tabular}{*{3}{l}}
  Animal & Food  & Size    \\
  dog    & meat  & medium  \\
  horse  & hay   & large   \\
  frog   & flies & small   \\
\end{tabular}
\end{document}
```

```
Document Class: article 2025/01/22 v1.4n Standard LaTeX document class
(c:/texlive/2025/texmf-dist/tex/latex/base/size10.clo))
(c:/texlive/2025/texmf-dist/tex/latex/base/fontenc.sty)
(c:/texlive/2025/texmf-dist/tex/latex/tools/array.sty)
(c:/texlive/2025/texmf-dist/tex/latex/l3backend/l3backend-pdftex.def)
(./541TheArrayPackageEquivalC.aux) [1{c:/texlive/2025/texmf-var/fonts/map/pdfte
x/updmap/pdftex.map}] (./541TheArrayPackageEquivalC.aux) ) <c:/Users/user/.texl
ive2025/texmf-var/fonts/pk/ljfour/jknappen/ec/ecrm1000.600pk>
Output written on 541TheArrayPackageEquivalC.pdf (1 page, 7201 bytes).
Transcript written on 541TheArrayPackageEquivalC.log.
✅ Succès: 541TheArrayPackageEquivalC.pdf, 541TheArrayPackageEquivalC.html, 541
PS C:\Users\user\Desktop\DR.KOULIABOF\Lab5> 
```

Animal	Food	Size
dog	meat	medium
horse	hay	large
frog	flies	small

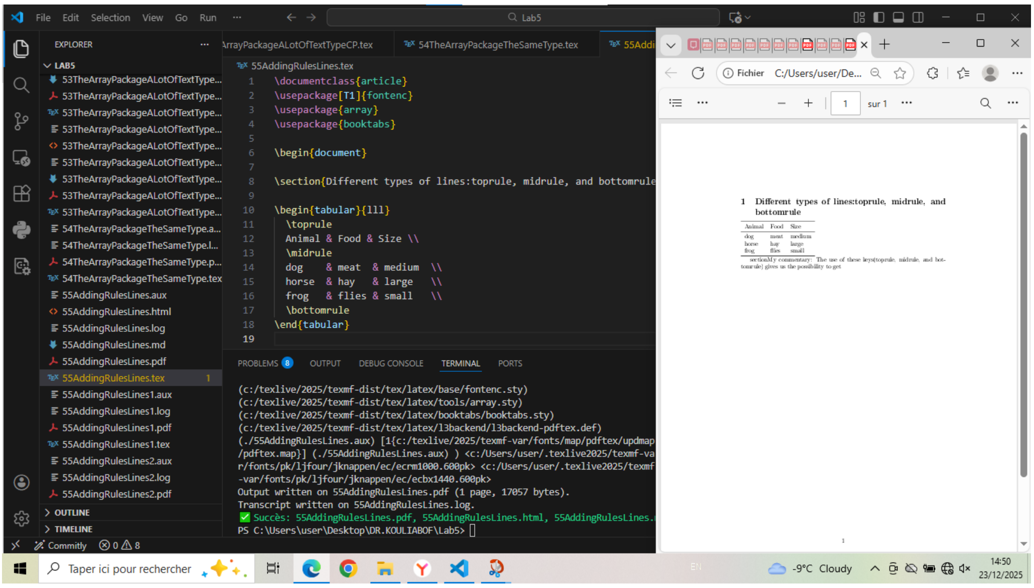
9 55AddingRulesLines - Basic Table Rules

```
\documentclass{article}
\usepackage[T1]{fontenc}
\usepackage{array}
\usepackage{booktabs}

\begin{document}

\section{Different types of lines:toprule, midrule, and bottomrule}

\begin{tabular}{lll}
  \toprule
  Animal & Food & Size \\
  \midrule
  dog    & meat   & medium   \\
  horse  & hay    & large    \\
  frog   & flies & small    \\
  \bottomrule
\end{tabular}

section{My commentary:}
The use of these keys(toprule, midrule, and bottomrule) gives us the
    possibility to get
\end{document}
```

Generated figure

Table with booktabs rules (toprule, midrule, bottomrule).

Screenshot



```
\documentclass{article}
\usepackage[T1]{fontenc}
\usepackage{array}
\usepackage{booktabs}

\begin{document}

\section{Different types of lines:toprule, midrule, and bottomrule

\begin{tabular}{lll}
  \toprule
  Animal & Food & Size \\
  \midrule
  dog    & meat  & medium  \\
  horse  & hay   & large   \\
  frog   & flies & small   \\
  \bottomrule
\end{tabular}
```

```
(c:/texlive/2025/texmf-dist/tex/latex/base/fontenc.sty)
(c:/texlive/2025/texmf-dist/tex/latex/tools/array.sty)
(c:/texlive/2025/texmf-dist/tex/latex/booktabs/booktabs.sty)
(c:/texlive/2025/texmf-dist/tex/latex/l3backend/l3backend-pdftex.def)
(./55AddingRulesLines.aux) [1{c:/texlive/2025/texmf-var/fonts/map/pdftex/updmap
/pdftex.map}] (./55AddingRulesLines.aux) ) <c:/Users/user/.texlive2025/texmf-va
r/fonts/pk/ljfour/jknappen/ec/ecrm1000.600pk> <c:/Users/user/.texlive2025/texmf
-var/fonts/pk/ljfour/jknappen/ec/ecbx1440.600pk>
Output written on 55AddingRulesLines.pdf (1 page, 17057 bytes).
Transcript written on 55AddingRulesLines.log.
✅ Succès: 55AddingRulesLines.pdf, 55AddingRulesLines.html, 55AddingRulesLines.
PS C:\Users\user\Desktop\DR.KOULIABOF\Lab5> 
```

1 Different types of lines:toprule, midrule, and bottomrule

Animal	Food	Size
dog	meat	medium
horse	hay	large
frog	flies	small

sectionMy commentary: The use of these keys(toprule, midrule, and bottomrule) gives us the possibility to get

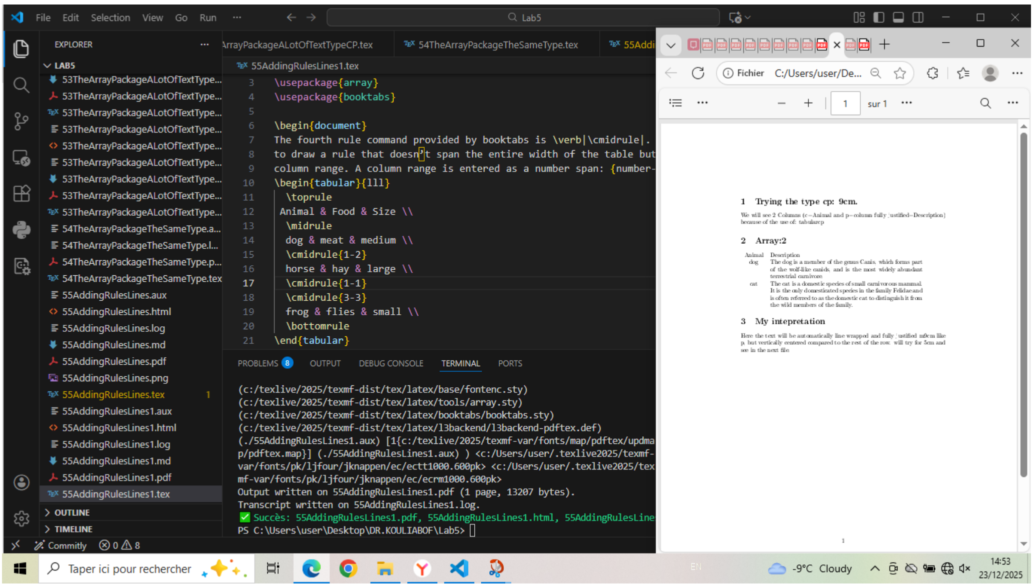
10 55AddingRulesLines1 - cmidrule Usage

```
\documentclass{article}
\usepackage[T1]{fontenc}
\usepackage{array}
\usepackage{booktabs}

\begin{document}
The fourth rule command provided by booktabs is \verb|\cmidrule|. It can be
    used
to draw a rule that doesn't span the entire width of the table but only a
    specified
column range. A column range is entered as a number span: {number-number}.
\begin{tabular}{lll}
  \toprule
 Animal & Food & Size \\
  \midrule
  dog & meat & medium \\
  \cmidrule{1-2}
  horse & hay & large \\
  \cmidrule{1-1}
  \cmidrule{3-3}
  frog & flies & small \\
  \bottomrule
\end{tabular}
\end{document}
```

Generated figure

Table with partial rules using cmidrule.

Screenshot



```
\usepackage{array}
\usepackage{booktabs}

\begin{document}
The fourth rule command provided by booktabs is \verb|\cmidrule|.
to draw a rule that doesn't span the entire width of the table but
column range. A column range is entered as a number span: {number-
\begin{tabular}{lll}
  \toprule
 Animal & Food & Size \\
  \midrule
  dog & meat & medium \\
  \cmidrule{1-2}
  horse & hay & large \\
  \cmidrule{1-1}
  \cmidrule{3-3}
  frog & flies & small \\
  \bottomrule
\end{tabular}
```

```
(c:/texlive/2025/texmf-dist/tex/latex/base/fontenc.sty)
(c:/texlive/2025/texmf-dist/tex/latex/tools/array.sty)
(c:/texlive/2025/texmf-dist/tex/latex/booktabs/booktabs.sty)
(c:/texlive/2025/texmf-dist/tex/latex/l3backend/l3backend-pdftex.def)
(./55AddingRulesLines1.aux) [1{c:/texlive/2025/texmf-var/fonts/map/pdftex/updma
p/pdftex.map}] (./55AddingRulesLines1.aux) ) <c:/Users/user/.texlive2025/texmf-
var/fonts/pk/ljfour/jknappen/ec/ectt1000.600pk> <c:/Users/user/.texlive2025/tex
mf-var/fonts/pk/ljfour/jknappen/ec/ecrm1000.600pk>
Output written on 55AddingRulesLines1.pdf (1 page, 13207 bytes).
Transcript written on 55AddingRulesLines1.log.
✅ Succès: 55AddingRulesLines1.pdf, 55AddingRulesLines1.html, 55AddingRulesLine
PS C:\Users\user\Desktop\DR.KOULIABOF\Lab5> 
```

1 Trying the type cp: 9cm.

We will see 2 Columns (c–Animal and p–column fully justified–Description) because of the use of: tabularcp

2 Array:2

Animal	Description
dog	The dog is a member of the genus Canis, which forms part of the wolf-like canids, and is the most widely abundant terrestrial carnivore.
cat	The cat is a domestic species of small carnivorous mammal. It is the only domesticated species in the family Felidae and is often referred to as the domestic cat to distinguish it from the wild members of the family.

3 My intepretation

Here the text will be automatically line wrapped and fully justified m9cm like p, but vertically centered compared to the rest of the row. will try for 5cm and see in the next file

---

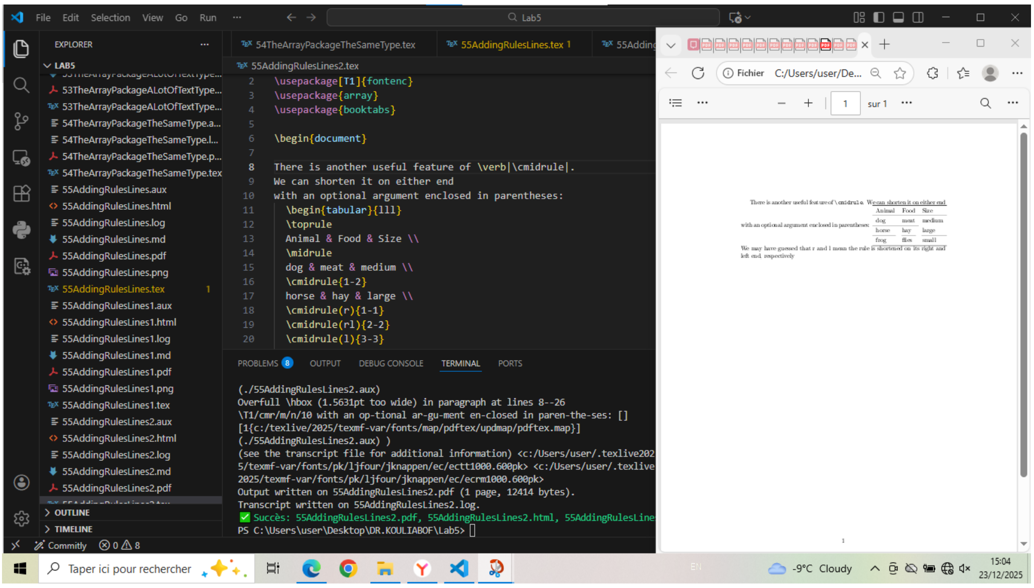
11 55AddingRulesLines2 - cmidrule with Trimming

