LABORATORY04: Report and Presentation of work on Graphics and Floats
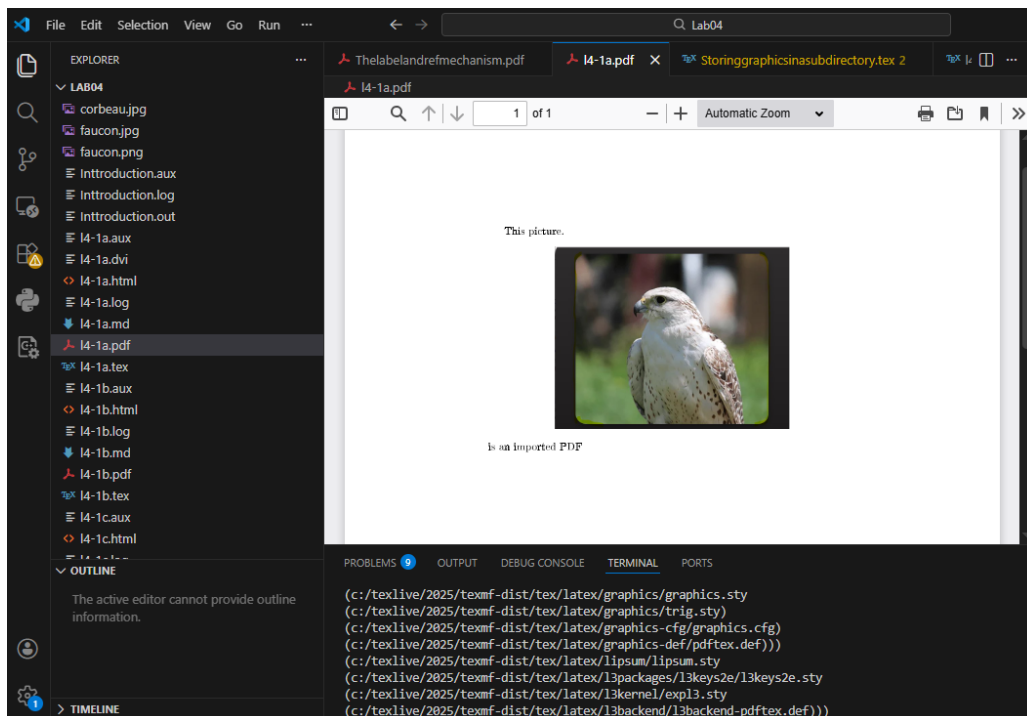
PELE TETE

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Contents

1 l4-1a.tex - Basic Image Inclusion

```
\documentclass{article}
\usepackage[T1]{fontenc}
\usepackage{graphicx}
\begin{document}
This picture.
\begin{center}
    \includegraphics[height=6cm]{faucon.jpg}
\end{center}
is an imported PDF
\end{document}
```

Generated figure

Basic image inclusion with fixed height.

Screenshot

Analysis

This document demonstrates:

