Requirement Analysis and Specification Document

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The entire project is available at
https://github.com/ImAndreaBellani/BellaniCapellino
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1.1 Purpose

During their university studies, in order to start entering the workforce, a student might decide to apply for an internship related to their field of study. Similarly, companies offering internships may be interested in finding students that are adequate for them. To facilitate the matching between students and companies, a new platform called *Students and Companies* (S&C) is to be developed. S&C allows companies to look for suitable students by publish internship advice on the platform, while students can look for internships that interest them. Moreover, the platform implements recommendation mechanism to help student and companies to find each other. Once the contact is established, S&C can provide support to the students selection process.

1.1.1 Goals

The main goals of the system are:

[G1] students and companies establish contacts for doing internships;

[G2] internships selections can be monitored and supported by the system;

[G3] ongoing internships can be monitored from the system.

1.2 Scope

In this section, we are identifying the S&C domain. In particular, there are two main users categories that interact with the system: *Companies* and *Students*. The companies publish announcements about the internships they want to offer where they specify *projects* that will be carried out and the *terms* of the offer. The system itself informs the companies about the availability of students who may be suitable for their internships (based on their profile).

Students, on the other hand, may use the platform to look for internships and S&D can also notify them if there are new internships that could meet their interests, but they can still independently search through all the available internships.

[DA METTERE PARTE DELLA SELEZIONE] Once a *contact* is established, the student selection process begins and once completed, the system collects feedback and suggestions from both students and companies. Finally, both students and companies can monitor the progress of the internships by providing information on its development and any issues that may arise.

1.2.1 Phenomena

World Phenomena

Shared Phenomena

World-controlled Shared Phenomena

Machine-controlled Shared Phenomena

1.3 Definitions, Acronyms and Abbreviations

1.3.1 Definitions

1.3.2 Acronyms

- S&C: Students&Companies, the name of the platform;
- UML: Unified Modeling Language.

1.3.3 Abbreviations

- G_n: Goal number n;
- R_n: Requirement number n;
- D_n: Domain assumption number n;
- WP_n: World Phenomena number n;
- SP_n: Shared Phenomena number n;
- CV: Curriculum Vitae;
- UC: Use Case.

1.4 Revision history

1.5 Reference documents

The Documents used to deliver the RASD document are the following:

- the Specification of RASD and DD assignment of Software Engineering 2;
- the class slides on WeBeep, in particular slides on RE (requirement engineering), scenarios and Use Cases and UML diagrams;

1.6 Document structure

1. **INTRODUCTION**: in this section, we provide a brief introduction to the purpose of the platform to be developed, S&C in this case, focusing in particular on the most important goals which we aim to achieve and on the various phenomena identified;

Overall description 2

2.1 Product perspective

2.1.1 Scenarios

Student signs up to S&C

Student Bob enters in the system for the first time. On the homepage, he first clicks the *Registration button* and then the *Student Registration button*. To register, Bob fills out a form providing its institutional e-mail (bob.johnson@mail.polimi.it) and password (which will be used for future logins), a brief description of his academic background and specifies whether he would like to receive notifications from the system about future published internships. Finally, Bob uploads his CV by clicking the *Upload CV button*. Now Bob is registered and can search for internships that interest him.

Company signs up to S&C

The company FinestraMI enters the system for the first time. On the homepage, it first clicks the *Registration button* and then the *Company Registration button*. To register, the company fills out a form providing its name, a brief description of its area of expertise and its business area (the market where it operates) and finally its corporate e-mail (info@finestrami.it) and password (which will be used for future logins). FinestraMI also specifies, by selecting the appropriate option, whether it wants to be notified about the availability of students who may be of its interest. Now, FinestraMI is registered and can publish its internships advice.

Company publishes an internship offer

The company FinestraMI enters in the system; on the homepage, it clicks the *Login button*. Once logged in, FinestraMI accesses the *Publish New Internship section*. A new internship advice is added by filling out a form where the following information is provided:

- "Window restore" (the intership title);
- "The aim of this internship is to give to student to opportunity to repair office windows and..." (a brief description);
- "third year bachelor students..." (experience required);
- "not suffering from dizziness" (desired skills);
- "1. coordination of glass disposal; 2. ..." (main activities the internship involves);
- "no paid, canteen tickets available" (terms of the internship);
- "" (advice deadline).

Now the internship advice is visible to students registered on the platform (and also to FinestraMI).

Student proactively searches for an internship

Students Bob, Alice and Micheal access to the system by clicking "Login". Each one of them wants to find an internship to apply but each one of them has a different idea of what and where he/she would like to do/be:

- Bob is really interested on doing practice on an handwork but he neither knows a name of a company nor knows which kind of handwork apply for so, he goes to the *View Internships section*, where he can see all the published internships, listed from the most recent to the least recent. The most recent one is "Window restore" by FinestraMI, then he selects it;
- Alice has not already decided the kind of internship she wants to apply for but knows many names of companies that operate near her home and so she prefers to go to the *View Companies section*, where she can see all the registered companies and all the internships published by each company. Then she recognized FinestraMI and since she knows that it is expanding, she decides to select it. "Window restore" is the only available advice of FinestraMI but she select it anyways;
- Micheal is looking forward to do an internship related to windows restoration, so he uses the search bar to insert "windows restoration" and selects the option "only paid internships", but no internship are found. Then he removes the option and find the internship of FinestraMI. Since it is the only left, he selects it.

Student receive a notification about a new internship

The company CancellaMI (previously registered to the platform) publishes a new internship related to railings maintenance then, Student Bob, who has chosen to be notified by the system when new internships that might be of interest are published, receives an email informing it that a new intership related to his studies is available, since it stated in his CV that after the internship at FinestraMI he became passionate of railings. Bob then logs into the platform and, by going to the *Notification section*, can view the internships offer in more detail.

Company receives a notification about new possibly interested students

Company FinestraMI, which has chosen to be notified by the system, receives an email informing it that new students are appealing for its intership "Window Restore" (based on their CVs). FinestraMI then logs into the platform, goes into the *Internship section*, clicks on *Windows restore internship* and by going to the *Notification section* can view the students'profiles and their CVs in more detail.

Student applies for an internship

Student Bob wants to apply for the internship "Windows restore". To do so, they log into the system, access the page for "Windows restore" internship and click the *Apply button*. Automatically, the system will send a notification to FinestraMI (the company offering the internship) to inform it that Bob has applied

The company accepts the application of a student

Company FinestraMI receives the email regarding student Bob's application for the internship "Window Restore". FinestraMI then logs into the platform, navigates to the *Internships section*, select the *Window Restore Internship*, goes to the *Notification section* and clicks the *Accept Application button* to approve Bob's application.

