

Illustrated by Ethan Lu

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An Introduction to beautybook template

First Edition





PREFACE

An introduction to the beautybook template.

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PART I



THE TEMPLATE USAGE INTRODUCTION OF BEAUTYBOOK

Here is the introduction area of each part, where you can write a concise overview of the part, of course, if there is nothing to say, you can leave it blank.



A SHORT INTRODUCTION OF BEAUTY-BOOK

Part I

Sec 1.1 Introduction

The Beauty \LaTeX collection is a series of templates authored by a humble, unknown individual. In fact, there are only two series, one is the custom book template **fancybook**, which is dedicated to the fresh and elegant style, the other is my flagship product- **beautybook** ! Why did I choose such an unusual name? My answer is, originally I wanted to name it elegantbook, but there is already the famous elegantbook template. Inspired by the old poem "There is a jade-like beauty waiting for you in the book", the template is named "beautybook", which means a beautiful woman in your arms and the fragrance of a book overflowing! Therefore, this is the origin of the name **beautybook** !

I am committed to creating a series of beautiful, elegant, simple template to facilitate the use of users and myself. Version changes frequently, please pay attention to version information. Before starting to use templates, it is recommended to choose the latest official version! The latest test version will usually be released in the QQ Group, you can download it and try it yourself!

This article covers some of the setup and basic usage of this template. If you have any other questions, suggestions or comments, feel free to submit them to me on GitHub [issues](#) or [163 mail](#) or QQ mail [QQ mail](#).

The Project Addresses are the following.

- GitHub repository: <https://github.com/BeautyLaTeX/latex-template>,
- Texpage : <https://www.texpage.com/template/8dc933fc-6579-44c9-b660-ea58409d193b>
- Download Release: [Official release](#),
- User QQ Group: 809237593. (!If you are not in China, please e-mail me at [outlook-email](#).)

This work is released under the LaTeX Project Public License, v1.3c or later.

Sec 1.2 Installation and Maintenance of Template

There are two ways you can use this template. The first method is trivial that just download the zip of template from above channel, and then unzip and compile the main file in the archive (i.e. a file with a name like "Beautybook-xx. tex"). The second way is uploading the zip of template to `overleaf` to comply.

Note that if you choose the second way, you must write `math-font=plain` in the preamble of the main file!

It is worth noting that when you download the template from CTAN, then the English version of it does not use any third-party fonts, so that one can be compiled using `pdflatex`. This is an exception to the rule under which all other files must be compiled using the `XeLaTeX` engine.

1.2.1 Local Installation

To install locally, follow above steps to download the latest version from GitHub, CTAN or the QQ group.

The following is an example of a minimal work:

```

1 \documentclass[12pt]{beautybook-EN}
2 %
3 -----
4 %
5 %
6 %
7 %
8 %
9 %
10 %
11 %
12 %
13 %
14 %
15 %
16 %
17 %
18 %
19 %
20 %
21 %
22 %
23 %
24 %
25 %
26 %
27 %

```

The Cover Theme Chosen

```

5 \definecolor{coverbgcolor}{HTML}{e0e0e0}
6 \definecolor{coverfgcolor}{HTML}{1f3134} % The color of the background
7 \definecolor{coverbar}{HTML}{7c9092} % The color of the left bar
8 \definecolor{bottomcolor}{HTML}{2c4f54}
9 \definecolor{nuanbai}{HTML}{f5f5f5}
10 \coverstyle={ % cover-keys
11     cover-choose=cn, % cn ; en ; enfig ; birkar
12 }
13 %
14 %
15 %
16 %
17 %
18 %
19 %
20 %
21 %
22 %
23 %
24 %
25 %
26 %
27 %

```

The Cover Theme Chosen

```

16 \mathstyle={
17     math-font=plain, % plain; stix; mtpro2
18 }
19 %% First one
20 \mynewtheorem{
21     defi={\textbf{Definition}}[section]{interior style={left color=ReD!8,
22     right color=ReD!5!CyaN!50}, borderline west={1.5mm}{0mm}{ReD}},
23     thm={\textbf{Theorem}}[section]{interior style={left color=CyaN!80!
24     black!20,right color=CyaN!80!black!15!CyaN!50}, borderline west={1.5mm
25     }{0mm}{CyaN!80!black}},
26     lem={\textbf{Lemma}}[section]{interior style={left color=BluE!8,
27     right color=BluE!5!CyaN!50}, borderline west={1.5mm}{0mm}{BluE}},
28     prop={\textbf{Proposition}}[section]{interior style={left color=
29     OrangE!8,right color=OrangE!5!CyaN!50}, borderline west={1.5mm}{0mm}{
30     OrangE}},
31     exam={\textbf{Example}}[chapter]{interior style={left color=
32     DarkGreen!8,right color=DarkGreen!5!CyaN!50}, borderline west={1.5mm}{0
33     mm}{DarkGreen}},
34     cor={\textbf{Corollary}}[chapter]{interior style={left color=violet
35     !8,right color=violet!5!CyaN!50}, borderline west={1.5mm}{0mm}{violet
36     }},
37 }