- Loading the `graphicx` package for image support

- Using `\includegraphics[height=6cm]{faucon.jpg}` to set fixed height

- Centering the image with `center` environment

2   l4-1b.tex - Relative Dimensions

```
\documentclass{article}
\usepackage[T1]{fontenc}
\usepackage{graphicx}
\begin{document}
\begin{center}
    \includegraphics[height = 5cm\textheight]{faucon.jpg}
\end{center}
Here you can see faucon in the first image and corbeau in the second
\begin{center}
    \includegraphics[width = 6cm\textwidth]{corbeau.jpg}
\end{center}
\end{center}
\end{document}
```
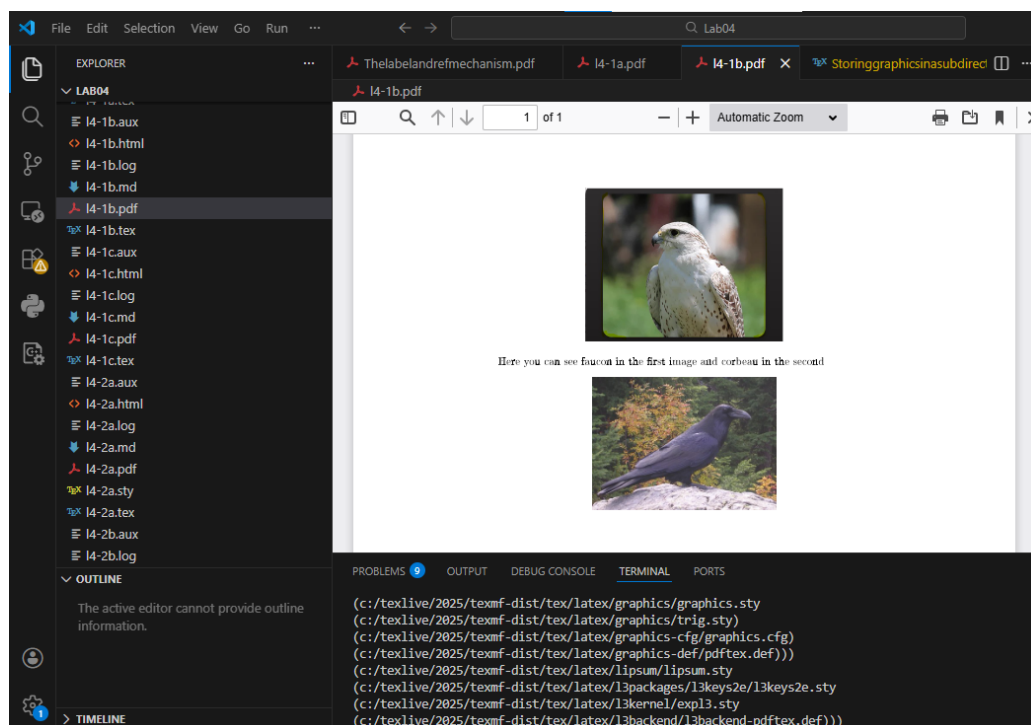
Generated figure

Images sized relative to text height and text width.

Screenshot

Analysis

This document demonstrates:

- Relative sizing: `height = 5cm\textheight`

- Relative sizing: `width = 6cm\textwidth`

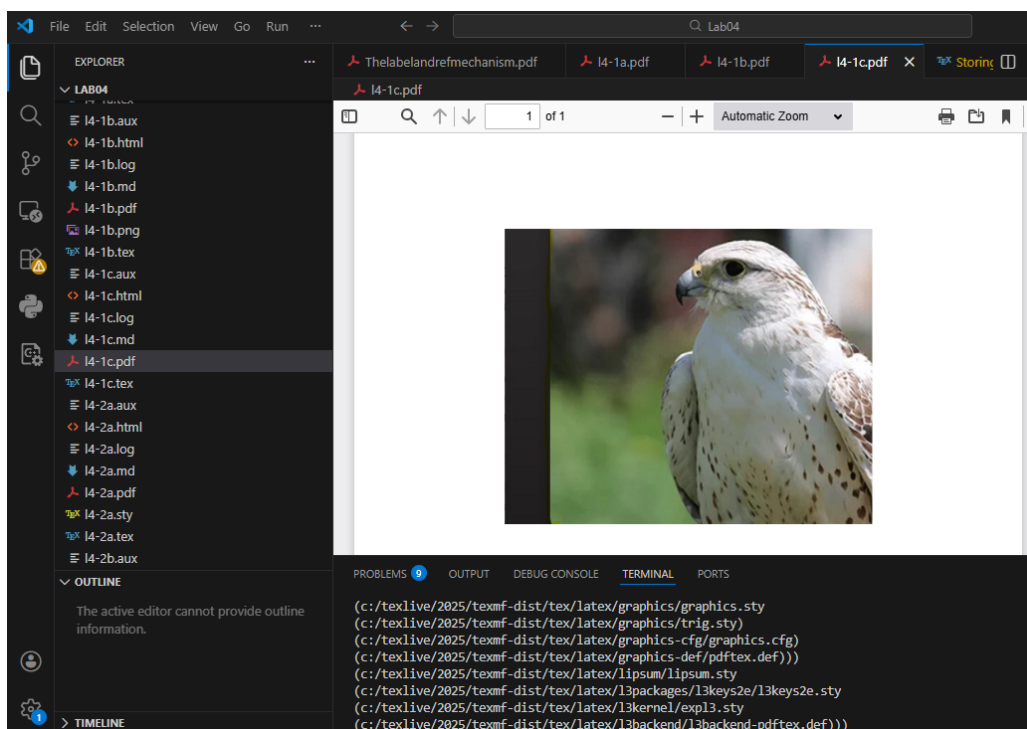- Two images (faucon and corbeau) in the same document

3 l4-1c.tex - Clipping and Trimming

```
\documentclass{article}
\usepackage[T1]{fontenc}
\usepackage{graphicx}
\begin{document}
\begin{center}
    \includegraphics[clip, trim = 0 0 60 70]{faucon.png}
\end{center}
\end{document}
```

Generated figure

Image with clipping and trimming.