The application deadline expires and the selection process is configured

The administrator of the company FinestraMI notices that the application deadline for the internship advice "Window Restore" (which was previously published on the platform) is now expired and selection process for that internship has not configured yet, so he goes to the designated page and configures:

- two steps (the selection process will be made up of two steps);
- a set of metrics to evaluate students ("manual skills" and "knowledge of materials" in this case);
- each step is configured as a questionnaire with a series of questions for the students, in this case in particular:
    1. first step is test of both open and closed questions regarding knowledge of materials. For closed questions, the platform is also able to automatically check if they are corrected or not (and so, for each closed question, also the scores to assign to each possible answer are inserted into the system). Open questions will be evaluated manually by the company;
    2. second step is an oral exam. Since there are no predefined questions for this step, the company only inserts into the system one open question called "oral exam", scores will be inserted by the company at the end of the exam.
- for each step and for each candidate, the company chooses also the date in which it provides the questionnaire to the candidate.

The selection process runs

For the internship advice "Window restore", the company FinestraMI received three applications: Bob, Alice and Micheal. FinestraMI is planning to accept only one student at time, therefore it chooses to first call Micheal for the first step, since his curriculum impressed more the company. On Micheal is called and the questionnaire is given to him. His answers are evaluated (automatically for the closed ones and manually for the opened ones) and gets an overall score of 99 out of 100: the company decides to select him, discards Bob's application and leaves suspended the call for Alice. The company sets for Bob and Micheal the right message and the platform notifies them.

A student reports a complaint on one of the internship is currently doing

Today, Alice who is currently enrolled in the internships at the company WeWorkGreat had a problem with the task that was given to her, she asks the helpdesk of the company where she is performing the internship and they ask her to upload a video on the company file sharing platform to show the situation. Alice notices that she can't upload the video because the maximum uploading size for students is to 10 MB, then she opens Students&Companies and writes a compliant that states that the file sharing system of WeWorkGreat is only of 10 MB.

2.2 Product functions

Sign-up and login

contenuto...

Internship advice publication

contenuto...

Internship application

contenuto...

Internship candidates selection

contenuto...

Candidates interview schedule

contenuto...

Internship complaints

contenuto...

2.3 User characteristics

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3.2.1 Use-case diagrams

3.2.2 Use-cases

3.2.3 Sequence diagrams

3.2.4 Activity diagrams

3.2.5 Requirements mapping

Table 3.1: Requirements mapping for goal G1

[G1] students and companies establish contacts for doing internships	
[R10101] the system allows students to sign up to the platform with their institutional mails	[D10101] students upload their CV in Europass format
[R10102] the system allows a student to set up whether he/she wants to be notified of the presence of internship advice that might interest him/her	[D10102] information on a student CV do not contradict each other
[R10103] the system allows students upload their CV to the platform	[D10302] information companies insert in internship advice do not contradict each other
[R10104] the system allows students to publish on their profile a brief description of themselves	
[R10201] the system allows companies to sign up to the platform with their company address	
[R10202] the system allows companies to insert the main information regarding their business area and area of expertise	
[R10203] the system allows a company to set up whether it wants to be notified of the presence of students that might be interested to its internship advice	
[R10301] the system allows companies to publish internship advice where they specify the main information regarding the internship (brief description, experience required, desired skills, main activities involved and the terms) and the submission deadline	
[R10401] the system allows students to search internships advice by name (and also to see the complete list of available advice). The system shall act as a search engine to present also the names of the advice that are similar to the searched one	
[R10402] the system allows students to search companies by name (and also to see the complete list of registered companies) and then access to their profile	
[R10403] the system allows students to filter the results they searched (e.g. "only paid internships", "only companies located in Lombardia")	
[R10501] when the system recognizes that a new internship advice that might interest a	

[G2] internships selections can be monitored and supported by the system
[R20101] when the deadline for an internship advice is expired, the system allows the company to set up the selection process by specifying for each step, the relative questionnaire (with metrics for each question) and the date in which provide it to a student (dates may differ between different students) [R20201] the system automatically calculates the scores of questionnaire closed answers [R20202] the system allows companies to manually insert scores for questionnaire open answers [R20203] the system allows companies to visualize and compare selections scores [R20204] in any selection phase, the system allows companies to discard a student currently involved in the selection process (discarded students are removed by the selection process) [R20205] in any selection phase, the system allows companies to accept a student currently involved in the selection process (accepted students are removed by the selection process) [R20206] the system allows companies to write a personalized message to communicate the result of a selection

Table 3.2: Requirements mapping for goal G2

[G3] ongoing internships can be monitored from the system
[R30101] the system allows students and companies to consult the internships (ongoing or finished) [R30102] the system allows students and companies to report complaints on the internships they are involved in

Table 3.3: Requirements mapping for goal G3

3.3 Performance Requirements

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3.4.2 Hardware limitations

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3.5.2 Availability

3.5.3 Security

3.5.4 Maintainability

3.5.5 Portability

4 Figures and Tables

4.1 Normal Figures and Tables

Figures and tables can be inserted just like in any standard LaTeX document. The `graphicx` package is already loaded and configured in such a way that the figure width is equal to the textwidth and the height is adjusted in order to maintain the original aspect ratio. As you may have imagined, the captions will be positioned. . . well, in the margins. This is achieved with the help of the `floatrow` package.

Here is a picture of Mona Lisa (Figure 4.1), as an example. The captions are formatted as the margin- and the side-notes; If you want to change something about captions you can use the command `\captsetup` from the `caption` package. Remember that if you want to reference a figure, the label must come *after* the caption!

While the format of the caption is managed by `caption`, its position is handled by the `floatrow` package. Achieving this result has been quite hard, but now I am pretty satisfied. In two-side mode, the captions are printed in the correct margin.

Tables can be inserted just as easily as figures, as exemplified by the following code:

Listing 4.1: Caption of a listing.

```
\begin{table}
\begin{tabular}{ c c c c }
    \toprule
    col1 & col2 & col3 & col 4 \\
    \midrule
    \multirow{3}{4em}{Multiple row} & cell2 & cell3 & cell4\\ &
    cell5 & cell6 & cell7 \\ &
    cell8 & cell9 & cell10 \\
    \multirow{3}{4em}{Multiple row} & cell2 & cell3 & cell4 \\ &
    cell5 & cell6 & cell7 \\ &
```

The credits for the image above the chapter title go to: Bushra Feroz, CC BY-SA 4.0, https://commons.wikimedia.org/w/index.php?curid=68724647

```
    cell8 & cell9 & cell10 \\
    \bottomrule
\end{tabular}
\end{table}
```

which results in the useless Table Table 4.1.