```
\documentclass{article}
\usepackage[T1]{fontenc}
\usepackage{array}
\usepackage{booktabs}

\begin{document}

There is another useful feature of \verb|\cmidrule|.
We can shorten it on either end
with an optional argument enclosed in parentheses:
  \begin{tabular}{lll}
  \toprule
  Animal & Food & Size \\
  \midrule
  dog & meat & medium \\
  \cmidrule{1-2}
  horse & hay & large \\
  \cmidrule(r){1-1}
  \cmidrule(rl){2-2}
  \cmidrule(l){3-3}
  frog & flies & small \\
  \bottomrule
\end{tabular}
We may have guessed that r and l mean the rule is shortened on its right and
    left
end, respectively
\end{document}
```

Generated figure

Table with trimmed cmidrule rules.

Screenshot



```
\usepackage[T1]{fontenc}
\usepackage{array}
\usepackage{booktabs}

\begin{document}

There is another useful feature of \verb|\cmidrule|.
We can shorten it on either end
with an optional argument enclosed in parentheses:
  \begin{tabular}{lll}
  \toprule
  Animal & Food & Size \\
  \midrule
  dog & meat & medium \\
  \cmidrule{1-2}
  horse & hay & large \\
  \cmidrule(r){1-1}
  \cmidrule(rl){2-2}
  \cmidrule(l){3-3}
```

```
(./55AddingRulesLines2.aux)
Overfull \hbox (1.5631pt too wide) in paragraph at lines 8--26
\T1/cmr/m/n/10 with an op-tional ar-gu-ment en-closed in paren-the-ses: []
[1{c:/texlive/2025/texmf-var/fonts/map/pdftex/updmap/pdftex.map}]
(./55AddingRulesLines2.aux) )
(see the transcript file for additional information) <c:/Users/user/.texlive202
5/texmf-var/fonts/pk/ljfour/jknappen/ec/ectt1000.600pk> <c:/Users/user/.texlive
2025/texmf-var/fonts/pk/ljfour/jknappen/ec/ecrm1000.600pk>
Output written on 55AddingRulesLines2.pdf (1 page, 12414 bytes).
Transcript written on 55AddingRulesLines2.log.
✅ Succès: 55AddingRulesLines2.pdf, 55AddingRulesLines2.html, 55AddingRulesLine
PS C:\Users\user\Desktop\DR.KOULIABOF\Lab5> 
```

There is another useful feature of \cmidrule. We can shorten it on either end with an optional argument enclosed in parentheses:

Animal	Food	Size
dog	meat	medium
horse	hay	large
frog	flies	small

We may have guessed that r and l mean the rule is shortened on its right and left end, respectively

---

12 55AddingRulesLines3 - addlinespace Usage

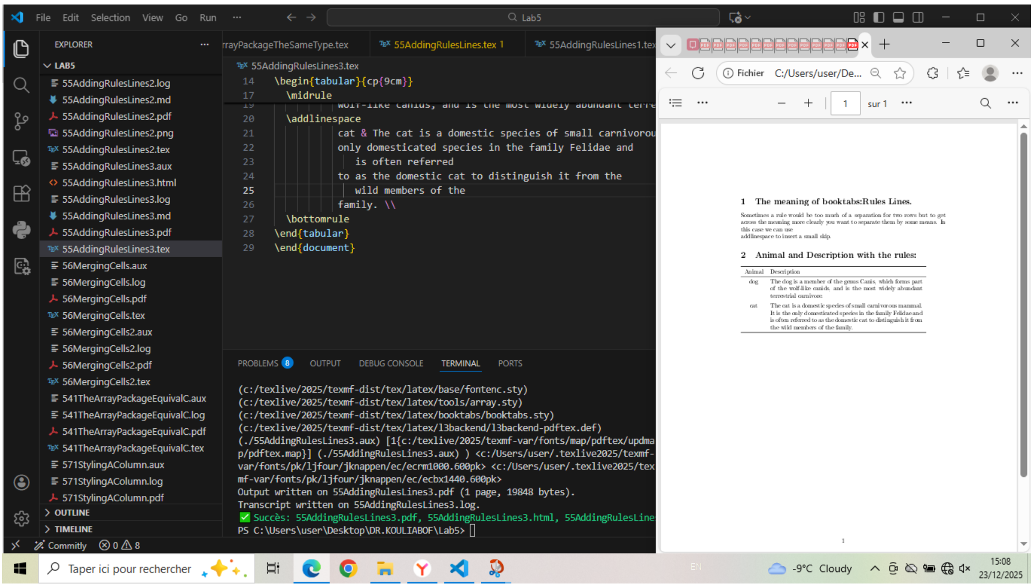
```
\documentclass{article}
\usepackage[T1]{fontenc}
\usepackage{array}
\usepackage{booktabs}

\begin{document}

\section{The meaning of booktabs:Rules Lines.}
Sometimes a rule would be too much of a separation for two rows but to get
    across
the meaning more clearly you want to separate them by some means. In this
    case
we can use \\addlinespace to insert a small skip.
\section{Animal and Description with the rules:}

\begin{tabular}{cp{9cm}}
  \toprule
  Animal & Description \\
  \midrule
           dog & The dog is a member of the genus Canis, which forms part of
                the
           wolf-like canids, and is the most widely abundant terrestrial
               carnivore. \\
  \addlinespace
           cat & The cat is a domestic species of small carnivorous mammal.
               It is the
           only domesticated species in the family Felidae and
               is often referred
           to as the domestic cat to distinguish it from the
               wild members of the
           family. \\
  \bottomrule
```

```
\end{tabular}
\end{document}
```

Generated figure

Table with vertical spacing using addlinespace.

Screenshot



```
\begin{tabular}{cp{9cm}}
  \midrule
          wolf-like canius, and is the most widely abundant terre
  \addlinespace
          cat & The cat is a domestic species of small carnivorou
          only domesticated species in the family Felidae and
            is often referred
          to as the domestic cat to distinguish it from the
            wild members of the
          family. \\
  \bottomrule
\end{tabular}
\end{document}
```

```
(c:/texlive/2025/texmf-dist/tex/latex/base/fontenc.sty)
(c:/texlive/2025/texmf-dist/tex/latex/tools/array.sty)
(c:/texlive/2025/texmf-dist/tex/latex/booktabs/booktabs.sty)
(c:/texlive/2025/texmf-dist/tex/latex/l3backend/l3backend-pdftex.def)
(./55AddingRulesLines3.aux) [1{c:/texlive/2025/texmf-var/fonts/map/pdftex/updma
p/pdftex.map}] (./55AddingRulesLines3.aux) ) <c:/Users/user/.texlive2025/texmf-
var/fonts/pk/ljfour/jknappen/ec/ecrm1000.600pk> <c:/Users/user/.texlive2025/tex
mf-var/fonts/pk/ljfour/jknappen/ec/ecbx1440.600pk>
Output written on 55AddingRulesLines3.pdf (1 page, 19848 bytes).
Transcript written on 55AddingRulesLines3.log.
✅ Succès: 55AddingRulesLines3.pdf, 55AddingRulesLines3.html, 55AddingRulesLine
PS C:\Users\user\Desktop\DR.KOULIABOF\Lab5> 
```

1 The meaning of booktabs:Rules Lines.

Sometimes a rule would be too much of a separation for two rows but to get across the meaning more clearly you want to separate them by some means. In this case we can use
addlinespace to insert a small skip.

2 Animal and Description with the rules:

Animal	Description
dog	The dog is a member of the genus Canis, which forms part of the wolf-like canids, and is the most widely abundant terrestrial carnivore.
cat	The cat is a domestic species of small carnivorous mammal. It is the only domesticated species in the family Felidae and is often referred to as the domestic cat to distinguish it from the wild members of the family.

1

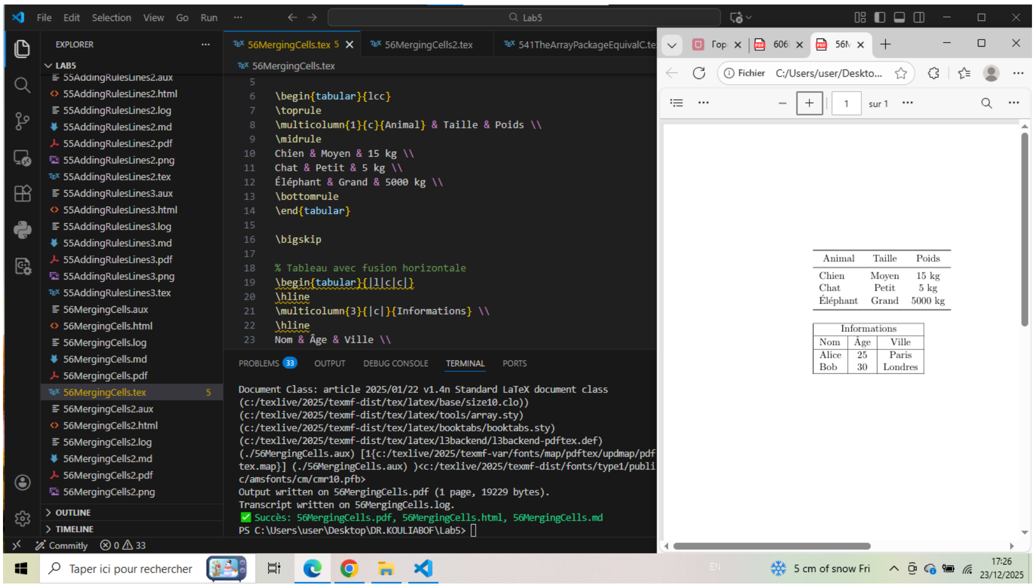
13 56MergingCells - Horizontal Cell Merging

```
\documentclass{article}
\usepackage{array, booktabs}

\begin{document}

\begin{tabular}{lcc}
\toprule
\multicolumn{1}{c}{Animal} & Taille & Poids \\
\midrule
Chien & Moyen & 15 kg \\
Chat & Petit & 5 kg \\
  lphant  & Grand & 5000 kg \\
\bottomrule
\end{tabular}

\bigskip

% Tableau avec fusion horizontale
\begin{tabular}{|l|c|c|}
\hline
\multicolumn{3}{|c|}{Informations} \\
\hline
Nom &  ge & Ville \\
\hline
Alice & 25 & Paris \\
Bob & 30 & Londres \\
\hline
\end{tabular}

\end{document}
```

Generated figure

Tables with horizontally merged cells using multicolumn.

Screenshot



```
\begin{tabular}{lcc}
\toprule
\multicolumn{1}{c}{Animal} & Taille & Poids \\
\midrule
Chien & Moyen & 15 kg \\
Chat & Petit & 5 kg \\
Éléphant & Grand & 5000 kg \\
\bottomrule
\end{tabular}

\bigskip

% Tableau avec fusion horizontale
\begin{tabular}{|l|c|c|}
\hline
\multicolumn{3}{|c|}{Informations} \\
\hline
Nom & Âge & Ville \\
```