Screenshot

Analysis

This document demonstrates:

- `clip` option to enable trimming

- `trim = left bottom right top` to crop image edges

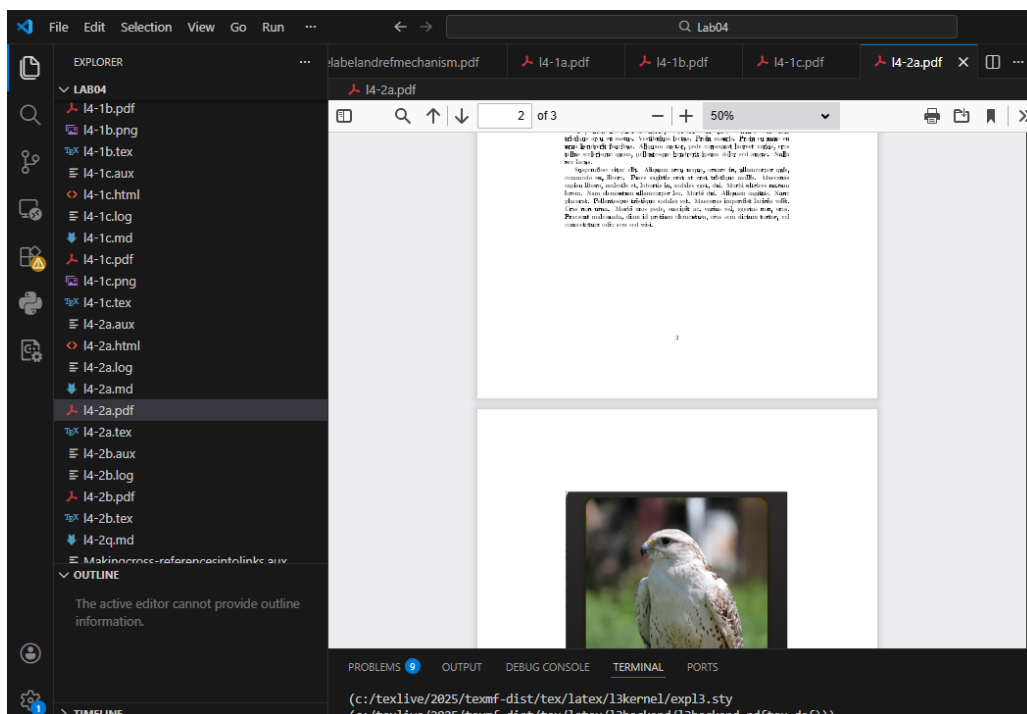- Removing 60pt from right and 70pt from bottom

4 l4-2a.tex - Figure Environment with Captions

```
\documentclass{article}
\usepackage[T1]{fontenc}
\usepackage{graphicx}
\begin{document}
Test location.
\begin{figure}[ht]
  \centering
  \includegraphics[width=0.8\textwidth]{faucon.jpg}
  \caption{faucon en haut}
  \includegraphics[height=5cm]{corbeau.jpg}
  \caption{corbeau en bas}
\end{figure}
\end{document}
```

Generated figure

Float environment with multiple images and captions.

Screenshot

Analysis

This document demonstrates:

- `figure` float environment with placement specifier `[ht]`

- `\centering` for horizontal alignment

- `\caption` for figure descriptions

- Multiple images in a single float

5 l4-2b.tex - Float Placement Options

```
\documentclass{article}
\usepackage[T1]{fontenc}
\usepackage{graphicx}
\begin{document}
Some text before the figure.

\begin{figure}[h]
\centering
\includegraphics[width=0.5\textwidth]{corbeau.jpg}
\caption{corbeau}
\end{figure}

More text after the figure.
\end{document}
```
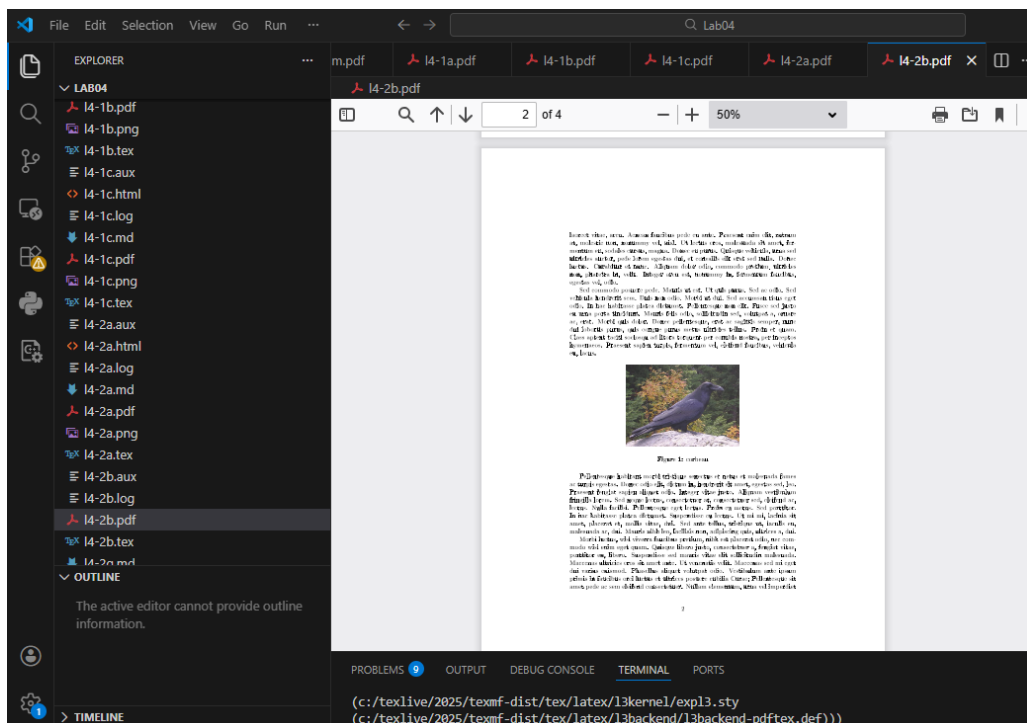
Generated figure

Float placement with [h] option.

Screenshot

Analysis

This document demonstrates:

- [h] placement specifier for "here"

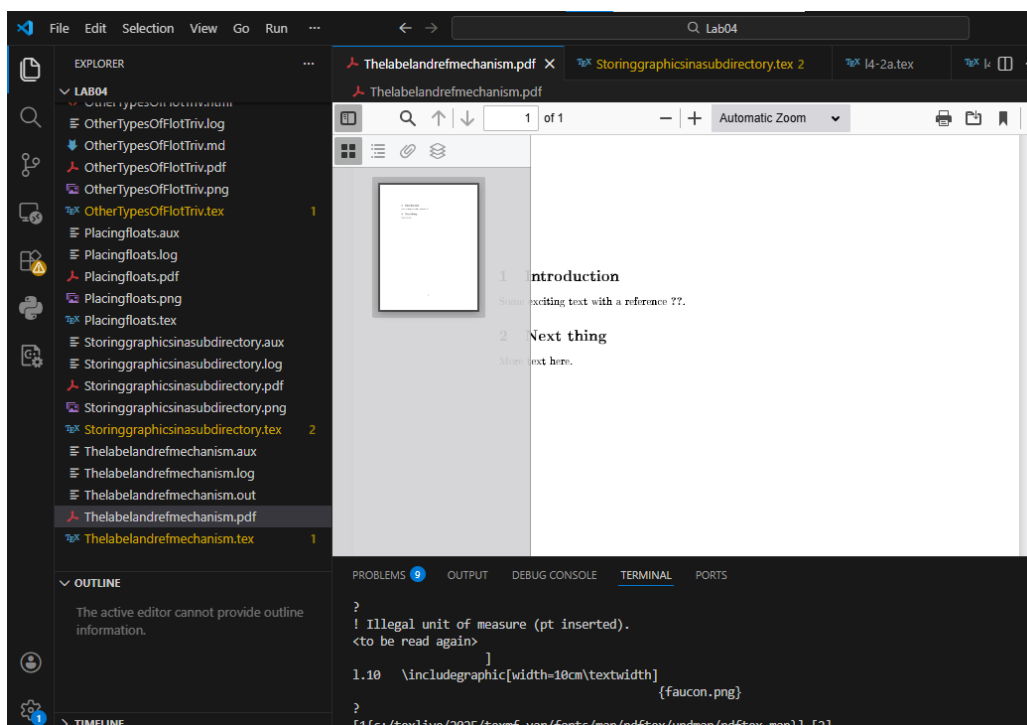- Width specified as 0.5\textwidth

- Basic figure float structure

---

6   Thelabelandrefmechanism.tex - Labels and References

```
\documentclass{article}
\usepackage[T1]{fontenc}
\begin{document}
\section{Introduction}
Some exciting text with a reference~\ref{sec:next}.
\section{Next thing}
\label{sec:next}
More text here.
\end{document}
```

Generated figure

Cross-referencing mechanism.