Table 4.1: A useless table.

col1	col2	col3	col 4
Multiple row	cell2	cell3	cell4
	cell5	cell6	cell7
	cell8	cell9	cell10
Multiple row	cell2	cell3	cell4
	cell5	cell6	cell7
	cell8	cell9	cell10

I don't have much else to say, so I will just insert some blind text. Hello, here is some text without a meaning. This text should show what a printed text will look like at this place. If you read this text, you will get no information. Really? Is there no information? Is there a difference between this text and some nonsense like "Huardest gefburn"? Kjift – not at all! A blind text like this gives you information about the selected font, how the letters are written and an impression of the look. This text should contain all letters of the alphabet and it should be written in of the original language. There is no need for special content, but the length of words should match the language.

Figure 4.1: It's Mona Lisa again. Hello, here is some text without a meaning. This text should show what a printed text will look like at this place. If you read this text, you will get no information. Really? Is there no information? Is there a difference between this text and some nonsense like "Huardest gefburn"? Kjift – not at all! A blind text like this gives you information about the selected font, how the letters are written and an impression of the look. This text should contain all letters of the alphabet and it should be written in of the original language. There is no need for special content, but the length of words should match the language.

4.2 Margin Figures and Tables

Marginfigures can be inserted with the environment `marginfigure`. In this case, the whole picture is confined to the margin and the caption is below it. Figure **??** is obtained with something like this:

Listing 4.2: Another caption.

```
\begin{marginfigure}
    \includegraphics{monalisa}
    \caption[The Mona Lisa]{The Mona Lisa.}
    \labfig{marginmonalisa}
\end{marginfigure}
```

There is also the `margintable` environment, of which Table 4.2 is an example. Notice how you can place the caption above the table by just placing the `\caption` command before beginning the `tabular` environment. Usually, figure captions are below, while table captions are above. This rule is also respected for normal figures and tables: the captions are always on the side, but for figure they are aligned to the bottom, while for tables to the top.

Marginfigures and tables can be positioned with an optional offset command, like so:

Table 4.2: Another useless table.

col1	col2	col3
Multiple row	cell2	cell3
	cell5	cell6
	cell8	cell9

```
\begin{marginfigure}[offset]
    \includegraphics{seaside}
\end{marginfigure}
```

Offset ca be either a measure or a multiple of `\baselineskip`, much like with `\sidenote`, `\marginnote` and `\margintoc`. If you are wondering how I inserted this orange bubble, have a look at the `todo` package.

Improve this part.

4.3 Wide Figures and Tables

With the environments `figure*` and `table*` you can insert figures which span the whole page width. For example, here are a wide figure and a wide table.

Figure 4.2: A wide seaside, and a wide caption. Credits: By Bushra Feroz, CC BY-SA 4.0, https://commons.wikimedia.org/w/index.php?curid=68724647

Table 4.3: A wide table with invented data about three people living in the UK. Note that wide figures and tables are centered and their caption also extends into the margin.

Name	Surname	Job	Salary	Age	Height	Country
Alice	Red	Writer	4.000 £	34	167 cm	England
Bob	White	Bartender	2.000 £	24	180 cm	Scotland
Drake	Green	Scientist	4.000 £	26	175 cm	Wales

It is the user's responsibility to adjust the width of the table, if necessary, until it is aesthetically pleasing. The previous table was obtained with the following code:

Listing 4.3: How to typeset a wide table

```
\begin{table*}[h!]
    \caption{A wide table with invented data about three people
    living in the UK. Note that wide figures and tables are
    centered and their caption also extends into the margin.}
    \begin{tabular}{p{2.0cm} p{2.0cm} p{2.0cm} p{2.0cm} p{2.0cm} p
    {2.0cm} p{1.5cm}}
        \toprule
        Name    & Surname   & Job       & Salary          & Age
     & Height    & Country \\
        \midrule
        Alice   & Red       & Writer    & 4.000 \pounds    & 34
     & 167 cm     & England \\
        Bob     & White     & Bartender & 2.000 \pounds    & 24
     & 180 cm     & Scotland \\
        Drake   & Green     & Scientist & 4.000 \pounds    & 26
     & 175 cm     & Wales \\
        \bottomrule
    \end{tabular}
\end{table*}
```

The `floatrow` package provides the 'H' specifier to instruct LaTeXto position the figure (or table) in precisely the same position it occupies in the source code. However, this specifier does not work with wide figures or tables: you should use 'h!' instead, like so: `\begin{figure*}[h!]`.

You may have noticed the full width image at the very beginning of this chapter: that, however, is set up in an entirely different way, which you'll read about in Chapter 6 on page 25.

`kaobook` also supports paginated tables (have a look at the `longtable` package). The `longtable`[1] environment behaves a bit differently from `table`, in that `longtable` encompasses both `table` and `tabular`, so that you can write, *e.g.*,

1: Interestingly, `longtables` may require up to four rounds of compilation before they are typeset correctly.

Listing 4.4: Example of a longtable

```
\begin{longtable}{|l c c|}
    \hline
    One & Two & Three \\
    Left & Center & Center \\
    \hline
    \caption{Caption of the longtable.}
\end{longtable}
```

to obtain the following table:

One	Two	Three

Left	Center	Center

Table 4.4: Caption of the longtable.

The caption of a `longtable` is always positioned below the table, and it has the same width as the text (it doesn't extend into the margin). However, sometimes you may need a `longtable` that is so wide that it trespass into the margins; in those cases, you may want to also increase the width of the caption. To do so, you'll have to write two additional commands, one before and one after the `longtable`:

Listing 4.5: Increasing the width of the caption of a `longtable`.

```
\floatsetup[longtable]{margins=centering,LTcapwidth=table} % Add
    this line before the longtable to increase the caption width
\begin{longtable}{lp{8cm}p{5cm}p{2cm}}
...
\end{longtable}
\floatsetup[longtable]{margins=raggedright,LTcapwidth=\textwidth}
    % Add this line after the longtable to revert the previous
    change
```

Having seen figures and tables, it is now time to tackle hyperreferences.

References 5

5.1 Citations

To cite someone [1, 2] is very simple: just use the `\sidecite` command. It does not have an offset argument yet, but it probably will in the future. This command supports multiple entries, as you can see, and by default it prints the reference on the margin as well as adding it to the bibliography at the end of the document. Note that the citations have nothing to do with the text,[2] but they are completely random as they only serve the purpose to illustrate the feature.