```

```

28 \newtheorem*{remark}{\textbf{Remark}}
29 %% Second one
30 \makeatletter
31 \mynewtcbtheorem{
32   % theorem environment
33   problem={
34     counter=tcbprob,
35     the counter=\thesection.\arabic{tcbprob},
36     name=Problem,
37     thmcolor=purple,
38     autoref name=\bfseries Problem,
39     style={
40       arc=3pt,breakable,enhanced,interior style={top color=
purplepurplepurplegreen!9 ,middle color=purplepurplepurplegreen!6,
bottom color=purplepurplepurplegreen!3},boxrule=0pt,top=8mm,
41       fuzzy shadow={-0.6mm}{0.6mm}{0mm}{0.3mm}{white!50!gray},% up
42       fuzzy shadow={0.6mm}{-0.6mm}{0mm}{0.3mm}{fill=white!40!gray},%
down
43       opacityframe=0, opacityback=0.98,
44       fontupper=\itshape, step={tcbprob},
45       before pre=\smallskip, after app=\smallskip,
46       overlay unbroken=\my@theorem@overlay@unbroken{Problem\ \
thetcbprob}{purplepurplepurplegreen},
47       overlay first=\my@theorem@overlay@first{Problem\ \thetcbprob}{
purplepurplepurplegreen},
48       overlay last=\my@theorem@overlay@last{purplepurplepurplegreen},
49     },
50   },
51   lemma={
52     counter=tcblem,
53     the counter=\thesection.\arabic{tcblem},
54     name=Lemma,
55     lemcolor=purplepurplegreen,
56     autoref name=\bfseries Lemma,
57     style={
58       arc=0mm,breakable,enhanced,interior style={top color=
purplepurplegreen!9 ,middle color=purplepurplegreen!6, bottom color=
purplepurplegreen!3},arc=3pt,boxrule=0pt,top=6mm,bottom=5mm,
59       fuzzy shadow={-0.6mm}{0.6mm}{0mm}{0.3mm}{white!50!gray},%
60       fuzzy shadow={0.6mm}{-0.6mm}{0mm}{0.3mm}{fill=white!40!gray},%
61       opacityframe=0, opacityback=0.98,
62       fontupper=\itshape,step={tcblem},
63       before pre=\smallskip, after app=\smallskip,
64       overlay unbroken=\my@lemma@overlay@unbroken{\lemma@name\ \
thetcblem}{\lemma@lemcolor},
65       overlay first=\my@lemma@overlay@first{\lemma@name\ \thetcblem}{\
lemma@lemcolor},
66       overlay last=\my@lemma@overlay@last{\lemma@lemcolor},
67     },
68   },
69   corollary={
70     counter=tcbcor,

```

```

71     the counter=\thesection.\arabic{tcbcor},
72     autoref name=\bfseries Corollary,
73     style={
74         arc=0mm,breakable,enhanced,interior style={top color=purplegreen
!9 ,middle color=purplegreen!6, bottom color=purplegreen!3},arc=3pt,
boxrule=0pt,top=6mm,bottom=5mm,
75         fuzzy shadow={-0.6mm}{0.6mm}{0mm}{0.3mm}{white!50!gray},%
76         fuzzy shadow={0.6mm}{-0.6mm}{0mm}{0.3mm}{fill=white!40!gray},%
77         opacityframe=0, opacityback=0.98,
78         fontupper=\itshape,step={tcbcor},
79         before pre=\smallskip, after app=\smallskip,
80         overlay unbroken=\my@lemma@overlay@unbroken{Corollary\ \
thetcbcor}{purplegreen},
81         overlay first=\my@lemma@overlay@first{Corollary\ \thetcbcor}{
purplegreen},
82         overlay last=\my@lemma@overlay@last{purplegreen},
83     },
84 },
85 proposition={
86     counter=tcbprop,
87     the counter=\thesection.\arabic{tcbprop},
88     autoref name=\bfseries Proposition,
89     style={
90         arc=0mm,breakable,enhanced,interior style={top color=green!9 ,
middle color=green!6, bottom color=green!3},arc=3pt,boxrule=0pt,top=6mm
,bottom=5mm,
91         fuzzy shadow={-0.6mm}{0.6mm}{0mm}{0.3mm}{white!50!gray},%
92         fuzzy shadow={0.6mm}{-0.6mm}{0mm}{0.3mm}{fill=white!40!gray},%
93         opacityframe=0, opacityback=0.98,
94         fontupper=\itshape,step={tcbprop},purplered
95         before pre=\smallskip, after app=\smallskip,
96         overlay unbroken=\my@lemma@overlay@unbroken{Proposition\ \
thetcbprop}{green},
97         overlay first=\my@lemma@overlay@first{Proposition\ \thetcbprop}{
green},
98         overlay last=\my@lemma@overlay@last{green},
99     },
100 },
101 definition={
102     counter=tcbdefi,
103     the counter=\thesection.\arabic{tcbdefi},
104     autoref name=\bfseries Definition,
105     style={
106         arc=0mm,breakable,enhanced,interior style={top color=purplered!9
,middle color=purplered!6, bottom color=purplered!3},arc=3pt,boxrule=0
pt,top=6mm,bottom=5mm,
107         fuzzy shadow={-0.6mm}{0.6mm}{0mm}{0.3mm}{white!50!gray},%
108         fuzzy shadow={0.6mm}{-0.6mm}{0mm}{0.3mm}{fill=white!40!gray},%
109         opacityframe=0, opacityback=0.98,
110         fontupper=\normalsize,step={tcbdefi},
111         before pre=\smallskip, after app=\smallskip,
112         overlay unbroken=\my@lemma@overlay@unbroken{Definition\ \