Screenshot

Analysis

This document demonstrates:

- `\label{sec:next}` to mark a section

- `\ref{sec:next}` to reference it

- Automatic numbering and cross-referencing

- Requires two compilation passes

---

7 Makingcross-referencesintolinks.tex - References with Figures

```
\documentclass{article}
\usepackage[T1]{fontenc}
\usepackage{graphicx}
\begin{document}
\section{Introduction}
Some exciting text with a reference to Section~\ref{sec:next}.

\section{corbeau et faucon}
\label{sec:next}
\begin{figure}[ht]
  \centering
  \includegraphics[width=0.8\textwidth]{faucon.jpg}
  \caption{faucon en haut}
  \includegraphics[height=5cm]{corbeau.jpg}
  \caption{corbeau en bas}
\end{figure}
More text here.
\end{document}
```
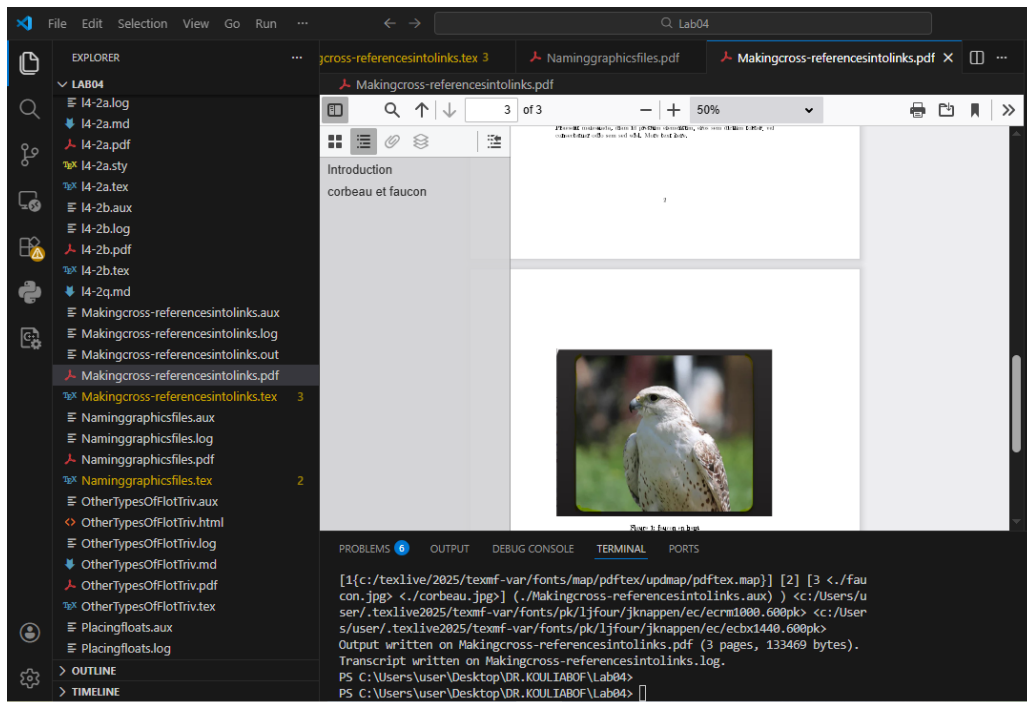
Generated figure

Combined cross-references and figures.

