VIETNAM NATIONAL UNIVERSITY HO CHI MINH CITY
HO CHI MINH CITY UNIVERSITY OF TECHNOLOGY
FACULTY OF COMPUTER SCIENCE AND ENGINEERING

Course name h

Report type h

Report title h

Advisor(s): Advisor h

Student(s): Student 1 ID 1
Student 2 ID 2
Student 3 ID 3

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Listings

1 Normal section

This is how you normally work with LaTeX, but you can also split a project into smaller files for easier management. To import other files, you can use `\input{}` or `\include{}`. There differences can be found at https://tex.stackexchange.com/a/250, but in short

`\include{filename}` = `\clearpage \input{filename} \clearpage`

2 Label prefixes

There are no definite rules for label prefixes, but you can use the following as a guideline.

- **chap:** for chapters
- **sec:** for sections
- **subsec:** for subsections
- **eq:** for equations
- **fig:** for figures
- **tab:** for tables
- **enum:** for enumerators and items
- **fn:** for footnotes
- **lst:** for listings
- **alg:** for algorithms
- **app:** for appendices

The `\caption` macro increases the used counter and sets the current label text which is used by `\label`. If you use `\label` before it the old label text is used instead, which leads to a wrong number. Always use `\label` after `\caption` and not before or in it.

That said, conventions are just conventions, and you can use whatever you want as long as you are consistent.

3 Better tables

The recommended way is by using the `booktabs` package and drop all vertical rules.

`tabularx` is simply tabular but with X environment, meaning that it will try to use all of `\linewidth`.

Table 3.1: Tabularx table

	OOP	FP
Pros		
Cons		

More information can be found at https://latex-tutorial.com/tables-in-latex/.

In `tabular`, with the `p`, `m` or `b` column types, sometimes you will notice that the width of the table is wider than the sum of the widths of the columns. This is due to the padding added by the `\tabcolsep` and the line width of the vertical separators which are added by default.

```
1 \tabcolsep + p{length} + \tabcolsep
```

By default, `tabcolsep` is set to 6pt, which equals to 2.12mm in digital printing. The use of `@{}..@{}` voids this behavior.

Additionally, if you have to insert a very long table, which takes up two or more pages in your document, use the `longtable` package.

Table 3.2: Long table caption

Begin of Table	
Something	something else
Lots of lines	like this
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Continuation of Table 3.2	
Something	something else
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Continuation of Table 3.2	
Something	something else
Lots of lines	like this
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Lots of lines	like this
End of Table	

You may use the `\label` command so that you can cross reference longtables with `\ref`. Note however, that the `\label` command should not be used in a heading that may appear more than once. Place it either in the firsthead, or in the body of the table. It should not be the first command in any entry.

4 Better enumerator

Normal enumerator gets the job done, but what if you want custom numbering? This implementation allows custom labeling, either by pre-defined rules or in-place.

d.yeah First item

e.yeah Second item

custom Third item

5 Codespace

5.1 Listings

This is the recommended way to insert simple code.

Listing 5.1: External import

```
class iostream:
    def __lshift__(self, other):
        print(other, end='')
        return self

    def __repr__(self):
        return ''


if __name__ == "__main__":
    cout = iostream()
    endl = '\n'
    cout << "Hello" << ", " << "World!" << endl
```

Listing 5.2: External import but with a line range

```
if __name__ == "__main__":
    cout = iostream()
    endl = '\n'
    cout << "Hello" << ", " << "World!" << endl
```

Listing 5.3: Embedded

```
from typing import Iterator

# This is an example
class Math:
    @staticmethod
    def fib(n: int) -> Iterator[int]:
        """Fibonacci series up to n."""
```

```
        a, b = 0, 1
        while a < n:
            yield a
            a, b = b, a + b

result = sum(Math.fib(42))
print("The answer is {}".format(result))
```

- Inline

print('Hello, world!')