```

```

thetcbdefi}{purplered},
113     overlay first=\my@lemma@overlay@first{Definition\ \thetcbdefi}{
purplered},
114     overlay last=\my@lemma@overlay@last{purplered},
115     }
116 },
117 example={
118     counter=tcbexam,
119     the counter=\thesection.\arabic{tcbexam},
120     autoref name=\bfseries Example,
121     style={
122         arc=0mm,breakable,enhanced,interior style={top color=red!9 ,
middle color=red!6, bottom color=red!3},arc=3pt,boxrule=0pt,top=6mm,
bottom=5mm,
123         fuzzy shadow={-0.6mm}{0.6mm}{0mm}{0.3mm}{white!50!gray},%
124         fuzzy shadow={0.6mm}{-0.6mm}{0mm}{0.3mm}{fill=white!40!gray},%
125         opacityframe=0, opacityback=0.98,
126         fontupper=\normalsize,step={tcbexam},redpurple
127         before pre=\smallskip, after app=\smallskip,
128         overlay unbroken=\my@lemma@overlay@unbroken{Example\ \thetcbexam
}{{red}},
129         overlay first=\my@lemma@overlay@first{Example\ \thetcbexam}{red},

130         overlay last=\my@lemma@overlay@last{red},
131         }
132     },
133 Exercise={
134     counter=tcbexer,
135     the counter=\thechapter.\arabic{tcbexer},
136     autoref name=\bfseries Exercise,
137     style={
138         arc=0mm,breakable,enhanced,interior style={top color=redpurple!9
,middle color=redpurple!6, bottom color=redpurple!3},arc=3pt,boxrule=0
pt,top=6mm,bottom=5mm,
139         fuzzy shadow={-0.6mm}{0.6mm}{0mm}{0.3mm}{white!50!gray},%
140         fuzzy shadow={0.6mm}{-0.6mm}{0mm}{0.3mm}{fill=white!40!gray},%
141         opacityframe=0, opacityback=0.9,
142         fontupper=\normalsize,step={tcbexer},
143         before pre=\smallskip, after app=\smallskip,
144         overlay unbroken=\my@lemma@overlay@unbroken{Exercise\ \
thetcbexer}{redpurple},
145         overlay first=\my@lemma@overlay@first{Exercise\ \thetcbexer}{
redpurple},
146         overlay last=\my@lemma@overlay@last{redpurple},
147         }
148     },
149 theorem={
150     counter=tcbthm,
151     the counter=\thesection.\arabic{tcbthm},
152     autoref name=\bfseries Theorem,
153     style={
154         arc=0mm,breakable,enhanced,interior style={top color=purple!9 ,