Screenshot

Analysis

This document demonstrates:

- Integration of cross-references with figures

- Section label and reference

- Multiple images with captions in float
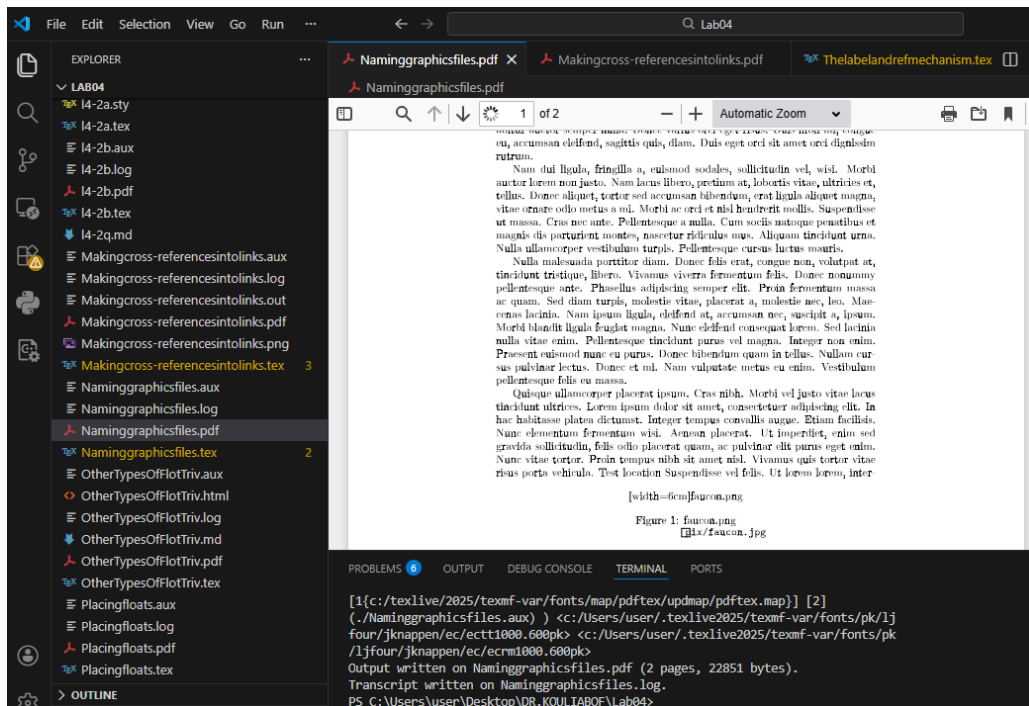
- Complete document structure

---

8   Naminggraphicsfiles.tex - File Naming Issues

```
\documentclass{article}
\usepackage[T1]{fontenc}
\usepackage{graphicx}
\begin{document}
Test location
\begin{figure}[ht]
  \centering
  \includegraphics[width=0.6\textwidth]{faucon.png}
  \caption{faucon.png}
  \includegraphics[width=0.3\textwidth]{pix/faucon.jpg}
\end{figure}
\end{document}
```

Generated figure

Image file naming and path issues.

Screenshot

Analysis

This document demonstrates:

- Subdirectory path: `pix/faucon.jpg`

- Different image formats (.png, .jpg)
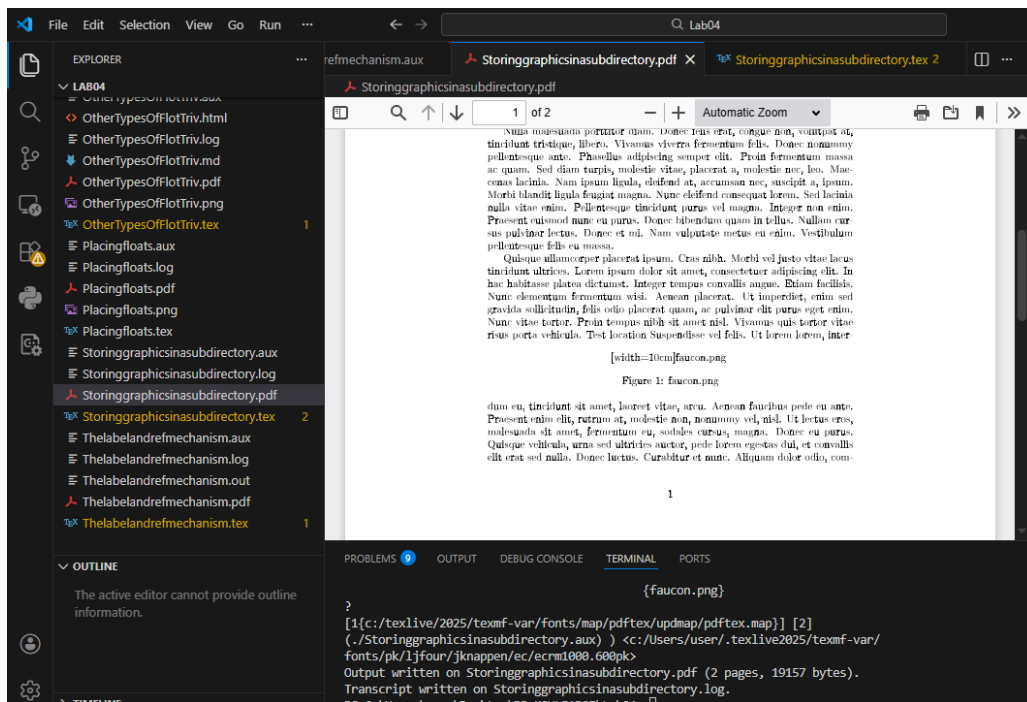
- Multiple images in same figure