```
Document Class: article 2025/01/22 v1.4n Standard LaTeX document class
(c:/texlive/2025/texmf-dist/tex/latex/base/size10.clo))
(c:/texlive/2025/texmf-dist/tex/latex/tools/array.sty)
(c:/texlive/2025/texmf-dist/tex/latex/booktabs/booktabs.sty)
(c:/texlive/2025/texmf-dist/tex/latex/l3backend/l3backend-pdftex.def)
(./56MergingCells.aux) [1{c:/texlive/2025/texmf-var/fonts/map/pdftex/updmap/pdf
tex.map}] (./56MergingCells.aux) )<c:/texlive/2025/texmf-dist/fonts/type1/publi
c/amsfonts/cm/cmr10.pfb>
Output written on 56MergingCells.pdf (1 page, 19229 bytes).
Transcript written on 56MergingCells.log.
✅ Succès: 56MergingCells.pdf, 56MergingCells.html, 56MergingCells.md
PS C:\Users\user\Desktop\DR.KOULIABOF\Lab5> 
```

Animal	Taille	Poids
Chien	Moyen	15 kg
Chat	Petit	5 kg
Éléphant	Grand	5000 kg

Informations		
Nom	Âge	Ville
Alice	25	Paris
Bob	30	Londres

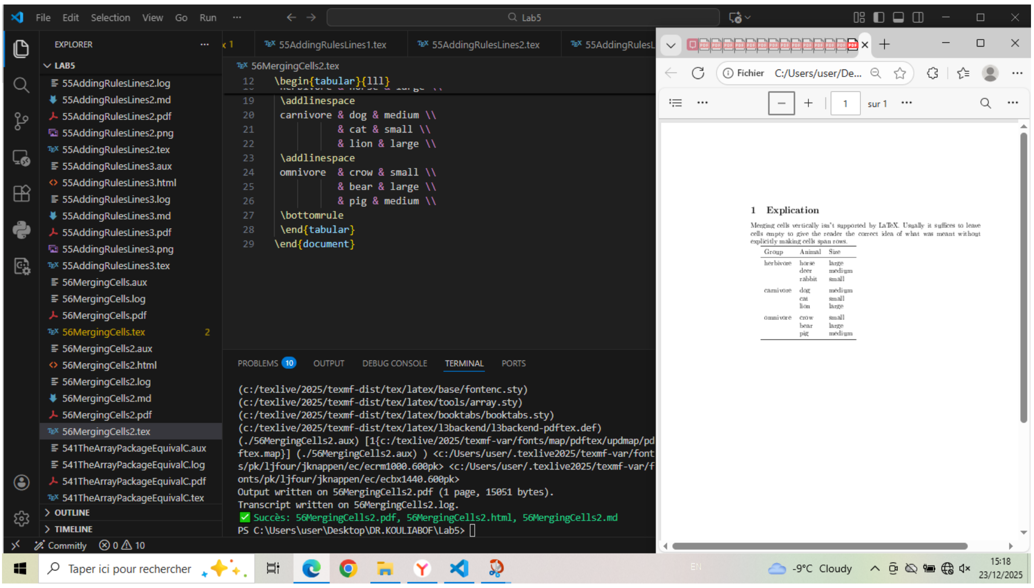
14 56MergingCells2 - Vertical Merging Simulation

```
\documentclass{article}
\usepackage[T1]{fontenc}
\usepackage{array}
\usepackage{booktabs}

\begin{document}
\section{Explication}
Merging cells vertically isn't supported by LaTeX. Usually it suffices to
   leave cells
empty to give the reader the correct idea of what was meant without
   explicitly
making cells span rows.

\begin{tabular}{lll}
 \toprule
 Group & Animal & Size \\
 \midrule
 herbivore & horse & large \\
          & deer & medium \\
          & rabbit & small \\
 \addlinespace
 carnivore & dog & medium \\
          & cat & small \\
          & lion & large \\
 \addlinespace
 omnivore  & crow & small \\
          & bear & large \\
          & pig & medium \\
 \bottomrule
 \end{tabular}
\end{document}
```

Generated figure

Table simulating vertical merging with empty cells.

Screenshot



```
 \begin{tabular}{lll}
  \addlinespace
  carnivore & dog & medium \\
            & cat & small \\
            & lion & large \\
  \addlinespace
  omnivore  & crow & small \\
            & bear & large \\
            & pig & medium \\
  \bottomrule
  \end{tabular}
 \end{document}
```

```
(c:/texlive/2025/texmf-dist/tex/latex/base/fontenc.sty)
(c:/texlive/2025/texmf-dist/tex/latex/tools/array.sty)
(c:/texlive/2025/texmf-dist/tex/latex/booktabs/booktabs.sty)
(c:/texlive/2025/texmf-dist/tex/latex/l3backend/l3backend-pdftex.def)
(./56MergingCells2.aux) [1{c:/texlive/2025/texmf-var/fonts/map/pdftex/updmap/pd
ftex.map}] (./56MergingCells2.aux) ) <c:/Users/user/.texlive2025/texmf-var/font
s/pk/ljfour/jknappen/ec/ecrm1000.600pk> <c:/Users/user/.texlive2025/texmf-var/f
onts/pk/ljfour/jknappen/ec/ecbx1440.600pk>
Output written on 56MergingCells2.pdf (1 page, 15051 bytes).
Transcript written on 56MergingCells2.log.
✅ Succès: 56MergingCells2.pdf, 56MergingCells2.html, 56MergingCells2.md
PS C:\Users\user\Desktop\DR.KOULIABOF\Lab5>
```

1 Explication

Merging cells vertically isn't supported by LaTeX. Usually it suffices to leave cells empty to give the reader the correct idea of what was meant without explicitly making cells span rows.

Group	Animal	Size
herbivore	horse	large
	deer	medium
	rabbit	small
carnivore	dog	medium
	cat	small
	lion	large
omnivore	crow	small
	bear	large
	pig	medium

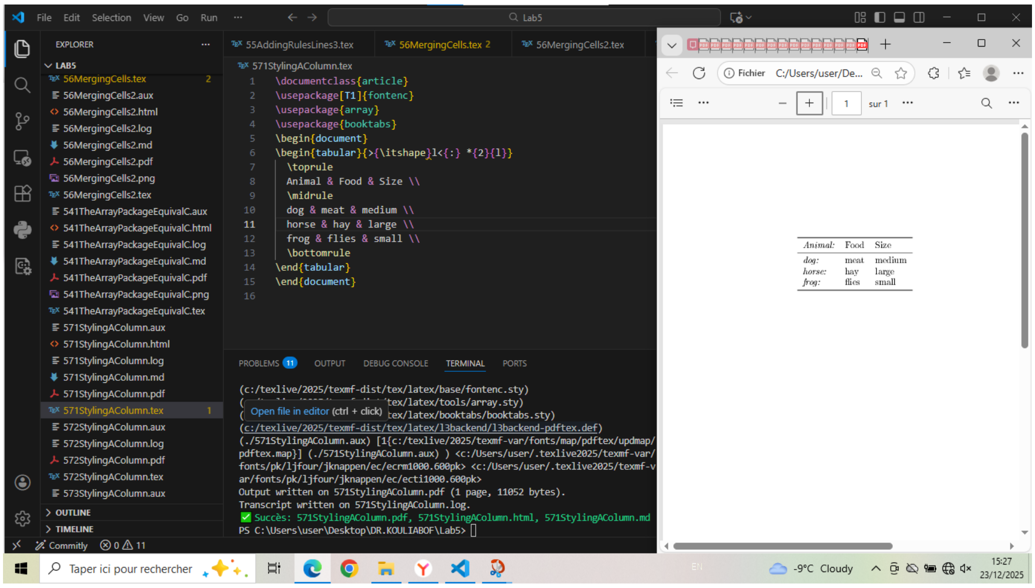
15 571StylingAColumn - Column Styling

```
\documentclass{article}
\usepackage[T1]{fontenc}
\usepackage{array}
\usepackage{booktabs}
\begin{document}
\begin{tabular}{>{\itshape}l<{:} *{2}{l}}
  \toprule
  Animal & Food & Size \\
  \midrule
  dog & meat & medium \\
  horse & hay & large \\
  frog & flies & small \\
  \bottomrule
\end{tabular}
\end{document}
```

Generated figure

Table with italic first column and colon separator.

Screenshot



```
\documentclass{article}
\usepackage[T1]{fontenc}
\usepackage{array}
\usepackage{booktabs}
\begin{document}
\begin{tabular}{>{\itshape}l<{:} *{2}{l}}
  \toprule
  Animal & Food & Size \\
  \midrule
  dog & meat & medium \\
  horse & hay & large \\
  frog & flies & small \\
  \bottomrule
\end{tabular}
\end{document}
```

```
(c:/texlive/2025/texmf-dist/tex/latex/base/fontenc.sty)
(c:/texlive/2025/texmf-dist/tex/latex/tools/array.sty)
(c:/texlive/2025/texmf-dist/tex/latex/booktabs/booktabs.sty)
(c:/texlive/2025/texmf-dist/tex/latex/l3backend/l3backend-pdftex.def)
(./571StylingAColumn.aux) [1{c:/texlive/2025/texmf-var/fonts/map/pdftex/updmap/
pdftex.map}] (./571StylingAColumn.aux) ) <c:/Users/user/.texlive2025/texmf-var/
fonts/pk/ljfour/jknappen/ec/ecrm1000.600pk> <c:/Users/user/.texlive2025/texmf-v
ar/fonts/pk/ljfour/jknappen/ec/ecti1000.600pk>
Output written on 571StylingAColumn.pdf (1 page, 11052 bytes).
Transcript written on 571StylingAColumn.log.
✅ Succès: 571StylingAColumn.pdf, 571StylingAColumn.html, 571StylingAColumn.md
PS C:\Users\user\Desktop\DR.KOULIABOF\Lab5>
```

Animal:	Food	Size
dog:	meat	medium
horse:	hay	large
frog:	flies	small

---

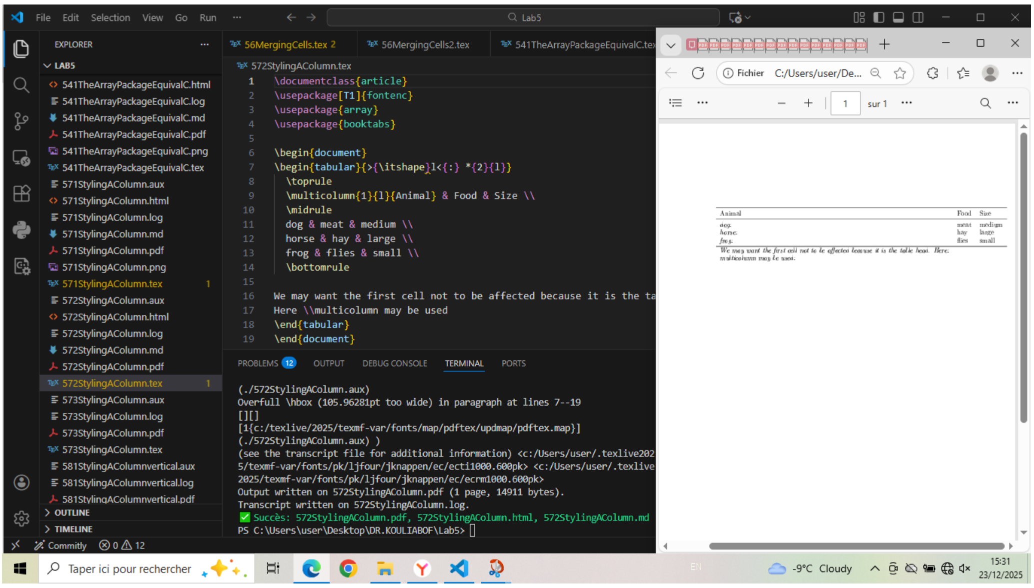
16 572StylingAColumn - Header Exclusion from Styling