5.2 Minted

This provide better looking code, but requires external setup:
Minted requires python Pygments and the `--shell-escape` *flag.*

- External import

```
class iostream:
    def __lshift__(self, other):
        print(other, end='')
        return self

    def __repr__(self):
        return ''


if __name__ == "__main__":
    cout = iostream()
    endl = '\n'
    cout << "Hello" << ", " << "World!" << endl
```

- With a line range

```
if __name__ == "__main__":
    cout = iostream()
    endl = '\n'
    cout << "Hello" << ", " << "World!" << endl
```

- Embedded

```
from typing import Iterator

# This is an example
class Math:
    @staticmethod
    def fib(n: int) -> Iterator[int]:
        """Fibonacci series up to n."""
        a, b = 0, 1
        while a < n:
            yield a
            a, b = b, a + b

result = sum(Math.fib(42))
print("The answer is {}".format(result))
```

- Inline

`print('Hello, world!')`

6 Figures with flexible width

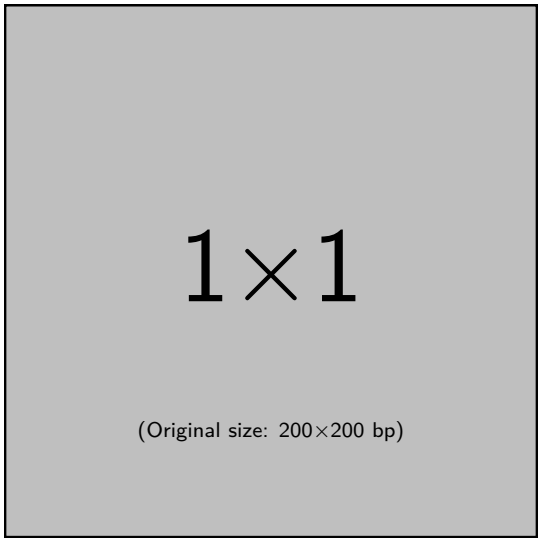