---

9   Storinggraphicsinasubdirectory.tex - Graphics Path

```
\documentclass{article}
\usepackage[T1]{fontenc}
\usepackage{graphicx}
\graphicspath{{figs/}{pics/}}
\begin{document}
Test location
\begin{figure}[ht]
  \centering
  \includegraphics[width=0.6\textwidth]{faucon.png}
  \caption{faucon.png}
\end{figure}
\end{document}
```

Generated figure

Setting graphics search path.

Screenshot

Analysis

This document demonstrates:

- \graphicspath{{figs/}{pics/}} to set search directories

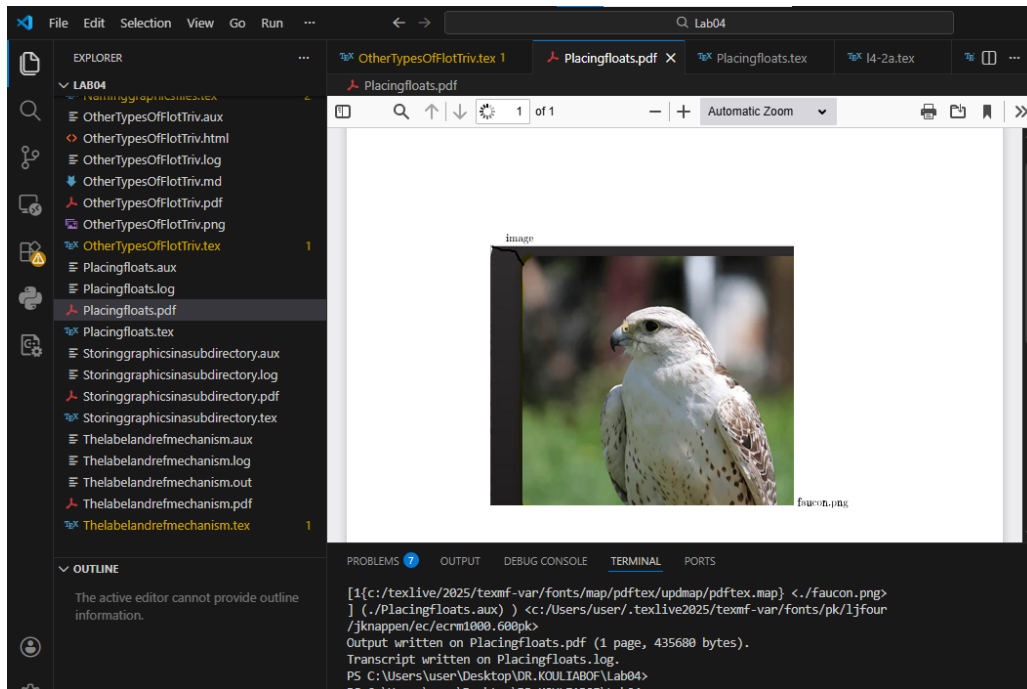- Organizing images in subdirectories

- Path specification syntax

---

10   Placingfloats.tex - Basic Float Placement

```
\documentclass{article}
\usepackage[T1]{fontenc}
\usepackage{graphicx}
\begin{document}
\begin{figure}[htbp]
  \centering
  \includegraphics[width=0.7\textwidth]{faucon.png}
  \caption{faucon.png}
\end{figure}
\end{document}
```

Generated figure

Basic float placement options.