```
\documentclass{article}
\usepackage[T1]{fontenc}
\usepackage{array}
\usepackage{booktabs}

\begin{document}
\begin{tabular}{>{\itshape}l<{:} *{2}{l}}
  \toprule
  \multicolumn{1}{l}{Animal} & Food & Size \\
  \midrule
  dog & meat & medium \\
  horse & hay & large \\
  frog & flies & small \\
  \bottomrule

We may want the first cell not to be affected because it is the table head.
Here \\multicolumn may be used
\end{tabular}
\end{document}
```

Generated figure

Table with header excluded from column styling.

Screenshot



572StylingAColumn.tex

```
\documentclass{article}
\usepackage[T1]{fontenc}
\usepackage{array}
\usepackage{booktabs}

\begin{document}
\begin{tabular}{>{\itshape}l<{:} *{2}{l}}
  \toprule
  \multicolumn{1}{l}{Animal} & Food & Size \\
  \midrule
  dog & meat & medium \\
  horse & hay & large \\
  frog & flies & small \\
  \bottomrule

We may want the first cell not to be affected because it is the ta
Here \\multicolumn may be used
\end{tabular}
\end{document}
```

```
(./572StylingAColumn.aux)
Overfull \hbox (105.96281pt too wide) in paragraph at lines 7--19
[][]
[1{c:/texlive/2025/texmf-var/fonts/map/pdftex/updmap/pdftex.map}]
(./572StylingAColumn.aux) )
(see the transcript file for additional information) <c:/Users/user/.texlive202
5/texmf-var/fonts/pk/ljfour/jknappen/ec/ecti1000.600pk> <c:/Users/user/.texlive
2025/texmf-var/fonts/pk/ljfour/jknappen/ec/ecrm1000.600pk>
Output written on 572StylingAColumn.pdf (1 page, 14911 bytes).
Transcript written on 572StylingAColumn.log.
✅ Succès: 572StylingAColumn.pdf, 572StylingAColumn.html, 572StylingAColumn.md
PS C:\Users\user\Desktop\DR.KOULIABOF\Lab5>
```

Animal	Food	Size
dog:	meat	medium
horse:	hay	large
frog:	flies	small

We may want the first cell not to be affected because it is the table head. Here: multicolumn may be used.

---

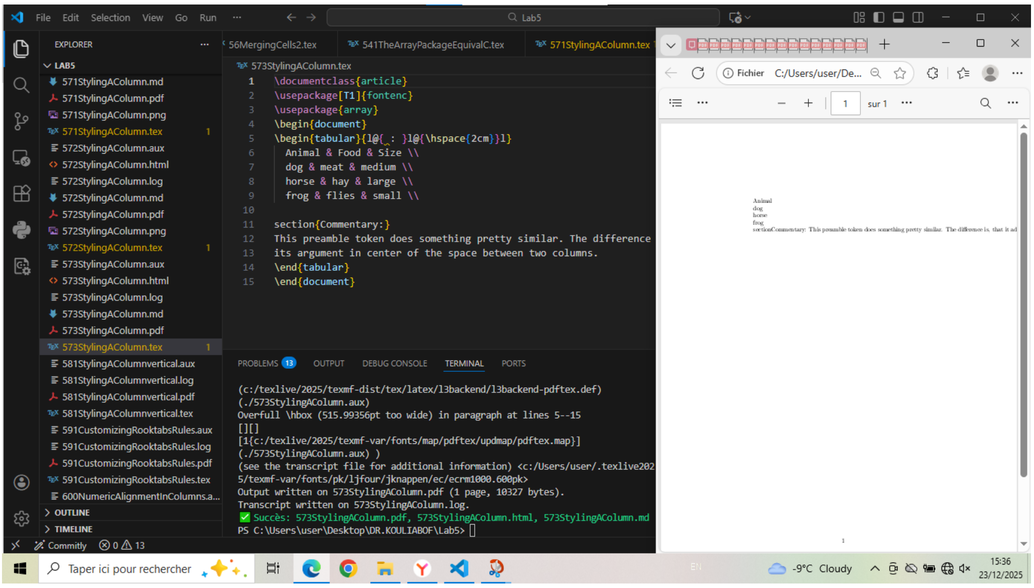
17 573StylingAColumn - @... Syntax

```
\documentclass{article}
\usepackage[T1]{fontenc}
\usepackage{array}
\begin{document}
\begin{tabular}{l@{ : }l@{\hspace{2cm}}l}
  Animal & Food & Size \\
  dog & meat & medium \\
  horse & hay & large \\
  frog & flies & small \\

section{Commentary:}
This preamble token does something pretty similar. The difference is, that
    it adds
its argument in center of the space between two columns.
\end{tabular}
\end{document}
```

Generated figure

Table with custom column separators.

Screenshot



```
\documentclass{article}
\usepackage[T1]{fontenc}
\usepackage{array}
\begin{document}
\begin{tabular}{l@{ : }l@{\hspace{2cm}}l}
  Animal & Food & Size \\
  dog & meat & medium \\
  horse & hay & large \\
  frog & flies & small \\

section{Commentary:}
This preamble token does something pretty similar. The difference
its argument in center of the space between two columns.
\end{tabular}
\end{document}
```

```
(c:/texlive/2025/texmf-dist/tex/latex/l3backend/l3backend-pdftex.def)
(./573StylingAColumn.aux)
Overfull \hbox (515.99356pt too wide) in paragraph at lines 5--15
[][]
[1{c:/texlive/2025/texmf-var/fonts/map/pdftex/updmap/pdftex.map}]
(./573StylingAColumn.aux) )
(see the transcript file for additional information) <c:/Users/user/.texlive202
5/texmf-var/fonts/pk/ljfour/jknappen/ec/ecrm1000.600pk>
Output written on 573StylingAColumn.pdf (1 page, 10327 bytes).
Transcript written on 573StylingAColumn.log.
✅ Succès: 573StylingAColumn.pdf, 573StylingAColumn.html, 573StylingAColumn.md
PS C:\Users\user\Desktop\DR.KOULIABOF\Lab5> 
```

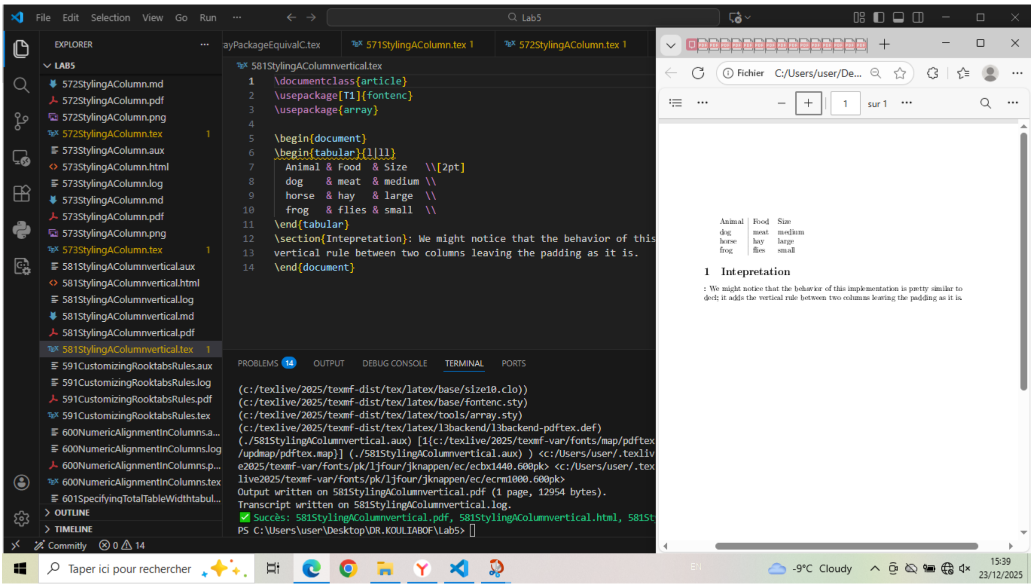
18 581StylingAColumnvertical - Vertical Rules

```
\documentclass{article}
\usepackage[T1]{fontenc}
\usepackage{array}

\begin{document}
\begin{tabular}{l|ll}
  Animal & Food  & Size   \\[2pt]
  dog    & meat  & medium \\
  horse  & hay   & large  \\
  frog   & flies & small  \\
\end{tabular}
\section{Intepretation}: We might notice that the behavior of this
   implementation is pretty similar to \\{decl}; it adds the
vertical rule between two columns leaving the padding as it is.
\end{document}
```

Generated figure

Table with vertical rule and row spacing.

Screenshot


File
Edit
Selection
View
Go
Run
Lab5
EXPLORER
LABS
572StylingAColumn.md
572StylingAColumn.pdf
572StylingAColumn.png
572StylingAColumn.tex
573StylingAColumn.aux
573StylingAColumn.html
573StylingAColumn.log
573StylingAColumn.md
573StylingAColumn.pdf
573StylingAColumn.png
573StylingAColumn.tex
581StylingAColumnvertical.aux
581StylingAColumnvertical.html
581StylingAColumnvertical.log
581StylingAColumnvertical.md
581StylingAColumnvertical.pdf
581StylingAColumnvertical.tex
591CustomizingRooktabsRules.aux
591CustomizingRooktabsRules.log
591CustomizingRooktabsRules.pdf
591CustomizingRooktabsRules.tex
600NumericAlignmentInColumns.a...
600NumericAlignmentInColumns.log
600NumericAlignmentInColumns.p...
600NumericAlignmentInColumns.tex
601SpecifyingTotalTableWidthtabul...
OUTLINE
TIMELINE
Commitly
ayPackageEquivalC.tex
571StylingAColumn.tex 1
572StylingAColumn.tex 1
581StylingAColumnvertical.tex
PROBLEMS 14
OUTPUT
DEBUG CONSOLE
TERMINAL
PORTS
Fichier
C:/Users/user/De...
1
sur 1
Taper ici pour rechercher
-9°C Cloudy
15:39
23/12/2025

```
\documentclass{article}
\usepackage[T1]{fontenc}
\usepackage{array}

\begin{document}
\begin{tabular}{l|ll}
  Animal & Food  & Size   \\[2pt]
  dog    & meat  & medium \\
  horse  & hay   & large  \\
  frog   & flies & small  \\
\end{tabular}
\section{Intepretation}: We might notice that the behavior of this
vertical rule between two columns leaving the padding as it is.
\end{document}
```

```
(c:/texlive/2025/texmf-dist/tex/latex/base/size10.clo))
(c:/texlive/2025/texmf-dist/tex/latex/base/fontenc.sty)
(c:/texlive/2025/texmf-dist/tex/latex/tools/array.sty)
(c:/texlive/2025/texmf-dist/tex/latex/l3backend/l3backend-pdftex.def)
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/updmap/pdftex.map}] (./581StylingAColumnvertical.aux) ) <c:/Users/user/.texliv
e2025/texmf-var/fonts/pk/ljfour/jknappen/ec/ecbx1440.600pk> <c:/Users/user/.tex
live2025/texmf-var/fonts/pk/ljfour/jknappen/ec/ecrm1000.600pk>
Output written on 581StylingAColumnvertical.pdf (1 page, 12954 bytes).
Transcript written on 581StylingAColumnvertical.log.
✅ Succès: 581StylingAColumnvertical.pdf, 581StylingAColumnvertical.html, 581St
PS C:\Users\user\Desktop\DR.KOULIABOF\Lab5> 
```

Animal	Food	Size
dog	meat	medium
horse	hay	large
frog	flies	small

1 Intepretation

: We might notice that the behavior of this implementation is pretty similar to decl; it adds the vertical rule between two columns leaving the padding as it is.

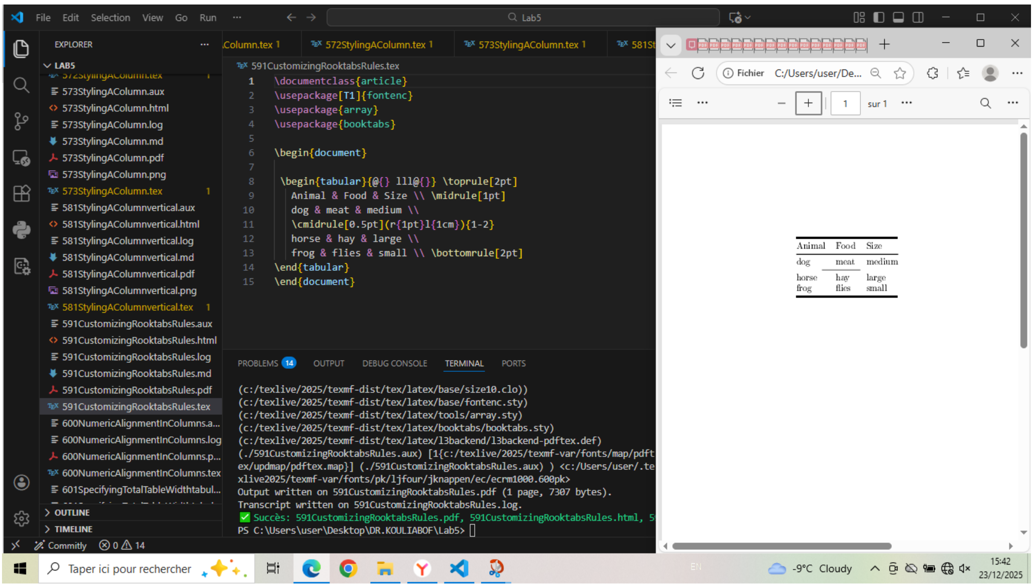
19 591CustomizingRooktabsRules - Custom Rule Thickness