[1]: Visscher et al. (2008), 'Heritability in the genomics era–concepts and misconceptions.'
[2]: James et al. (2013), *An Introduction to Statistical Learning*

[2]: James et al. (2013), *An Introduction to Statistical Learning*

For this setup I wrote a separate package, `kaobiblio`, which you can find in the `styles` directory and include in your main tex file. This package accepts all the options that you can pass to `biblatex`, and actually it passes them to `biblatex` under the hood. Moreover, it also defines some commands, like `\sidecite`, and environments that can be used within a `kao` book.[1]

1: For this reason you should always use `kaobiblio` instead of `biblatex`, but the syntax and the options are exactly the same.

If you want to use `bibtex` instead of `biblatex`, pass the option `backend=bibtex` to `kaobiblio`. `kaobiblio` also supports two options that are not shared with `biblatex`: `addspace` and `linkeverything`, both of which are boolean options, meaning that they can take either 'true' or 'false' as a value. If you pass `addspace=true` when loading `kaobiblio`, a space will be automatically added before the citation marks. If you pass `linkeverything=true`, the author's name in the authoryear-* and authortitle-* styles will be a hyperlink like the year.[2]

2: The fact that the author name is not a hyperlink bothers more than one biblatex user. There are strong arguments *against* hyperlinking the author name, but in my personal opinion, linking the author's name does not result in any problems in most practical cases.

As you have seen, the `\sidecite` command will print a citation in the margin. However, this command would be useless without a way to customise the format of the citation, so the `kaobook` provides also the `\formatmargincitation` command. By 'renewing' that command, you can choose which items will be printed in the margins. The best way to understand how it works is to see the actual definition of this command.

```
\newcommand{\formatmargincitation}[1]{%
    \parencite{#1}: \citeauthor*{#1} (\citeyear{#1}), \citetitle{#1}%
}
```

Thus, the `\formatmargincitation` accepts one parameter, which is the citation key, and prints the parencite followed by a colon, then the author, then the year (in brackets), and finally the title.[3] Now, suppose that you wish the margin citation to display the year and the author, followed by the title, and finally a fixed arbitrary string; you would add to your document:

[3]: Battle et al. (2014), 'Characterizing the genetic basis of transcriptome diversity through RNA-sequencing of 922 individuals'

```
\renewcommand{\formatmargincitation}[1]{%
    \citeyear{#1}, \citeauthor*{#1}: \citetitle{#1}; very interesting!%
}
```

The above code results in citations that look like the following.[4] Of course, changing the format is most useful when you also change the default bibliography style. For instance, if you want to use the 'philosophy-modern' style for your bibliography, you might have something like this in the preamble:

2005, Zou et al.: 'Regularization and variable selection via the elastic-net'; very interesting!

```
\usepackage[style=philosophy-modern]{styles/kaobiblio}
\renewcommand{\formatmargincitation}[1]{%
    \sdcite{#1}%
}
\addbibresource{main.bib}
```

The commands like `\citeyear`, `\parencite` and `\sdcite` are just examples. A full reference of the available commands can be found in this cheatsheet, under the 'Citations' section.

Finally, to compile a document containing citations, you need to use an external tool, which for this class is biber. You need to run the following (assuming that your tex file is called main.tex):

```
$ pdflatex main
$ biber main
$ pdflatex main
```

5.2 Glossaries and Indices

The `kaobook` class loads the packages `glossaries` and `imakeidx`, with which you can add glossaries and indices to your book. For instance, I previously defined some glossary entries and now I am going to use them, like this: computer. `glossaries` also allows you to use acronyms, like the following: this is the full version, Frame per Second (FPS), and this is the short one FPS. These entries will appear in the glossary in the backmatter.

Unless you use Overleaf or some other fancy IDE for LaTeX, you need to run an external command from your terminal in order to compile a document with a glossary. In particular, the commands required are:[3]

```
$ pdflatex main
$ makeglossaries main
$ pdflatex main
```

3: These are the commands you would run in a UNIX system, but see also Section 5.4 (A Final Note on Compilation); I have no idea about how it works in Windows.

Note that you need not run `makeglossaries` every time you compile your document, but only when you change the glossary entries.

To create an index, you need to insert the command `\index{subject}` whenever you are talking about 'subject' in the text. For instance, at the start of this paragraph I would write `index{index}`, and an entry would be added to the Index in the backmatter. Check it out!

In theory, you would need to run an external command for the index as well, but luckily the package we suggested, `imakeidx`, can compile the index automatically.

A nomenclature is just a special kind of index; you can find one at the end of this book. To insert a nomenclature, we use the package `nomencl` and add the terms with the command `\nomenclature`. We put then a `\printnomenclature` where we want it to appear.

Also with this package we need to run an external command to compile the document, otherwise the nomenclature will not appear:

```
$ pdflatex main
$ makeindex main.nlo -s nomencl.ist -o main.nls
$ pdflatex main
```

These packages are all loaded in packages.sty, one of the files that come with this class. However, the configuration of the elements is best done in the main.tex file, since each book will have different entries and styles.

Note that the `nomencl` package caused problems when the document was compiled, so, to make a long story short, I had to prevent `scrhack` to load the hack-file for `nomencl`. When compiling the document on Overleaf, however, this problem seem to vanish.

This brief section was by no means a complete reference on the subject, therefore you should consult the documentation of the above package to gain a full understanding of how they work.

5.3 Hyperreferences

Together with this class we provide a handy package to help you referencing the same elements always in the same way, for consistency across the book. First, you can label each element with a specific command. For instance, should you want to label a chapter, you would put `\labch{chapter-title}` right after the `\chapter` directive. This is just a convenience, because `\labch` is actually just an alias to `\label{ch:chapter-title}`, so it spares you the writing of 'ch:'. We defined similar commands for many typically labeled elements, including:

- Page: `\labpage`
- Part: `\labpart`
- Chapter: `\labch`
- Section: `\labsec`
- Figure: `\labfig`
- Table: `\labtab`
- Definition: `\labdef`
- Assumption: `\labassum`
- Theorem: `\labthm`
- Proposition: `\labprop`
- Lemma: `\lablemma`
- Remark: `\labremark`
- Example: `\labexample`
- Exercise: `\labexercise`

Of course, we have similar commands for referencing those elements. However, since the style of the reference should depend on the context, we provide different commands to reference the same thing. For instance, in some occasions you may want to reference the chapter by name, but other times you want to reference it only by number. In general, there are four reference style, which we call plain, vario, name, and full.

The plain style references only by number. It is accessed, for chapters, with `\refch{chapter-title}` (for other elements, the syntax is analogous). Such a reference results in: Chapter 5.

The vario and name styles rest upon the `varioref` package. Their syntax is `\vrefch{chapter-title}` and `\nrefch{chapter-title}`, and they result in: Chapter 5 on page 17, for the vario style, and: Chapter 5 (References), for the name style. As you can see, the page is referenced in `varioref` style.