Figure 6.1: Example image 1x1

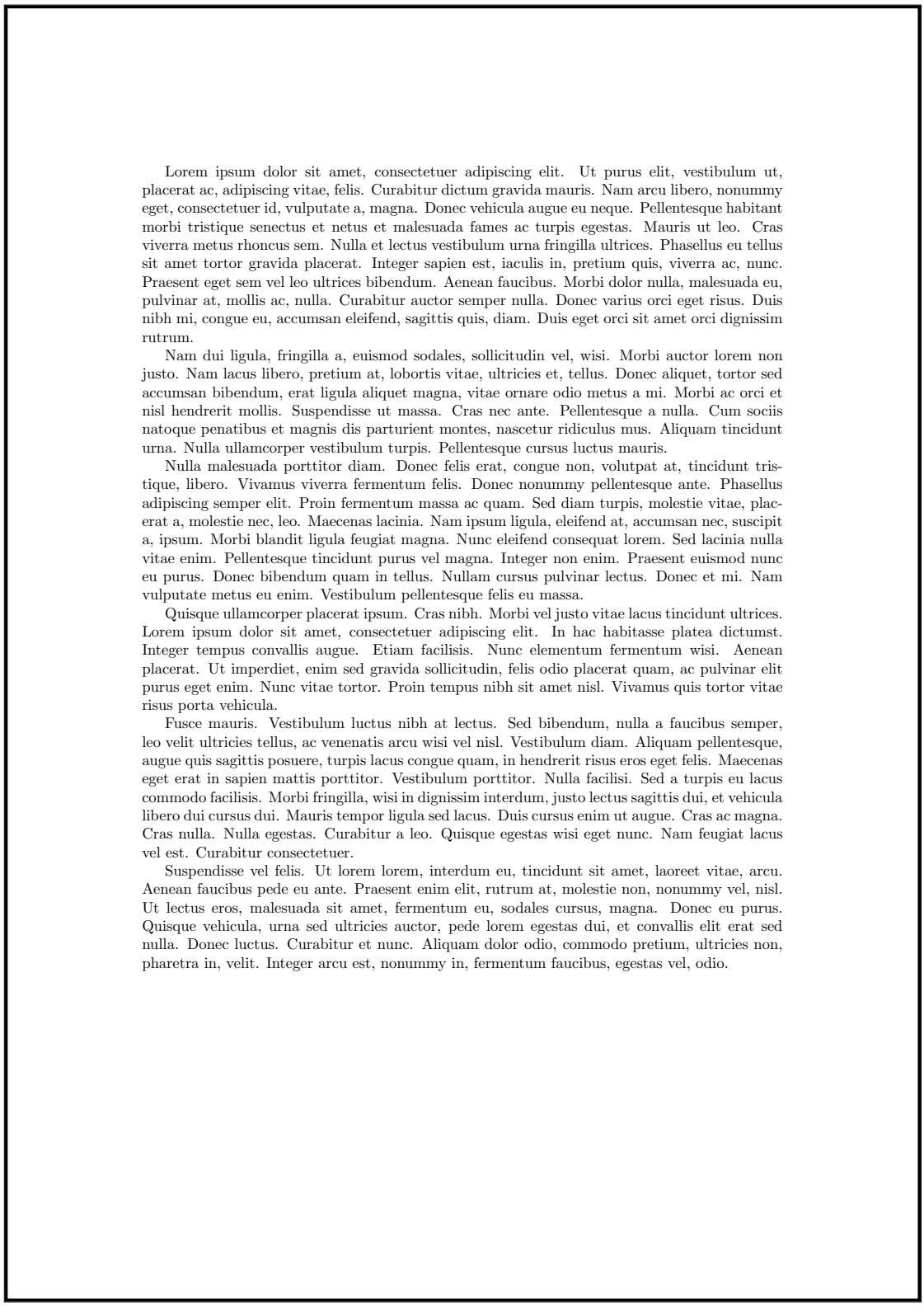

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Figure 6.2: Example image A4

With \adjincludegraphics (or \adjustimage) you can also use the original width as \width:

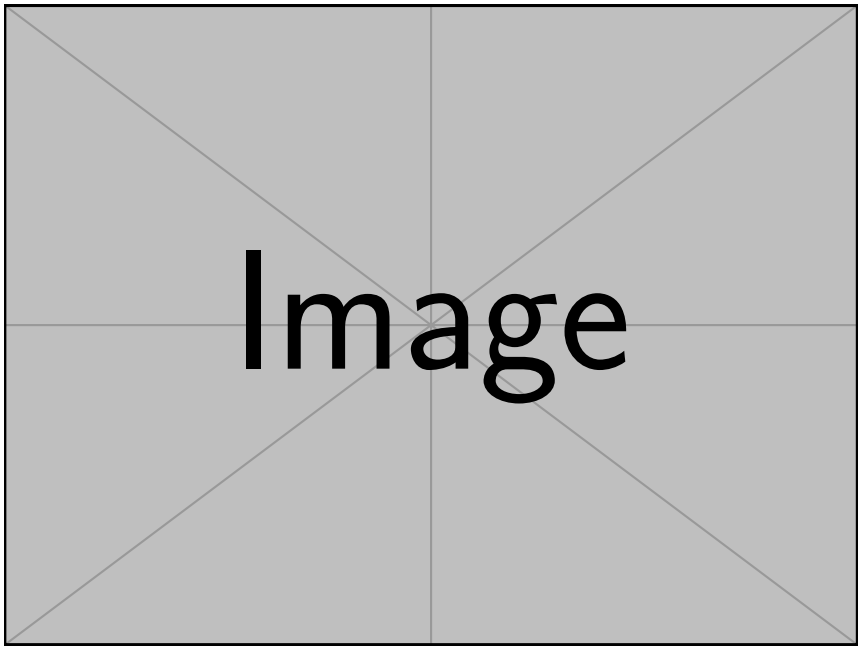

Figure 6.3: Set figure width imperatively

References

[1] Donald E. Knuth. Literate programming. *The Computer Journal*, 27(2):97–111, 1984.

[2] Donald E. Knuth. *The TEX Book*. Addison-Wesley Professional, 1986.

[3] Leslie Lamport. *LATEX: a Document Preparation System*. Addison Wesley, Massachusetts, 2 edition, 1994.

[4] Michael Lesk and Brian Kernighan. Computer typesetting of technical journals on UNIX. In *Proceedings of American Federation of Information Processing Societies: 1977 National Computer Conference*, pages 879–888, Dallas, Texas, 1977.

[5] Frank Mittelbach, Michel Gossens, Johannes Braams, David Carlisle, and Chris Rowley. *The LATEX Companion*. Addison-Wesley Professional, 2 edition, 2004.