```
\documentclass{article}
\usepackage[T1]{fontenc}
\usepackage{array}
\usepackage{booktabs}

\begin{document}

 \begin{tabular}{@{} lll@{}} \toprule[2pt]
   Animal & Food & Size \\ \midrule[1pt]
   dog & meat & medium \\
   \cmidrule[0.5pt](r{1pt}l{1cm}){1-2}
   horse & hay & large \\
   frog & flies & small \\ \bottomrule[2pt]
\end{tabular}
\end{document}
```

Generated figure

Table with customized rule thickness.

Screenshot



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Lab5
EXPLORER
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572StylingAColumn.tex
573StylingAColumn.aux
573StylingAColumn.html
573StylingAColumn.log
573StylingAColumn.md
573StylingAColumn.pdf
573StylingAColumn.png
573StylingAColumn.tex
581StylingAColumnvertical.aux
581StylingAColumnvertical.html
581StylingAColumnvertical.log
581StylingAColumnvertical.md
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581StylingAColumnvertical.png
581StylingAColumnvertical.tex
591CustomizingRooktabsRules.aux
591CustomizingRooktabsRules.html
591CustomizingRooktabsRules.log
591CustomizingRooktabsRules.md
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573StylingAColumn.tex 1
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591CustomizingRooktabsRules.tex
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15:42
23/12/2025

```
\documentclass{article}
\usepackage[T1]{fontenc}
\usepackage{array}
\usepackage{booktabs}

\begin{document}

 \begin{tabular}{@{} lll@{}} \toprule[2pt]
   Animal & Food & Size \\ \midrule[1pt]
   dog & meat & medium \\
   \cmidrule[0.5pt](r{1pt}l{1cm}){1-2}
   horse & hay & large \\
   frog & flies & small \\ \bottomrule[2pt]
\end{tabular}
\end{document}
```

```
(c:/texlive/2025/texmf-dist/tex/latex/base/size10.clo))
(c:/texlive/2025/texmf-dist/tex/latex/base/fontenc.sty)
(c:/texlive/2025/texmf-dist/tex/latex/tools/array.sty)
(c:/texlive/2025/texmf-dist/tex/latex/booktabs/booktabs.sty)
(c:/texlive/2025/texmf-dist/tex/latex/l3backend/l3backend-pdftex.def)
(./591CustomizingRooktabsRules.aux) [1{c:/texlive/2025/texmf-var/fonts/map/pdft
ex/updmap/pdftex.map}] (./591CustomizingRooktabsRules.aux) ) <c:/Users/user/.te
xlive2025/texmf-var/fonts/pk/ljfour/jknappen/ec/ecrm1000.600pk>
Output written on 591CustomizingRooktabsRules.pdf (1 page, 7307 bytes).
Transcript written on 591CustomizingRooktabsRules.log.
✅ Succès: 591CustomizingRooktabsRules.pdf, 591CustomizingRooktabsRules.html, 5
PS C:\Users\user\Desktop\DR.KOULIABOF\Lab5> 
```

Animal	Food	Size
dog	meat	medium
horse	hay	large
frog	flies	small

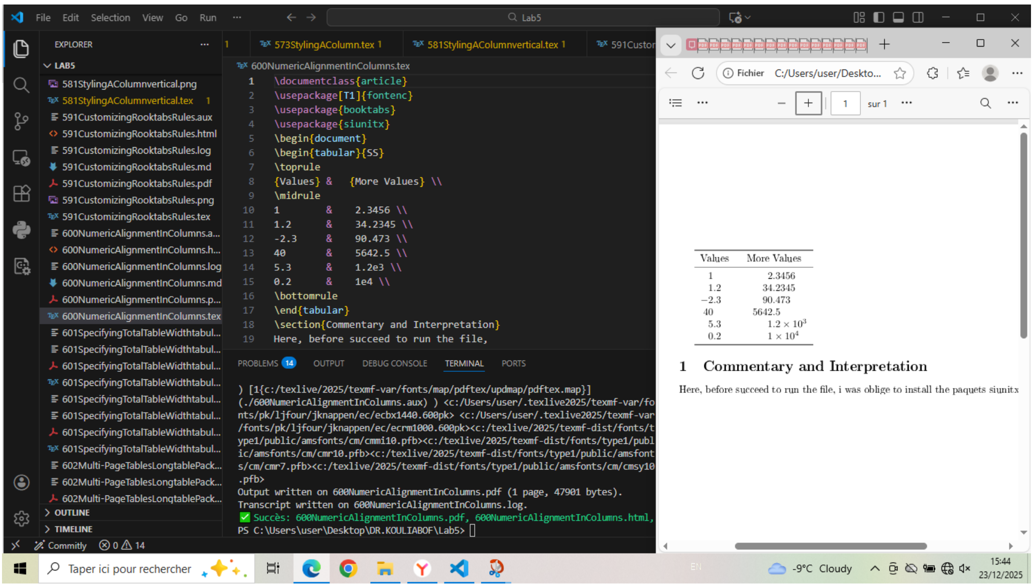
20 600NumericAlignmentInColumns - Numeric Alignment with siunitx

```
\documentclass{article}
\usepackage[T1]{fontenc}
\usepackage{booktabs}
\usepackage{siunitx}
\begin{document}
\begin{tabular}{SS}
\toprule
{Values} &   {More Values} \\
\midrule
1        &     2.3456 \\
1.2      &     34.2345 \\
-2.3     &     90.473 \\
40       &     5642.5 \\
5.3      &     1.2e3 \\
0.2      &     1e4 \\
\bottomrule
\end{tabular}
\section{Commentary and Interpretation}
Here, before succeed to run the file,
i was oblige to install the paquets siunitx.
\end{document}
```

Generated figure

Table with numeric alignment using siunitx S columns.

Screenshot


File Edit Selection View Go Run ···
Lab5
EXPLORER
LAB5
581StylingAColumnvertical.png
581StylingAColumnvertical.tex 1
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591CustomizingRooktabsRules.html
591CustomizingRooktabsRules.log
591CustomizingRooktabsRules.md
591CustomizingRooktabsRules.pdf
591CustomizingRooktabsRules.png
591CustomizingRooktabsRules.tex
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600NumericAlignmentInColumns.h...
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600NumericAlignmentInColumns.p...
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601SpecifyingTotalTableWidthtabul...
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601SpecifyingTotalTableWidthtabul...
602Multi-PageTablesLongtablePack...
602Multi-PageTablesLongtablePack...
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Fichier C:/Users/user/Deskto...
1 sur 1
Taper ici pour rechercher
-9°C Cloudy
15:44
23/12/2025

```
\documentclass{article}
\usepackage[T1]{fontenc}
\usepackage{booktabs}
\usepackage{siunitx}
\begin{document}
\begin{tabular}{SS}
\toprule
{Values} &   {More Values} \\
\midrule
1        &    2.3456 \\
1.2      &    34.2345 \\
-2.3     &    90.473 \\
40       &    5642.5 \\
5.3      &    1.2e3 \\
0.2      &    1e4 \\
\bottomrule
\end{tabular}
\section{Commentary and Interpretation}
Here, before succeed to run the file,
```

```
) [1{c:/texlive/2025/texmf-var/fonts/map/pdftex/updmap/pdftex.map}]
(./600NumericAlignmentInColumns.aux) ) <c:/Users/user/.texlive2025/texmf-var/fo
nts/pk/ljfour/jknappen/ec/ecbx1440.600pk> <c:/Users/user/.texlive2025/texmf-var
/fonts/pk/ljfour/jknappen/ec/ecrm1000.600pk><c:/texlive/2025/texmf-dist/fonts/t
ype1/public/amsfonts/cm/cmmi10.pfb><c:/texlive/2025/texmf-dist/fonts/type1/publ
ic/amsfonts/cm/cmr10.pfb><c:/texlive/2025/texmf-dist/fonts/type1/public/amsfont
s/cm/cmr7.pfb><c:/texlive/2025/texmf-dist/fonts/type1/public/amsfonts/cm/cmsy10
.pfb>
Output written on 600NumericAlignmentInColumns.pdf (1 page, 47901 bytes).
Transcript written on 600NumericAlignmentInColumns.log.
✅ Succès: 600NumericAlignmentInColumns.pdf, 600NumericAlignmentInColumns.html,
PS C:\Users\user\Desktop\DR.KOULIABOF\Lab5> 
```

Values	More Values
1	2.3456
1.2	34.2345
−2.3	90.473
40	5642.5
5.3	1.2×10^3
0.2	1×10^4

1 Commentary and Interpretation

Here, before succeed to run the file, i was oblige to install the paquets siunitx

---

21 601SpecifyingTotalTableWidthtabularx - tabularx Environment

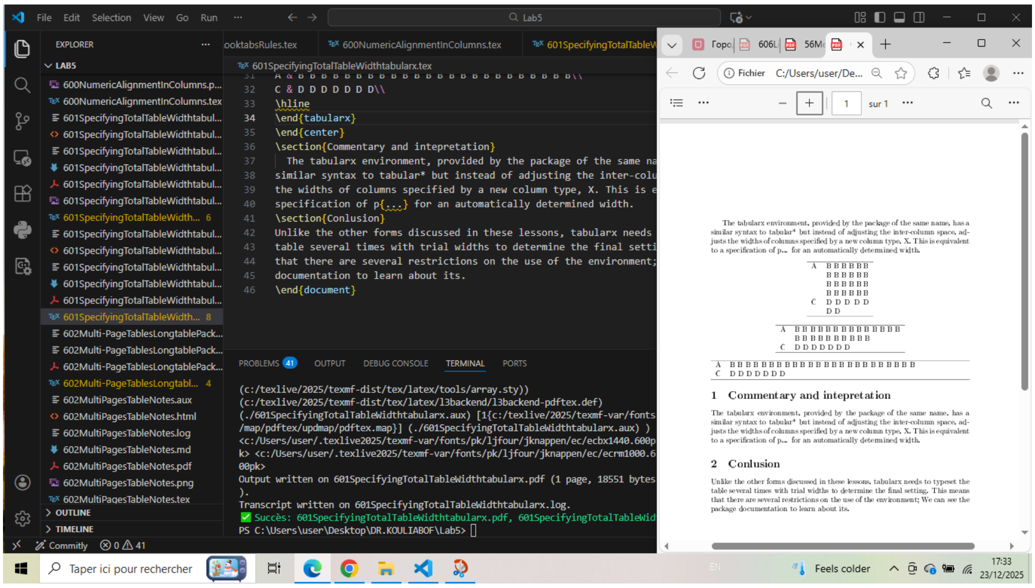
```
\documentclass{article}
\usepackage[T1]{fontenc}
\usepackage{tabularx}
\begin{document}