The full style references everything. You can use it with `\frefch{chapter-title}` and it looks like this: Chapter 5 (References) on page 17.

Of course, all the other elements have similar commands (*e.g.* for parts you would use `\vrefpart{part-title}` or something like that). However, not all elements implement all the four styles. The commands provided should be enough, but if you want to see what is available or to add the missing ones, have a look at the attached package.

In order to have access to all these features, the `kaorefs` should be loaded in the preamble of your document. It should be loaded last, or at least after `babel` (or `polyglossia`) and `plaintheorems` (or `mdftheorems`). Options

can be passed to it like to any other package; in particular, it is possible to specify the language of the captions. For instance, if you specify 'italian' as an option, instead of 'Chapter' it will be printed 'Capitolo', the Italian analog. If you know other languages, you are welcome to contribute the translations of these captions! Feel free to contact the author of the class for further details.

The `kaorefs` package also include `cleveref`, so it is possible to use `\cref` in addition to all the previously described referencing commands.

5.4 A Final Note on Compilation

Probably the easiest way to compile a latex document is with the `latexmk` script, as it can take care of everything, if properly configured, from the bibliography to the glossary. The command to issue, in general, is:

```
latexmk [latexmk_options] [filename ...]
```

`latexmk` can be extensively configured (see https://mg.readthedocs.io/latexmk.html). For convenience, I print here an example configuration that would cover all the steps described above.

```
# By default compile only the file called 'main.tex'
@default_files = ('main.tex');

# Compile the glossary and acronyms list (package 'glossaries')
add_cus_dep( 'acn', 'acr', 0, 'makeglossaries' );
add_cus_dep( 'glo', 'gls', 0, 'makeglossaries' );
$clean_ext .= " acr acn alg glo gls glg";
sub makeglossaries {
   my ($base_name, $path) = fileparse( $_[0] );
   pushd $path;
   my $return = system "makeglossaries", $base_name;
   popd;
   return $return;
}

# Compile the nomenclature (package 'nomencl')
add_cus_dep( 'nlo', 'nls', 0, 'makenlo2nls' );
sub makenlo2nls {
    system( "makeindex -s nomencl.ist -o \"$_[0].nls\" \"$_[0].nlo
    \"" );
}
```

However, if you'd rather not use an external package and want to do everything manually, here are some tips.[4]

4: As the author only uses Linux and compiles everything from the command line, he doesn't know how the compilation works in Windows or Mac. The tips, therefore, refer to the usage with Linux from the command line.

Compiling the examples in the kaobook repository

To compile the examples, and in particular the documentation, that are in the `examples` directory of the kaobook repository on GitHub, do as follows. `cd` into the root directory of the repository, and run `pdflatex -output-directory examples/documentation main.tex`. With this trick, you can compile the documentation using the class files pertaining to the repository (and not, say, those in your texmf tree). The '-output-directory' option works with the other LaTeX-related commands such as biber and makeglossaries.

A note of warning: sometimes LaTeX needs more than one run to get the correct position of each element; this is true in particular for the positioning of floating elements like figures, tables, and margin notes. Occasionally, LaTeX can need up to four re-runs, so If the alignment of margin elements looks odd, or if they bleed into ther main text, try runnign pdflatex one more time.

Design and Additional Features

6 Page Design

6.1 Headings

So far, in this document I used two different styles for the chapter headings: one has the chapter name, a rule and, in the margin, the chapter number; the other has an image at the top of the page, and the chapter title is printed in a box (like for this chapter). There is one additional style, which I used only in the Chapter 7.3 (Appendix); there, the chapter title is enclosed in two horizontal rules, and the chapter number (or letter, in the case of the appendix) is above it.[1]

1: To be honest, I do not think that mixing heading styles like this is a wise choice, but in this document I did it only to show you how they look.

Every book is unique, so it makes sense to have different styles from which to choose. Actually, it would be awesome if whenever a `kao`-user designs a new heading style, he or she added it to the three styles already present, so that it will be available for new users and new books.

The choice of the style is made simple by the `\setchapterstyle` command. It accepts one option, the name of the style, which can be: 'plain', 'kao', 'bar', or 'lines'.[2] If instead you want the image style, you have to use the command `\setchapterimage`, which accepts the path to the image as argument; you can also provide an optional parameter in square brackets to specify the height of the image. `\setchapterimage` automatically sets the chapter style to 'bar' for that chapter (and also for subsequent chapters).

2: Plain is the default LaTeX title style; the other ones are self explanatory.

Let us make some examples. In this book, I begin a normal chapter with the lines:

```
1 \setchapterstyle{kao}
2 \setchapterpreamble[u]{\margintoc}
3 \chapter{Title of the Chapter}
4 \labch{title}
```

In Line 1 I choose the style for the title to be 'kao'. Then, I specify that I want the margin toc. The rest is ordinary administration in LaTeX, except that I use my own `\labch` to label the chapter. Actually, the `\setchapterpreamble` is a standard KOMA-Script one, so I invite you to read about it in the KOMA documentation. Once the chapter style is set, it holds until you change it.[3] Whenever I want to start a chapter with an

3: The `\margintoc` has to be specified at every chapter. Perhaps in the future this may change; it all depends on how this feature will be welcomed by the users, so keep in touch with me if you have preferences!

image, I simply write:

```
\setchapterimage[7cm]{path/to/image.png} % Optionally specify the
    height
\setchapterpreamble[u]{\margintoc}
\chapter{Catchy Title} % No need to set a chapter style
\labch{catchy}
```

If you prefer, you can also specify the style at the beginning of the main document, and that style will hold until you change it again.

6.2 Headers & Footers

Headers and footers in KOMA-Script are handled by the `scrlayer-scrpage` package. There are two basic style: 'scrheadings' and 'plain.scrheadings'. The former is used for normal pages, whereas the latter is used in title pages (those where a new chapter starts, for instance) and, at least in this book, in the front matter. At any rate, the style can be changed with the `\pagestyle` command, *e.g.* `\pagestyle{plain.scrheadings}`.

In both styles, the footer is completely empty. In plain.scrheadings, also the header is absent (otherwise it wouldn't be so plain...), but in the normal style the design is reminiscent of the 'kao' style for chapter titles.

To Do

The `twoside` class option is still unstable and may lead to unexpected behaviours. As always, any help will be greatly appreciated.

6.3 Table of Contents

Another important part of a book is the table of contents. By default, in `kaobook` there is an entry for everything: list of figures, list of tables, bibliographies, and even the table of contents itself. Not everybody might like this, so we will provide a description of the changes you need to do in order to enable or disable each of these entries. In the following Table 6.1, each item corresponds to a possible entry in the TOC, and its description is the command you need to provide to have such entry. These commands are specified in the attached style package,[4] so if you don't want the entries, just comment the corresponding lines.

