

Latex Assignment

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1 Exercise 1

This assignment is divided into different sections and subsections. The first sections is called Exercise 1 and this section contains two subsections Exercise 1.1 and Exercise 1.2. Exercise 1.1 contains a numbered list over the authors favorite colours. Exercise 1.2 contains some mathematical expressions.

1.1 Exercise 1.1

My favorite colours are:

1. Blue
2. *Red*
3. **Yellow**
4. GREEN

1.2 Exercise 1.2

To be able to write mathematics in L^AT_EX, you may have to load some packages. Now we can try to write a quite simple one, numbered.

$$\int_0^\infty \frac{\sin x}{x} dx \tag{1}$$

Note that the number near the equations allows to easily refer to it. In Eq. (1), we are integrating a sinusoidal function on \mathbb{R}^+ . Another possibility is to present some aligned lines without numbers.

$$\begin{aligned} a^2 + b^2 &= c^2 \\ a_1 + b_1 &= \alpha c_1 \\ a_2 &= c_1 + c_2 \end{aligned}$$

Equations can also be gathered.

$$\sum_{n=0}^{100} n^2 - n = 123456 \tag{2}$$

$$\sqrt{x^2 + y^2} = z \tag{3}$$

To make the reading easier, there are a lot of different boundaries, here are some of them

$$\left\{ \left[\left(\frac{\pi^2 \Delta}{\varepsilon} \right) \right] \right\} \tag{4}$$

2 Exercise 2

This section contains a table on some movies. The first column in Table 1 is left aligned, the second column is right aligned and the third column is centered. Note that we can also number the tables for reference.

Name of the movie	Length	Grade
Die Hard	131 min	A
The fellowship of the ring	178 min	B
Titanic	195 min	E
Rush hour	98 min	C

Table 1: A table on some movies

As you can see, this is quite easy to add color to your text, as well as adding some colored boxes . However, be sure to use a correct combination of colors, otherwise, it becomes almost unreadable .

3 Exercise 3

We are going to insert a picture in this section. You can use your own picture, but be sure to scale it in latex so that it looks like the same way as in this document. We can also refer to such images, as shown by Figure 1.



Figure 1: This is Data Science, the width of the picture is 8cm !

4 Exercise 4

This section contains the last task. You will find a longer calculation.

$$\begin{aligned}
\int_{x_p}^{\infty} x dF &= \int_{x_p}^{\infty} x f(x) dx \\
&= \int_{x_p}^{\infty} x \frac{ab^a}{x^{a+1}} dx \\
&= \lim_{R \rightarrow \infty} ab^a \int_{x_p}^R \frac{1}{x^a} dx
\end{aligned}$$

After this calculation, we insert a table of contents, a list of floats, and some references. Therefore, we need to cite these interesting papers [1], and [2], but also this classic book [3].

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References

- [1] Michel Goossens, Frank Mittelbach, and Alexander Samarin. *The L^AT_EX Companion*. Addison-Wesley, Reading, Massachusetts, 1993.
- [2] Albert Einstein. *Zur Elektrodynamik bewegter Körper*. (German) [*On the electrodynamics of moving bodies*]. Annalen der Physik, 322(10):891–921, 1905.
- [3] Knuth: Computers and Typesetting,
<http://www-cs-faculty.stanford.edu/~uno/abcde.html>