The tabularx environment, provided by the package of the same name, has a
similar syntax to tabular* but instead of adjusting the inter-column space,
    adjusts
the widths of columns specified by a new column type, X. This is equivalent
    to a
specification of p{...} for an automatically determined width.

\begin{center}
\begin{tabular}{lp{2cm}}
\hline
A & B B B B B B B B B B B B B B B B B B B B B B B B\\
C & D D D D D D D\\
\hline
\end{tabular}
\end{center}
\begin{center}
\begin{tabularx}{.5\textwidth}{lX}
\hline
A & B B B B B B B B B B B B B B B B B B B B B B B B\\
C & D D D D D D D\\
\hline
\end{tabularx}

\end{center}
\begin{center}
\begin{tabularx}{\textwidth}{lX}
```

```
\hline
A & B B B B B B B B B B B B B B B B B B B B B B B B B B\\
C & D D D D D D D\\
\hline
\end{tabularx}
\end{center}
\section{Commentary and intepretation}
  The tabularx environment, provided by the package of the same name, has a
similar syntax to tabular* but instead of adjusting the inter-column space,
    adjusts
the widths of columns specified by a new column type, X. This is equivalent
    to a
specification of p{...} for an automatically determined width.
\section{Conlusion}
Unlike the other forms discussed in these lessons, tabularx needs to typeset
    the
table several times with trial widths to determine the final setting. This
    means
that there are several restrictions on the use of the environment; We can
    see the package
documentation to learn about its.
\end{document}
```

Generated figure

Tables demonstrating tabularx with X columns.

Screenshot



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1 sur 1
Taper ici pour rechercher
Feels colder
17:33
23/12/2025

```
C & D D D D D D D\\
\hline
\end{tabularx}
\end{center}
\section{Commentary and intepretation}
  The tabularx environment, provided by the package of the same na
similar syntax to tabular* but instead of adjusting the inter-colu
the widths of columns specified by a new column type, X. This is e
specification of p{...} for an automatically determined width.
\section{Conlusion}
Unlike the other forms discussed in these lessons, tabularx needs
table several times with trial widths to determine the final setti
that there are several restrictions on the use of the environment;
documentation to learn about its.
\end{document}
```

```
(c:/texlive/2025/texmf-dist/tex/latex/tools/array.sty))
(c:/texlive/2025/texmf-dist/tex/latex/l3backend/l3backend-pdftex.def)
(./601SpecifyingTotalTableWidthtabularx.aux) [1{c:/texlive/2025/texmf-var/fonts
/map/pdftex/updmap/pdftex.map}] (./601SpecifyingTotalTableWidthtabularx.aux) )
<c:/Users/user/.texlive2025/texmf-var/fonts/pk/ljfour/jknappen/ec/ecbx1440.600p
k> <c:/Users/user/.texlive2025/texmf-var/fonts/pk/ljfour/jknappen/ec/ecrm1000.6
00pk>
Output written on 601SpecifyingTotalTableWidthtabularx.pdf (1 page, 18551 bytes
).
Transcript written on 601SpecifyingTotalTableWidthtabularx.log.
✅ Succès: 601SpecifyingTotalTableWidthtabularx.pdf, 601SpecifyingTotalTableWid
PS C:\Users\user\Desktop\DR.KOULIABOF\Lab5> 
```

The tabularx environment, provided by the package of the same name, has a similar syntax to tabular* but instead of adjusting the inter-column space, adjusts the widths of columns specified by a new column type, X. This is equivalent to a specification of p... for an automatically determined width.

```
A  B B B B B B
   B B B B B B
   B B B B B B
   B B B B B B
C  D D D D D
   D D

A  B B B B B B B B B B B B B B
   B B B B B B B B B B
C  D D D D D D D

A  B B B B B B B B B B B B B B B B B B B B B B B B B B
C  D D D D D D D
```

1 Commentary and intepretation

The tabularx environment, provided by the package of the same name, has a similar syntax to tabular* but instead of adjusting the inter-column space, adjusts the widths of columns specified by a new column type, X. This is equivalent to a specification of p... for an automatically determined width.

2 Conlusion

Unlike the other forms discussed in these lessons, tabularx needs to typeset the table several times with trial widths to determine the final setting. This means that there are several restrictions on the use of the environment; We can see the package documentation to learn about its.

22 602MultiPagesTableNotes - Table with Notes

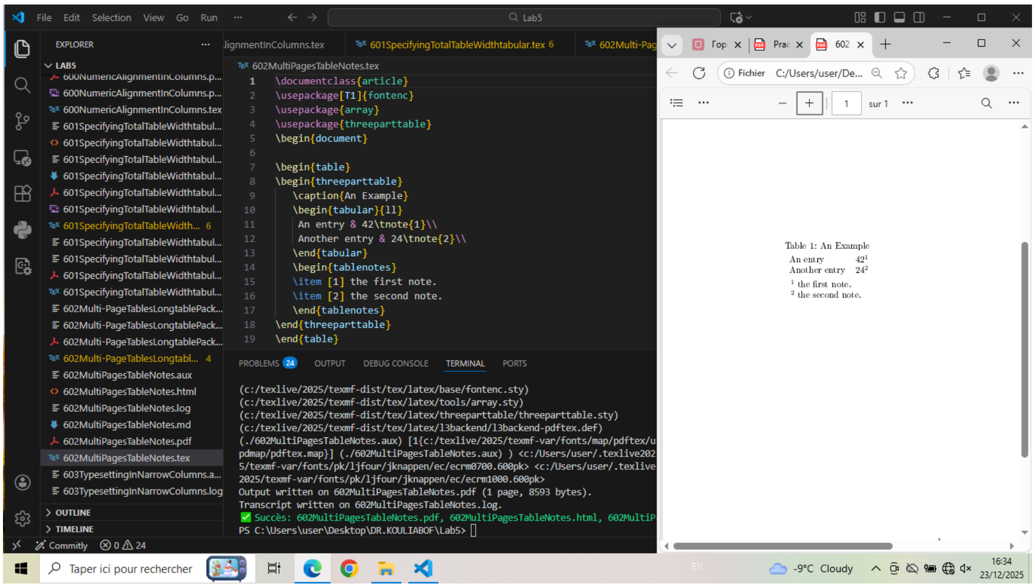
```
\documentclass{article}
\usepackage[T1]{fontenc}
\usepackage{array}
```

```
\usepackage{threeparttable}
\begin{document}

\begin{table}
\begin{threeparttable}
   \caption{An Example}
   \begin{tabular}{ll}
    An entry & 42\tnote{1}\\
    Another entry & 24\tnote{2}\\
   \end{tabular}
   \begin{tablenotes}
   \item [1] the first note.
   \item [2] the second note.
   \end{tablenotes}
\end{threeparttable}
\end{table}
\end{document}
```

Generated figure

Table with footnotes using threeparttable.

Screenshot



```
\documentclass{article}
\usepackage[T1]{fontenc}
\usepackage{array}
\usepackage{threeparttable}
\begin{document}

\begin{table}
\begin{threeparttable}
   \caption{An Example}
   \begin{tabular}{ll}
    An entry & 42\tnote{1}\\
    Another entry & 24\tnote{2}\\
   \end{tabular}
   \begin{tablenotes}
   \item [1] the first note.
   \item [2] the second note.
   \end{tablenotes}
\end{threeparttable}
\end{table}
```

```
(c:/texlive/2025/texmf-dist/tex/latex/base/fontenc.sty)
(c:/texlive/2025/texmf-dist/tex/latex/tools/array.sty)
(c:/texlive/2025/texmf-dist/tex/latex/threeparttable/threeparttable.sty)
(c:/texlive/2025/texmf-dist/tex/latex/l3backend/l3backend-pdftex.def)
(./602MultiPagesTableNotes.aux) [1{c:/texlive/2025/texmf-var/fonts/map/pdftex/u
pdmap/pdftex.map}] (./602MultiPagesTableNotes.aux) ) <c:/Users/user/.texlive202
5/texmf-var/fonts/pk/ljfour/jknappen/ec/ecrm0700.600pk> <c:/Users/user/.texlive
2025/texmf-var/fonts/pk/ljfour/jknappen/ec/ecrm1000.600pk>
Output written on 602MultiPagesTableNotes.pdf (1 page, 8593 bytes).
Transcript written on 602MultiPagesTableNotes.log.
✅ Succès: 602MultiPagesTableNotes.pdf, 602MultiPagesTableNotes.html, 602MultiP
PS C:\Users\user\Desktop\DR.KOULIABOF\Lab5> 
```

Table 1: An Example

An entry	42[1]
Another entry	24[2]

[1] the first note.
[2] the second note.

23 602Multi-PageTablesLongtablePackage - Longtable Example

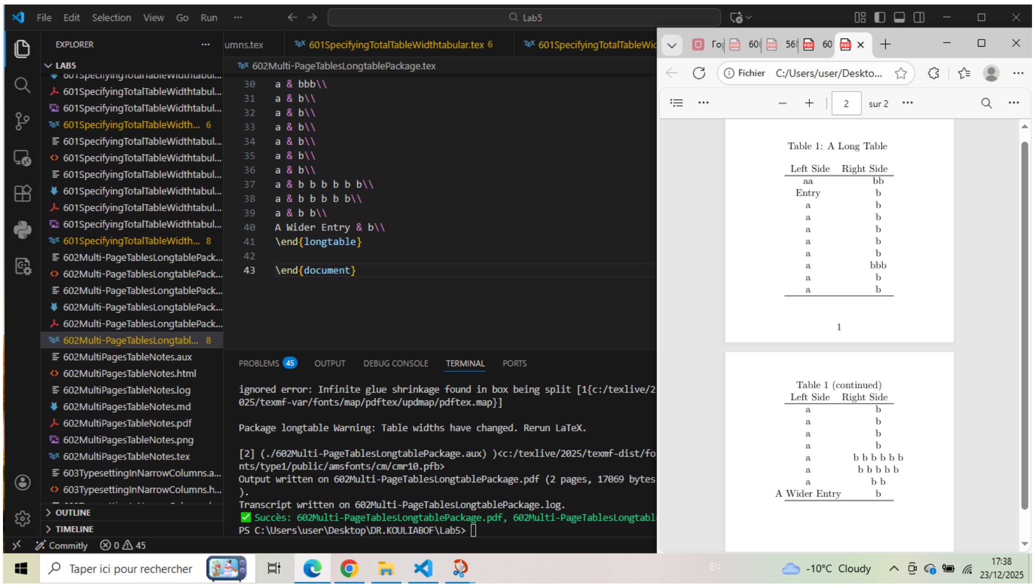
```
\documentclass{article}
\usepackage[paperheight=8cm,paperwidth=8cm]{geometry}
\usepackage{array}
\usepackage{longtable}
\begin{document}

```

```
\begin{longtable}{cc}
\caption{A Long Table} \\
Left Side & Right Side\\
\hline
\endfirsthead

\multicolumn{2}{c}{\tablename\ \thetable\ (continued)} \\
Left Side & Right Side\\
\hline
\endhead

\hline
\endfoot
\hline
\endlastfoot

aa & bb\\
Entry & b\\
a & b\\
a & b\\
a & b\\
a & b\\
a & b\\
a & bbb\\
a & b\\
a & b\\
a & b\\
a & b\\
a & b\\
a & b\\
a & b b b b b b\\
a & b b b b b\\
a & b b\\
A Wider Entry & b\\
\end{longtable}

\end{document}
```

Generated figure

Multi-page table using longtable package.

Screenshot



602Multi-PageTablesLongtablePackage.tex

```
a & bbb\\
a & b\\
a & b\\
a & b\\
a & b\\
a & b\\
a & b\\
a & b b b b b b\\
a & b b b b b\\
a & b b\\
A Wider Entry & b\\
\end{longtable}

\end{document}
```

```
ignored error: Infinite glue shrinkage found in box being split [1{c:/texlive/2
025/texmf-var/fonts/map/pdftex/updmap/pdftex.map}]

Package longtable Warning: Table widths have changed. Rerun LaTeX.