Screenshot

Analysis

This document demonstrates:

- Standard `figure` environment

- Placement specifier `[htbp]`

- `\centering` for alignment

- Caption with description

---

11 OtherTypesOfFlotTriv.tex - Custom Float Types

```
\documentclass{article}
\usepackage[T1]{fontenc}
\usepackage{graphicx}
\newfloat{image}{htbp}{loi}
\usepackage{float}
\begin{document}
\begin{image}
  \centering
  \includegraphics[width=0.7\textwidth]{faucon.png}
  \caption{faucon.png}
```
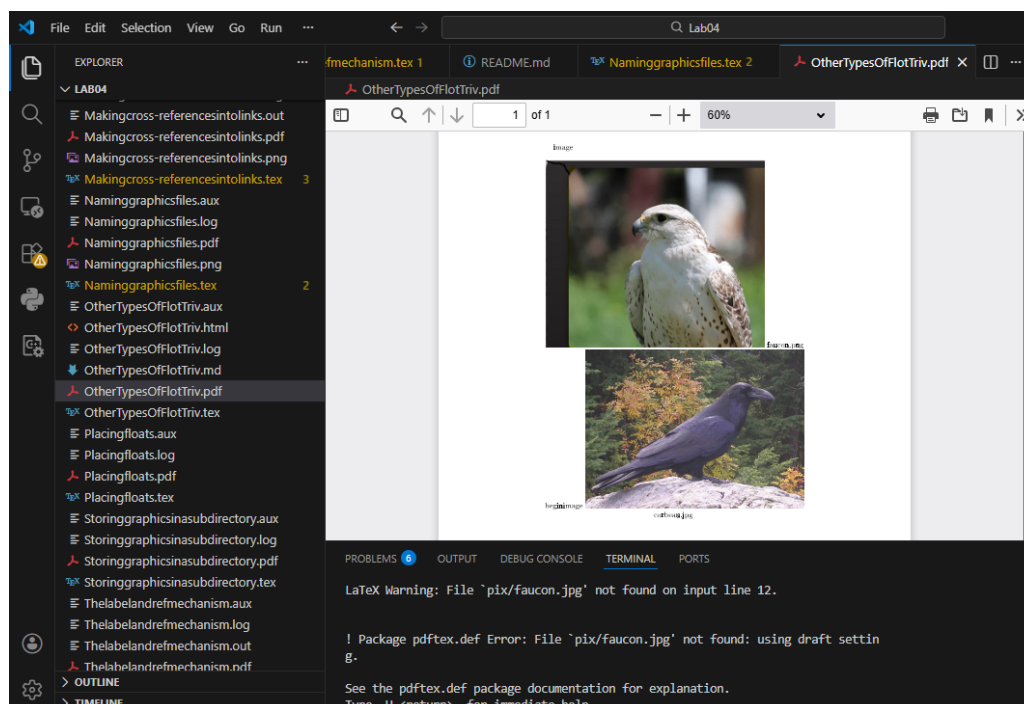
```
\end{image}
\begin{image}
 \centering
 \includegraphics[width=0.7\textwidth]{corbeau.jpg}
 \caption{corbeau.jpg}
\end{image}
\end{document}
```

Generated figure

Custom float types.

Screenshot

Analysis

This document demonstrates:

- Custom float type `image`

- `\centering` for alignment

- Sequential caption numbering

- Different image formats in same float type

Conclusion: Methodology for Graphics and Floats

After comprehensive analysis of graphics and float examples, here is the structured methodology for effectively including images and managing floats in LaTeX:

1. Essential graphics inclusion structure

```
\documentclass{article}
\usepackage{graphicx}          % Required for images

\begin{document}
% Basic image inclusion
\includegraphics[width=0.5\textwidth]{image.jpg}

% Figure float with caption
\begin{figure}[htbp]
  \centering
  \includegraphics[height=5cm]{image.png}
  \caption{Description of image}
  \label{fig:label}
\end{figure}

% Cross-reference to figure
As shown in Figure~\ref{fig:label}...
\end{document}
```

2. Key commands and options

Command/Option	Syntax	Purpose
\includegraphics	\includegraphics[keyvals]{file}	Include image with options
Width option	width=0.5\textwidth	Scale relative to text width
Height option	height=5cm	Set fixed height
Scale option	scale=0.75	Scale factor
Trim/Clip	clip, trim= l b r t	Crop image edges
Graphics path	\graphicspath{{subdir/}}	Set search directories
\caption	\caption{text}	Add caption to float
\label	\label{fig:name}	Mark for referencing
\ref	\ref{fig:name}	Reference by number

3. Float placement specifiers

Specifier	Meaning
h	Here - approximately at this point in the text
t	Top - at the top of a page
b	Bottom - at the bottom of a page
p	Page - on a separate float page
!	Override - ignore certain restrictions