4: In the same file, you can also choose the titles of these entries.

In a later section, we will see how you can define your own floating environment, and endow it with an entry in the TOC.

Of course, some packages, like those for glossaries and indices, will try to add their own entries. In such cases, you have to follow the instructions specific to that package. Here, since we have talked about glossaries and notations in Chapter 5, we will briefly see how to configure them.

Table 6.1: Commands to add a particular entry to the table of contents.

Entry	Command to Activate
Table of Contents	`\setuptoc{toc}{totoc}`
List of Figs and Tabs	`\PassOptionsToClass{toc=listof}{\@baseclass}`
Bibliography	`\PassOptionsToClass{toc=bibliography}{\@baseclass}`

For the `glossaries` package, use the 'toc' option when you load it: `\usepackage[toc]{glossaries}`. For `nomencl`, pass the 'intoc' option at the moment of loading the package. Both `glossaries` and `nomencl` are loaded in the attached 'packages' package.

Additional configuration of the table of contents can be performed through the packages `etoc`, which is loaded because it is needed for the margintocs, or the more traditional `tocbase`. Read the respective documentations if you want to be able to change the default TOC style.[5]

5: (And please, send me a copy of what you have done, I'm so curious!)

6.4 Paper Size

Recent versions of Kaobook support paper sizes different from the default A4. It is possible to pass the name of the paper as an option to the class, as we are accustomed for any other LaTeX class. For example, the class option `b5paper` would set the paper size to the B5 format.

We also support the paper sizes specified in this web page and some additional sizes requested by the users, with the option names specified in Table 6.2.

Table 6.2: Some non-standard paper sizes supported by kaobook.

Dimension	Option name
12.0cm x 19.0cm	smallpocketpaper
13.5cm x 21.5cm	pocketpaper
14.8cm x 21.0cm	a5paper
15.5cm x 22.0cm	juvenilepaper
17.0cm x 17.0cm	smallphotopaper
21.0cm x 15.0cm	appendixpaper
17.0cm x 22.0cm	cookpaper
19.0cm x 27.0cm	illustratedpaper
17.0cm x 17.0cm	photopaper
16.0cm x 24.0cm	f24paper

For instance, to use the 'smallpocketpaper' add the correct description at the beginning of the documentclass instruction:

```
\documentclass[
        smallpocketpaper,
        fontsize=10pt,
        twoside=false,
        %open=any,
        secnumdepth=1,
]{kaobook}
```

6.5 Page Layout

Besides the page style, you can also change the width of the content of a page. This is particularly useful for pages dedicated to part titles, where having the 1.5-column layout might be a little awkward, or for pages where you only put figures, where it is important to exploit all the available space.

In practice, there are two layouts: 'wide' and 'margin'. The former suppresses the margins and allocates the full page for contents, while the latter is the layout used in most of the pages of this book, including this one. The wide layout is also used automatically in the front and back matters.

Sometimes it is desirable to increase the width for just one or a few paragraphs; the `widepar` environment does that: wrap your paragraphs in this environment, and they will occupy the full width of the page.

To change page layout, use the `\pagelayout` command. For example, when I start a new part, I write:

```
\pagelayout{wide}
\addpart{Title of the New Part}
\pagelayout{margin}
```

Beyond these two basic layouts, it is also possible to finely tune the page layout by redefining the `\marginlayout` command. This command is called internally by the higher-level `\pagelayout`, and it is responsible for setting the width of the margins and of the text. The default definition is:

```
\newcommand{\marginlayout}{%
    \newgeometry{
        top=27.4mm,             % height of the top margin
        bottom=27.4mm,          % height of the bottom margin
        inner=24.8mm,           % width of the inner margin
        textwidth=107mm,        % width of the text
        marginparsep=8.2mm,     % width between text and margin
        marginparwidth=49.4mm,  % width of the margin
    }%
}
```

so if you want to, say, decrease the width of the margin while increasing the width of the text, you could write in the preamble of your document something like:

```
\renewcommand{\marginlayout}{%
    \newgeometry{
        top=27.4mm,             % height of the top margin
        bottom=27.4mm,          % height of the bottom margin
        inner=24.8mm,           % width of the inner margin
        textwidth=117mm,        % width of the text
        marginparsep=8.2mm,     % width between text and margin
        marginparwidth=39.4mm,  % width of the margin
    }%
}
```

where the text width has been increased by 10mm and the margin width has been decreased by 10mm.

6.6 Numbers & Counters

In this short section we shall see how dispositions, sidenotes and figures are numbered in the `kaobook` class.

By default, dispositions are numbered up to the section in `kaobook` and up to the subsection in `kaohandt`. This can be changed by passing the option `secnumdepth` to`kaobook` or `kaohandt` (e.g. 1 corresponds to section and 2 corresponds to subsections).

The sidenotes counter is the same across all the document, but if you want it to reset at each chapter, just uncomment the line

```
\counterwithin*{sidenote}{chapter}
```

in the `styles/style.sty` package provided by this class.

Figure and Table numbering is also per-chapter; to change that, use something like:

```
\renewcommand{\thefigure}{\arabic{section}.\arabic{figure}}
```

6.7 White Space

One of the things that I find most hard in LaTeX is to finely tune the white space around objects. There are not fixed rules, each object needs its own adjustment. Here we shall see how some spaces are defined at the moment in this class.

Attention! This section may be incomplete.

Space around sidenotes and citations marks

There should be no space before or after sidenotes and citation marks, like so:

sidenote[6]sidenote
citation[2]citation

6: This paragraph can be used to diagnose any problems: if you see whitespace around sidenotes or citation marks, probably a % sign is missing somewhere in the definitions of the class macros.

Space around figures and tables

```
\renewcommand\FBaskip{.4\topskip}
\renewcommand\FBbskip{\FBaskip}
```

Space around captions

```
\captionsetup{
    aboveskip=6pt,
    belowskip=6pt
}
```

Space around displays (*e.g.* equations)

```
\setlength\abovedisplayskip{6pt plus 2pt minus 4pt}
\setlength\belowdisplayskip{6pt plus 2pt minus 4pt}
\abovedisplayskip 10\p@ \@plus2\p@ \@minus5\p@
\abovedisplayshortskip \z@ \@plus3\p@
\belowdisplayskip \abovedisplayskip
\belowdisplayshortskip 6\p@ \@plus3\p@ \@minus3\p@
```

Mathematics and Boxes 7

7.1 Theorems

1: Notice that in the table of contents and in the header, the name of this section is 'Boxes & Environments'; we achieved this with the optional argument of the `section` command.