[2] (./602Multi-PageTablesLongtablePackage.aux) )<c:/texlive/2025/texmf-dist/fo
nts/type1/public/amsfonts/cm/cmr10.pfb>
Output written on 602Multi-PageTablesLongtablePackage.pdf (2 pages, 17069 bytes
).
Transcript written on 602Multi-PageTablesLongtablePackage.log.
✅ Succès: 602Multi-PageTablesLongtablePackage.pdf, 602Multi-PageTablesLongtabl
PS C:\Users\user\Desktop\DR.KOULIABOF\Lab5> 
```

Table 1: A Long Table

Left Side	Right Side
aa	bb
Entry	b
a	b
a	b
a	b
a	b
a	b
a	bbb
a	b
a	b

1

Table 1 (continued)

Left Side	Right Side
a	b
a	b
a	b
a	b
a	b b b b b b
a	b b b b b
a	b b
A Wider Entry	b

---

24 603TypesettingInNarrowColumns - Text in Narrow Columns

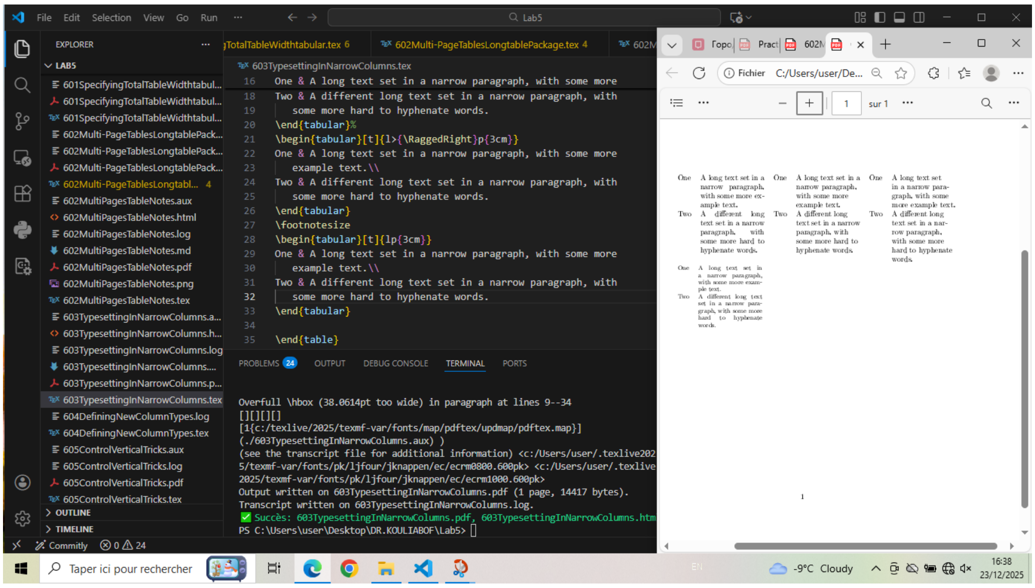
```
\documentclass[a4paper]{article}
\usepackage[T1]{fontenc}
\usepackage{array}
\usepackage{ragged2e}
\begin{document}

\begin{table}

\begin{tabular}[t]{lp{3cm}}
One & A long text set in a narrow paragraph, with some more
   example text.\\
Two & A different long text set in a narrow paragraph, with
   some more hard to hyphenate words.
\end{tabular}%
\begin{tabular}[t]{l>{\raggedright\arraybackslash}p{3cm}}
One & A long text set in a narrow paragraph, with some more
   example text.\\
Two & A different long text set in a narrow paragraph, with
   some more hard to hyphenate words.
\end{tabular}%
\begin{tabular}[t]{l>{\RaggedRight}p{3cm}}
One & A long text set in a narrow paragraph, with some more
   example text.\\
Two & A different long text set in a narrow paragraph, with
   some more hard to hyphenate words.
\end{tabular}
\footnotesize
\begin{tabular}[t]{lp{3cm}}
One & A long text set in a narrow paragraph, with some more
   example text.\\
Two & A different long text set in a narrow paragraph, with
   some more hard to hyphenate words.
```

```
\end{tabular}

\end{table}

\end{document}
```

Generated figure

Tables with text in narrow columns and different text alignment.

Screenshot



File Edit Selection View Go Run ···
Lab5
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TotalTableWidthtabular.tex 6
602Multi-PageTablesLongtablePackage.tex 4
603TypesettingInNarrowColumns.tex
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PORTS
Fichier C:/Users/user/De...
1 sur 1

```
One & A long text set in a narrow paragraph, with some more
Two & A different long text set in a narrow paragraph, with
    some more hard to hyphenate words.
\end{tabular}%
\begin{tabular}[t]{l>{\RaggedRight}p{3cm}}
One & A long text set in a narrow paragraph, with some more
    example text.\\
Two & A different long text set in a narrow paragraph, with
    some more hard to hyphenate words.
\end{tabular}
\footnotesize
\begin{tabular}[t]{lp{3cm}}
One & A long text set in a narrow paragraph, with some more
    example text.\\
Two & A different long text set in a narrow paragraph, with
    some more hard to hyphenate words.
\end{tabular}

\end{table}
```

```
Overfull \hbox (38.0614pt too wide) in paragraph at lines 9--34
[][][][]
[1{c:/texlive/2025/texmf-var/fonts/map/pdftex/updmap/pdftex.map}]
(./603TypesettingInNarrowColumns.aux) )
(see the transcript file for additional information) <c:/Users/user/.texlive202
5/texmf-var/fonts/pk/ljfour/jknappen/ec/ecrm0800.600pk> <c:/Users/user/.texlive
2025/texmf-var/fonts/pk/ljfour/jknappen/ec/ecrm1000.600pk>
Output written on 603TypesettingInNarrowColumns.pdf (1 page, 14417 bytes).
Transcript written on 603TypesettingInNarrowColumns.log.
✅ Succès: 603TypesettingInNarrowColumns.pdf, 603TypesettingInNarrowColumns.htm
PS C:\Users\user\Desktop\DR.KOULIABOF\Lab5> 
```

One	A long text set in a narrow paragraph, with some more example text.	One	A long text set in a narrow paragraph, with some more example text.	One	A long text set in a narrow paragraph, with some more example text.
Two	A different long text set in a narrow paragraph, with some more hard to hyphenate words.	Two	A different long text set in a narrow paragraph, with some more hard to hyphenate words.	Two	A different long text set in a narrow paragraph, with some more hard to hyphenate words.

One	A long text set in a narrow paragraph, with some more example text.
Two	A different long text set in a narrow paragraph, with some more hard to hyphenate words.

25 605ControlVerticalTricks - Vertical Alignment Control

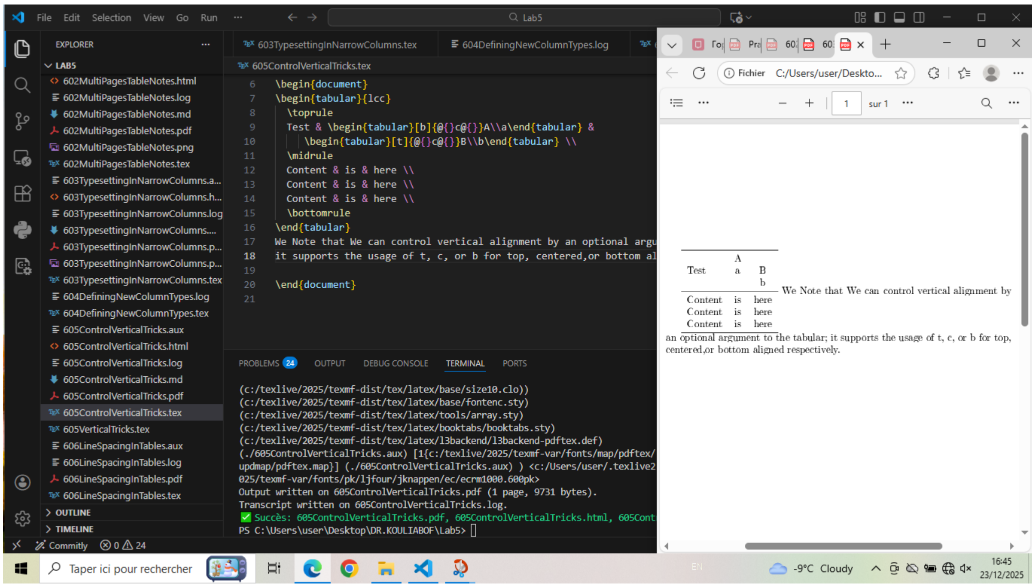
```
\documentclass{article}
\usepackage[T1]{fontenc}
\usepackage{array}
\usepackage{booktabs}

\begin{document}
\begin{tabular}{lcc}
  \toprule
  Test & \begin{tabular}[b]{@{}c@{}}A\\a\end{tabular} &
     \begin{tabular}[t]{@{}c@{}}B\\b\end{tabular} \\
  \midrule
  Content & is & here \\
  Content & is & here \\
  Content & is & here \\
  \bottomrule
\end{tabular}
We Note that We can control vertical alignment by an optional argument to
   the tabular;
it supports the usage of t, c, or b for top, centered,or bottom aligned
   respectively.
```

```
\end{document}
```

Generated figure

Table with nested tables demonstrating vertical alignment.

Screenshot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```
\begin{document}
\begin{tabular}{lcc}
  \toprule
  Test & \begin{tabular}[b]{@{}c@{}}A\\a\end{tabular} &
      \begin{tabular}[t]{@{}c@{}}B\\b\end{tabular} \\
  \midrule
  Content & is & here \\
  Content & is & here \\
  Content & is & here \\
  \bottomrule
\end{tabular}
We Note that We can control vertical alignment by an optional argu
it supports the usage of t, c, or b for top, centered,or bottom al

\end{document}
```

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PS C:\Users\user\Desktop\DR.KOULIABOF\Lab5> 
```

Test	A a	B b
Content	is	here
Content	is	here
Content	is	here

We Note that We can control vertical alignment by an optional argument to the tabular; it supports the usage of t, c, or b for top, centered,or bottom aligned respectively.

26 605VerticalTricks - Nested Tables

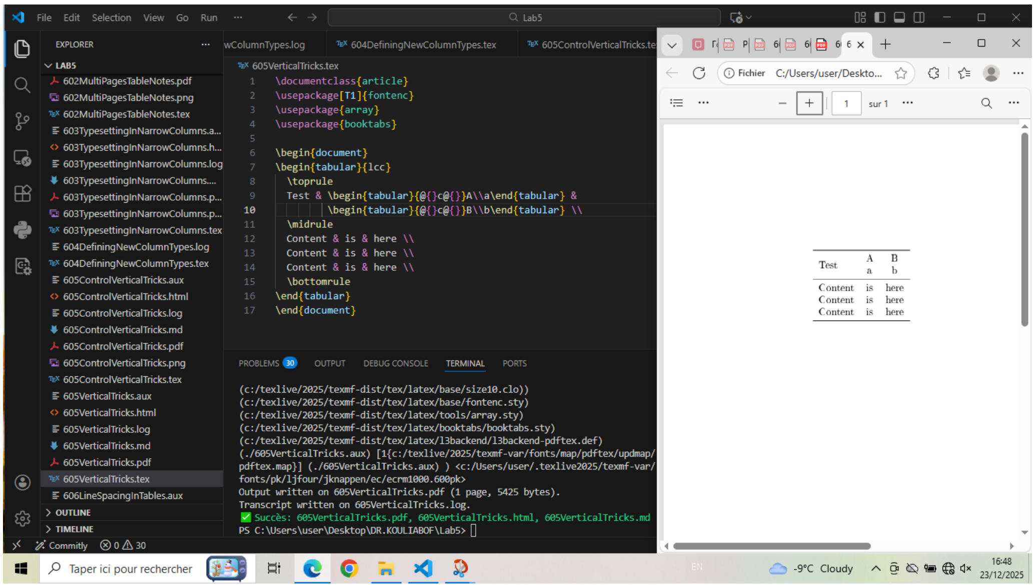
```
\documentclass{article}
\usepackage[T1]{fontenc}
\usepackage{array}
\usepackage{booktabs}

\begin{document}
\begin{tabular}{lcc}
  \toprule
  Test & \begin{tabular}{@{}c@{}}A\\a\end{tabular} &
         \begin{tabular}{@{}c@{}}B\\b\end{tabular} \\
  \midrule
  Content & is & here \\
  Content & is & here \\
  Content & is & here \\
  \bottomrule
\end{tabular}
\end{document}
```

Generated figure

Table with centered nested tables.

Screenshot



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```
\documentclass{article}
\usepackage[T1]{fontenc}
\usepackage{array}
\usepackage{booktabs}

\begin{document}
\begin{tabular}{lcc}
  \toprule
  Test & \begin{tabular}{@{}c@{}}A\\a\end{tabular} &
        \begin{tabular}{@{}c@{}}B\\b\end{tabular} \\
  \midrule
  Content & is & here \\
  Content & is & here \\
  Content & is & here \\
  \bottomrule
\end{tabular}
\end{document}
```

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Transcript written on 605VerticalTricks.log.
✅ Succès: 605VerticalTricks.pdf, 605VerticalTricks.html, 605VerticalTricks.md
PS C:\Users\user\Desktop\DR.KOULIABOF\Lab5> 
```

Test	A a	B b
Content	is	here
Content	is	here
Content	is	here

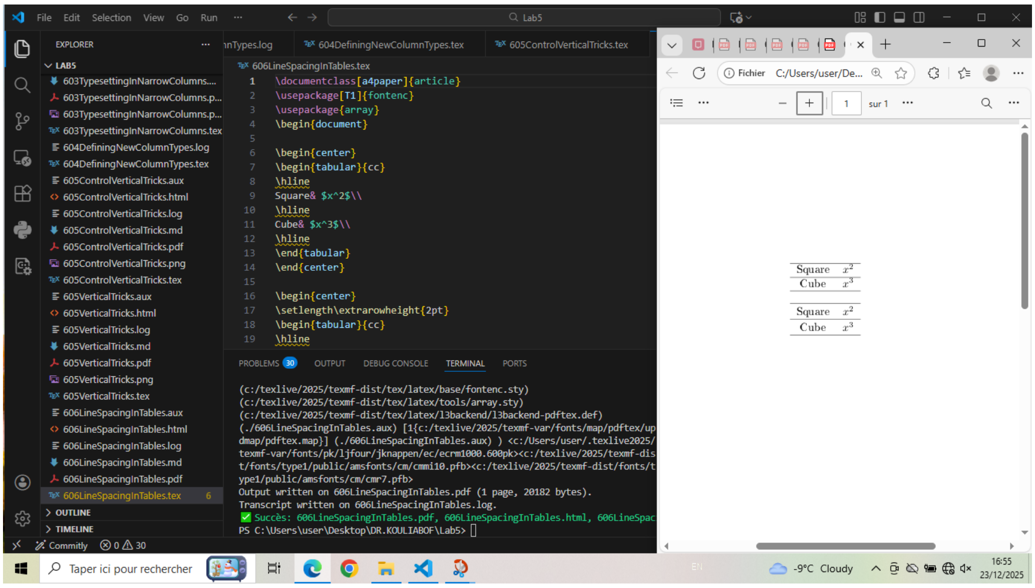
27 606LineSpacingInTables - Line Spacing Control

```
\documentclass[a4paper]{article}
\usepackage[T1]{fontenc}
\usepackage{array}
\begin{document}

\begin{center}
\begin{tabular}{cc}
\hline
Square& $x^2$\\
\hline
Cube& $x^3$\\
\hline
\end{tabular}
\end{center}

\begin{center}
\setlength\extrarowheight{2pt}
\begin{tabular}{cc}
\hline
Square& $x^2$\\
\hline
Cube& $x^3$\\
\hline
\end{tabular}
\end{center}
\end{document}
```

Generated figure

Tables demonstrating line spacing control with extrarowheight.

Screenshot



606LineSpacingInTables.tex

```
\documentclass[a4paper]{article}
\usepackage[T1]{fontenc}
\usepackage{array}
\begin{document}

\begin{center}
\begin{tabular}{cc}
\hline
Square& $x^2$\\
\hline
Cube& $x^3$\\
\hline
\end{tabular}
\end{center}

\begin{center}
\setlength\extrarowheight{2pt}
\begin{tabular}{cc}
\hline
```

```
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dmap/pdftex.map}] (./606LineSpacingInTables.aux) ) <c:/Users/user/.texlive2025/
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t/fonts/type1/public/amsfonts/cm/cmmi10.pfb><c:/texlive/2025/texmf-dist/fonts/t
ype1/public/amsfonts/cm/cmr7.pfb>
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PS C:\Users\user\Desktop\DR.KOULIABOF\Lab5> 
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---

28 601SpecifyingTotalTableWidthtabular - Fixed Width Tables

```
\documentclass{article}
\usepackage[T1]{fontenc}
\usepackage{array}
\begin{document}

\begin{center}
\begin{tabular}{cc}
\hline
A & B\\
C & D\\
\hline
\end{tabular}
\end{center}

\begin{center}
\begin{tabular*}{.5\textwidth}{@{\extracolsep{\fill}}cc@{}}
\hline
A & B\\
C & D\\
\hline
\end{tabular*}

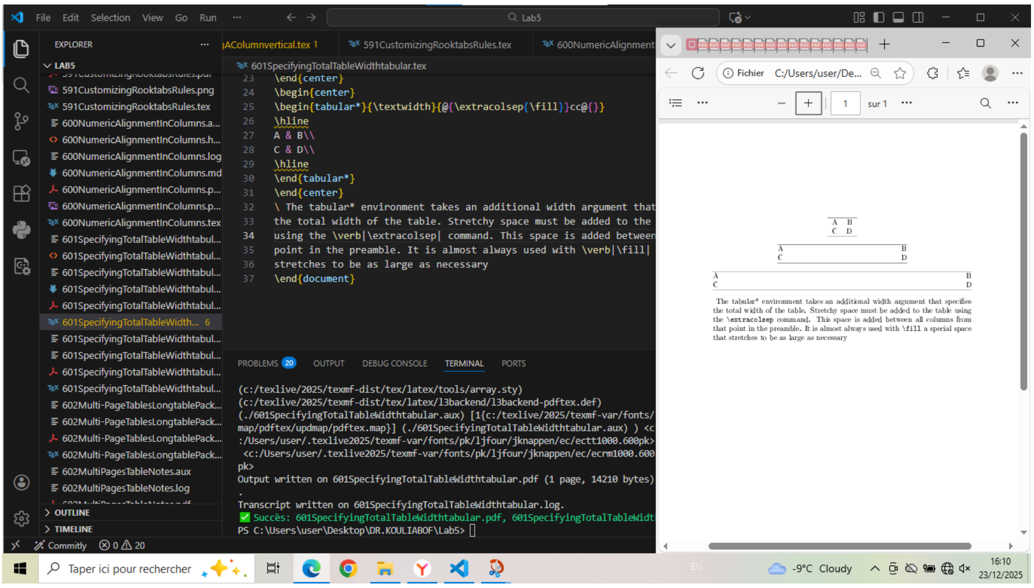
\end{center}
\begin{center}
\begin{tabular*}{\textwidth}{@{\extracolsep{\fill}}cc@{}}
\hline
A & B\\
C & D\\
\hline
\end{tabular*}
\end{center}
```

```
\ The tabular* environment takes an additional width argument that specifies
the total width of the table. Stretchy space must be added to the table
using the \verb|\extracolsep| command. This space is added between all
    columns from that
point in the preamble. It is almost always used with \verb|\fill| a special
    space that
stretches to be as large as necessary
\end{document}
```

Generated figure

Tables with specified total width using tabular*.

Screenshot



```
\end{center}
\begin{center}
\begin{tabular*}{\textwidth}{@{\extracolsep{\fill}}cc@{}}
\hline
A & B\\
C & D\\
\hline
\end{tabular*}
\end{center}
\ The tabular* environment takes an additional width argument that
the total width of the table. Stretchy space must be added to the
using the \verb|\extracolsep| command. This space is added between
point in the preamble. It is almost always used with \verb|\fill|
stretches to be as large as necessary
\end{document}
```

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map/pdftex/updmap/pdftex.map}] (./601SpecifyingTotalTableWidthtabular.aux) ) <c
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PS C:\Users\user\Desktop\DR.KOULIABOF\Lab5> 
```

A	B
C	D

A	B
C	D

A	B
C	D

The tabular* environment takes an additional width argument that specifies the total width of the table. Stretchy space must be added to the table using the \extracolsep command. This space is added between all columns from that point in the preamble. It is almost always used with \fill a special space that stretches to be as large as necessary

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Conclusion: Methodology for Creating Tables

After comprehensive analysis of table examples, here is the structured methodology for creating effective tables:

1. Essential table structure

```
\begin{tabular}{column specifications}
  \toprule
  Header1 & Header2 & Header3 \\
  \midrule
  Data1   & Data2   & Data3   \\
  Data4   & Data5   & Data6   \\
  \bottomrule
\end{tabular}
```

2. Column type specifications

Type	Description	Use Case
l	Left-aligned column	Text data, labels
c	Centered column	Numbers, short text
r	Right-aligned column	Numbers, dates
p{width}	Paragraph column	Long text, descriptions
m{width}	Middle-aligned paragraph	Text with vertical centering
b{width}	Bottom-aligned paragraph	Special layouts
S	Numeric alignment (siunitx)	Decimal numbers, scientific notation
X	Automatic width (tabularx)	Flexible column widths

3. Recommended workflow

Step 1: Plan table structure

- Determine number of columns and rows
- Choose appropriate column types
- Consider table width and alignment

Step 2: Create basic table

1. Set up tabular environment with column specifications
2. Add headers
3. Insert data rows

Step 3: Enhance appearance

- Add rules (toprule, midrule, bottomrule, cmidrule)
- Adjust column spacing (tabcolsep)
- Style columns (>, <, @)
- Add vertical spacing (addlinespace, [dim])

Step 4: Test and refine

- Check width and alignment
- Verify readability
- Test with different data

4. Advanced techniques

Key advanced features:

1. **Multi-column cells**: `\multicolumn{n}{type}{content}`
2. **Column styling**: `>{\itshape}l` for italic first column
3. **Custom separators**: `@{ : }` for colon separator
4. **Fixed width tables**: `tabular*` with `\extracolsep{\fill}`
5. **Vertical alignment**: Optional argument `[t]`, `[c]`, `[b]` to tabular
6. **Numeric formatting**: siunitx package for decimal alignment
7. **Multi-page tables**: longtable package for tables spanning pages
8. **Table notes**: threeparttable package for footnotes

5. Best practices

Practice	**Benefit**
Use booktabs for rules	Professional appearance, proper spacing
Consistent alignment	Improved readability
Appropriate column widths	Balanced layout
Minimal vertical rules	Clean, modern look
Proper header styling	Clear data organization
Adequate spacing	Easy to read and interpret
Use X columns for flexibility	Automatic width adjustment

6. Common issues and solutions

- **Overfull hboxes**: Adjust column widths or use tabularx
- **Poor text wrapping**: Use p{width} column type or ragged2e
- **Uneven spacing**: Adjust tabcolsep or use @ syntax
- **Vertical alignment issues**: Use m{width} or vertical position optional argument
- **Decimal misalignment**: Use siunitx S column type
- **Multi-page tables**: Use longtable instead of tabular
- **Table notes**: Use threeparttable for proper footnote placement

Final recommendation: Start with simple tables using basic column types, gradually incorporate advanced features as needed, and always prioritize clarity and readability. Well-designed tables effectively communicate complex data and enhance document professionalism.