Despite most people complain at the sight of a book full of equations, mathematics is an important part of many books. Here, we shall illustrate some of the possibilities. We believe that theorems, definitions, remarks and examples should be emphasised with a shaded background; however, the colour should not be to heavy on the eyes, so we have chosen a sort of light yellow.[2]

2: The boxes are all of the same colour here, because we did not want our document to look like Harlequin.

Definition 7.1.1 *Let (X, d) be a metric space. A subset $U \subset X$ is an open set if, for any $x \in U$ there exists $r > 0$ such that $B(x, r) \subset U$. We call the topology associated to d the set τ_d of all the open subsets of (X, d).*

Definition 7.1.1 is very important. I am not joking, but I have inserted this phrase only to show how to reference definitions. The following statement is repeated over and over in different environments.

Theorem 7.1.1 *A finite intersection of open sets of (X, d) is an open set of (X, d), i.e τ_d is closed under finite intersections. Any union of open sets of (X, d) is an open set of (X, d).*

Proposition 7.1.2 *A finite intersection of open sets of (X, d) is an open set of (X, d), i.e τ_d is closed under finite intersections. Any union of open sets of (X, d) is an open set of (X, d).*

You can even insert footnotes inside the theorem environments; they will be displayed at the bottom of the box.

Lemma 7.1.3 *A finite intersection[a] of open sets of (X, d) is an open set of (X, d), i.e τ_d is closed under finite intersections. Any union of open sets of (X, d) is an open set of (X, d).*

a I'm a footnote

You can safely ignore the content of the theorems... I assume that if you are interested in having theorems in your book, you already know something about the classical way to add them. These example should just showcase all the things you can do within this class.

Corollary 7.1.4 (Finite Intersection, Countable Union) *A finite intersection of open sets of (X, d) is an open set of (X, d), i.e τ_d is closed under finite intersections. Any union of open sets of (X, d) is an open set of (X, d).*

Proof. The proof is left to the reader as a trivial exercise. Hint: Hello, here is some text without a meaning. This text should show what a printed text will look like at this place. If you read this text, you will get no information. Really? Is there no information? Is there a difference between this text and some nonsense like "Huardest gefburn"? Kjift –

not at all! A blind text like this gives you information about the selected font, how the letters are written and an impression of the look. This text should contain all letters of the alphabet and it should be written in of the original language. There is no need for special content, but the length of words should match the language. □

Definition 7.1.2 *Let (X, d) be a metric space. A subset $U \subset X$ is an open set if, for any $x \in U$ there exists $r > 0$ such that $B(x, r) \subset U$. We call the topology associated to d the set τ_d of all the open subsets of (X, d).*

Here is a random equation, just because we can:

$$x = a_0 + \cfrac{1}{a_1 + \cfrac{1}{a_2 + \cfrac{1}{a_3 + \cfrac{1}{a_4}}}}$$

Example 7.1.1 Let (X, d) be a metric space. A subset $U \subset X$ is an open set if, for any $x \in U$ there exists $r > 0$ such that $B(x, r) \subset U$. We call the topology associated to d the set τ_d of all the open subsets of (X, d).

Remark 7.1.1 Let (X, d) be a metric space. A subset $U \subset X$ is an open set if, for any $x \in U$ there exists $r > 0$ such that $B(x, r) \subset U$. We call the topology associated to d the set τ_d of all the open subsets of (X, d).

As you may have noticed, definitions, example and remarks have independent counters; theorems, propositions, lemmas and corollaries share the same counter.

Remark 7.1.2 Here is how an integral looks like inline: $\int_a^b x^2 dx$, and here is the same integral displayed in its own paragraph:

$$\int_a^b x^2 dx$$

There is also an environment for exercises.

Exercise 7.1.1 Prove (or disprove) the Riemann hypothesis.

We provide one package for the theorem styles: kaotheorems.sty, to which you can pass the `framed` option you do want coloured boxes around theorems, like in this document.[3] You may want to edit this files according to your taste and the general style of the book. However, there is an option to customise the background colour of the boxes if you use the `framed` option: when you load this package, you can pass it the `background=mycolour` option (replace 'mycolour' with the actual colour, for instance, 'red!35!white'). This will change the colour of all the boxes, but it is also possible to override the default colour only for some elements. For instance, the `propositionbackground=mycolour` option will change the colour for propositions only. There are similar options for theorem, definition, lemma, corollary, remark, and example.

3: The styles without `framed` are not showed, but actually the only difference is that they don't have the yellow boxes.

7.2 Boxes & Custom Environments [4]

Say you want to insert a special section, an optional content or just something you want to emphasise. We think that nothing works better

4: Notice that in the table of contents and in the header, the name of this section is 'Boxes & Environments'; we achieved this with the optional argument of the `section` command.

than a box in these cases. We used `mdframed` to construct the ones shown below. You can create and modify such environments by editing the provided file environments.sty.

Title of the box

Hello, here is some text without a meaning. This text should show what a printed text will look like at this place. If you read this text, you will get no information. Really? Is there no information? Is there a difference between this text and some nonsense like "Huardest gefburn"? Kjift – not at all! A blind text like this gives you information about the selected font, how the letters are written and an impression of the look. This text should contain all letters of the alphabet and it should be written in of the original language. There is no need for special content, but the length of words should match the language.

If you set up a counter, you can even create your own numbered environment.

Comment 7.2.1

Hello, here is some text without a meaning. This text should show what a printed text will look like at this place. If you read this text, you will get no information. Really? Is there no information? Is there a difference between this text and some nonsense like "Huardest gefburn"? Kjift – not at all! A blind text like this gives you information about the selected font, how the letters are written and an impression of the look. This text should contain all letters of the alphabet and it should be written in of the original language. There is no need for special content, but the length of words should match the language.

7.3 Experiments

It is possible to wrap marginnotes inside boxes, too. Audacious readers are encouraged to try their own experiments and let me know the outcomes.

title of margin note

Margin note inside a kaobox. (Actually, kaobox inside a marginnote!)

I believe that many other special things are possible with the `kaobook` class. During its development, I struggled to keep it as flexible as possible, so that new features could be added without too great an effort. Therefore, I hope that you can find the optimal way to express yourselves in writing a book, report or thesis with this class, and I am eager to see the outcomes of any experiment that you may try.

Appendix

A

Heading on Level 0 (chapter)

Hello, here is some text without a meaning. This text should show what a printed text will look like at this place. If you read this text, you will get no information. Really? Is there no information? Is there a difference between this text and some nonsense like “Huardest gefburn”? Kjift – not at all! A blind text like this gives you information about the selected font, how the letters are written and an impression of the look. This text should contain all letters of the alphabet and it should be written in of the original language. There is no need for special content, but the length of words should match the language.

A.1 Heading on Level 1 (section)

Hello, here is some text without a meaning. This text should show what a printed text will look like at this place. If you read this text, you will get no information. Really? Is there no information? Is there a difference between this text and some nonsense like “Huardest gefburn”? Kjift – not at all! A blind text like this gives you information about the selected font, how the letters are written and an impression of the look. This text should contain all letters of the alphabet and it should be written in of the original language. There is no need for special content, but the length of words should match the language.

A.1.1 Heading on Level 2 (subsection)

Hello, here is some text without a meaning. This text should show what a printed text will look like at this place. If you read this text, you will get no information. Really? Is there no information? Is there a difference between this text and some nonsense like “Huardest gefburn”? Kjift – not at all! A blind text like this gives you information about the selected font, how the letters are written and an impression of the look. This text should contain all letters of the alphabet and it should be written in of the original language. There is no need for special content, but the length of words should match the language.

Heading on Level 3 (subsubsection)

Hello, here is some text without a meaning. This text should show what a printed text will look like at this place. If you read this text, you will get no information. Really? Is there no information? Is there a difference between this text and some nonsense like “Huardest gefburn”? Kjift – not at all! A blind text like this gives you information about the selected

font, how the letters are written and an impression of the look. This text should contain all letters of the alphabet and it should be written in of the original language. There is no need for special content, but the length of words should match the language.

Heading on Level 4 (paragraph) Hello, here is some text without a meaning. This text should show what a printed text will look like at this place. If you read this text, you will get no information. Really? Is there no information? Is there a difference between this text and some nonsense like "Huardest gefburn"? Kjift – not at all! A blind text like this gives you information about the selected font, how the letters are written and an impression of the look. This text should contain all letters of the alphabet and it should be written in of the original language. There is no need for special content, but the length of words should match the language.

A.2 Lists

A.2.1 Example for list (itemize)

- First item in a list
- Second item in a list
- Third item in a list
- Fourth item in a list
- Fifth item in a list

Example for list (4*itemize)

- First item in a list
  - First item in a list
    - First item in a list
      - First item in a list
      - Second item in a list
    - Second item in a list
  - Second item in a list
- Second item in a list

A.2.2 Example for list (enumerate)

1. First item in a list
2. Second item in a list
3. Third item in a list
4. Fourth item in a list
5. Fifth item in a list

Example for list (4*enumerate)

1. First item in a list
    a) First item in a list
        i. First item in a list
            A. First item in a list
            B. Second item in a list
        ii. Second item in a list
    b) Second item in a list
2. Second item in a list

A.2.3 Example for list (description)

First item in a list
Second item in a list
Third item in a list
Fourth item in a list
Fifth item in a list

Example for list (4*description)

First item in a list

First item in a list

First item in a list

First item in a list

Second item in a list

Second item in a list

Second item in a list

Second item in a list

B

Fonts Testing

B.1 Font Sizes

The quick brown fox jumps over the lazy dog.

The quick brown fox jumps over the lazy dog.

The quick brown fox jumps over the lazy dog.

The quick brown fox jumps over the lazy dog.

The quick brown fox jumps over the lazy dog.

The quick brown fox jumps over the lazy dog.

The quick brown fox jumps over the lazy dog.

The quick brown fox jumps over the lazy dog.

The quick brown fox jumps over the lazy dog.

B.2 Font Families

Hello, here is some text without a meaning. This text should show what a printed text will look like at this place. If you read this text, you will get no information. Really? Is there no information? Is there a difference between this text and some nonsense like “Huardest gefburn”? Kjift – not at all! A blind text like this gives you information about the selected font, how the letters are written and an impression of the look. This text should contain all letters of the alphabet and it should be written in of the original language. There is no need for special content, but the length of words should match the language.

The quick brown fox jumps over the lazy dog. Medium.

The quick brown fox jumps over the lazy dog. Bold.

The quick brown fox jumps over the lazy dog. Upright.

The quick brown fox jumps over the lazy dog. Italics.

The quick brown fox jumps over the lazy dog. Slanted.

THE QUICK BROWN FOX JUMPS OVER THE LAZY DOG. SMALL CAPS.

Hello, here is some text without a meaning. This text should show what a printed text will look like at this place. If you read this text, you will get no information. Really? Is there no information? Is there a difference between this text and some nonsense like “Huardest gefburn”? Kjift - not at all! A blind text like this gives you information about the selected font, how the letters are written and an impression of the look. This text should contain all letters of the alphabet and it should be written in of the original language. There is no need for special content, but the length of words should match the language.

The quick brown fox jumps over the lazy dog. Medium.

The quick brown fox jumps over the lazy dog. Bold.

The quick brown fox jumps over the lazy dog. Upright.

The quick brown fox jumps over the lazy dog. Italics.

The quick brown fox jumps over the lazy dog. Slanted.

The quick brown fox jumps over the lazy dog. Small Caps.

Hello, here is some text without a meaning. This text should show what a printed text will look like at this place. If you read this text, you will get no information. Really? Is there no information? Is there a difference between this text and some nonsense like “Huardest gefburn”? Kjift – not at all! A blind text like this gives you information about the selected font, how the letters are written and an impression of the look. This text should contain all letters of the alphabet and it should be written in of the original language. There is no need for special content, but the length of words should match the language.

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THE QUICK BROWN FOX JUMPS OVER THE LAZY DOG. SMALL CAPS.

Bibliography

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Greek Letters with Pronunciations

Character	Name	Character	Name
α	alpha *AL-fuh*	ν	nu *NEW*
β	beta *BAY-tuh*	ξ, Ξ	xi *KSIGH*
γ, Γ	gamma *GAM-muh*	o	omicron *OM-uh-CRON*
δ, Δ	delta *DEL-tuh*	π, Π	pi *PIE*
ϵ	epsilon *EP-suh-lon*	ρ	rho *ROW*
ζ	zeta *ZAY-tuh*	σ, Σ	sigma *SIG-muh*
η	eta *AY-tuh*	τ	tau *TOW (as in cow)*
θ, Θ	theta *THAY-tuh*	υ, Υ	upsilon *OOP-suh-LON*
ι	iota *eye-OH-tuh*	ϕ, Φ	phi *FEE, or FI (as in hi)*
κ	kappa *KAP-uh*	χ	chi *KI (as in hi)*
λ, Λ	lambda *LAM-duh*	ψ, Ψ	psi *SIGH, or PSIGH*
μ	mu *MEW*	ω, Ω	omega *oh-MAY-guh*

Capitals shown are the ones that differ from Roman capitals.

Alphabetical Index