```

```

middle color=purple!6, bottom color=purple!3},arc=3pt,boxrule=0pt,top=6
mm,bottom=5mm,
155     fuzzy shadow={-0.6mm}{0.6mm}{0mm}{0.3mm}{white!50!gray},%
156     fuzzy shadow={0.6mm}{-0.6mm}{0mm}{0.3mm}{fill=white!40!gray},%
157     opacityframe=0, opacityback=0.98,
158     fontupper=\itshape,step={tcbthm},
159     before pre=\smallskip, after app=\smallskip,
160     overlay unbroken=\my@lemma@overlay@unbroken{Theorem\ \thetcbthm}{
purple},
161     overlay first=\my@lemma@overlay@first{Theorem\ \thetcbthm}{
purple},
162     overlay last=\my@lemma@overlay@last{purple},
163     }
164 },
165 conjecture={
166     counter=tcbconj,
167     the counter=\thesection.\arabic{tcbconj},
168     name=Conjecture,
169     lemcolor=purple,
170     autoref name=\bfseries Conjecture,
171     style={
172     arc=0mm,breakable,enhanced,interior style={top color=purple!9 ,
middle color=purple!6, bottom color=purple!3},arc=3pt,boxrule=0pt,top=6
mm,bottom=5mm,
173     fuzzy shadow={-0.6mm}{0.6mm}{0mm}{0.3mm}{white!50!gray},%
174     fuzzy shadow={0.6mm}{-0.6mm}{0mm}{0.3mm}{fill=white!40!gray},%
175     opacityframe=0, opacityback=0.98,
176     fontupper=\itshape,step={tcbconj},
177     before pre=\smallskip, after app=\smallskip,
178     overlay unbroken=\my@lemma@overlay@unbroken{Conjecture\ \
thetcblem}{purple},
179     overlay first=\my@lemma@overlay@first{Conjecture\ \thetcblem}{
purple},
180     overlay last=\my@lemma@overlay@last{purple},
181     }
182 },
183 }
184 \makeatother
185 %
186
187
188 \RequirePackage[
189 backend=biber,
190 style=numeric,
191 sorting=nty
192 ]{biblatex}
193 \addbibresource{ref.bib}
194
195 \indexsetup{level=\chapter*,noclearpage}
196 \makeindex[title={\sffamily References},columns=3,columnsep=15pt,
columnseprule]
197 \makeindex

```

```

198
199 \usepackage{listings}
200 \lstset{
201     basicstyle=\small\ttfamily,
202     keywordstyle=\color{NavyBlue},
203     commentstyle=\color{gray!50!black!50},
204     stringstyle=\rmfamily\slshape\color{red},
205     backgroundcolor=\color{gray!5},
206     frame=leftline,
207     framerule=0.5pt,rulecolor=\color{gray!80},
208     numbers=left,
209     numberstyle=\footnotesize,
210     firstnumber=1,
211     stepnumber=1,
212     numbersep=7pt,
213     aboveskip=.25em,
214     showspaces=false,
215     showstringspaces=false,
216     keepspaces=true,
217     showtabs=false,
218     tabsize=2,
219     captionpos=b,
220     flexiblecolumns=true,
221     breaklines=true,
222     breakatwhitespace=false,
223     breakautoindent=true,
224     breakindent=1em,
225     title=\lstname,
226     escapeinside=,
227     xleftmargin=1em, xrightmargin=1em,
228     aboveskip=1ex, belowskip=1ex,
229     frametopmargin=1pt, framexbottommargin=1pt,
230     abovecaptionskip=-2pt,belowcaptionskip=3pt,
231     extendedchars=false, columns=flexible, mathescape=true,
232     texcl=true,
233     fontadjust
234 }%
235
236 \begin{document}
237 \thispagestyle{empty}
238 \title{Your title}
239 \subtitle{}
240 \edition{The Edition}
241 \bookseries{Illustrated by author}
242 \author{author}
243 \pressname{press}
244 \presslogo{inner_pics/logo.png}
245 \coverimage{inner_pics/coverimage.jpg}%ivy-ge998908f8_1280.jpg
246 \makecover
247
248 \makeatletter
249 %

```

```

250 %                                     The Sidebar Theme Chosen
251 %
-----
252 %
252 \definecolor{bg}{HTML}{e0e0e0}
253 \definecolor{fg}{HTML}{2c4f54}
254 \colorlet{outermarginbgcolor}{bg}
255 \colorlet{outermarginfgcolor}{fg}
256 % set the contents of the outer margin on even and odd pages for
    scrheadings, plain and scth
257 \oddermargin{\sffamily \leftmark} % Odd sidebar text
258 \evenmargin{\sffamily \@title} % Even sidebar text
259 %
-----
260 %                                     The Sidebar Theme Chosen
261 %
-----
262 %
263 %
-----
264 %                                     The images used in the title
265 %
-----
266 %
266 \titleimage{
267     chapterodddimage={odd1,odd2,odd3,odd4,odd5,odd6,odd7,odd8,odd9,odd10,
        odd11,odd12,odd13,odd14,odd15,mid1,mid2,mid3,mid4,mid5,mid6,mid7,mid8,
        mid9,mid10,mid11},
268 %
269     partodddimage={odd1,odd2,odd3,odd4,odd5,odd6,odd7,odd8,odd9,odd10,
        odd11,odd12,odd13,odd14,odd15,mid1,mid2,mid3,mid4,mid5,mid6,mid7,mid8,
        mid9,mid10,mid11},
270 %
271     chapterevenimage={songeven,even1,even2,even3,even4,mid1,mid2,mid3,
        mid4,mid5,mid6,mid7,mid8,mid9,mid10,mid11},
272 %
273     partevenimage={songeven,even1,even2,even3,even4,mid1,mid2,mid3,mid4,
        mid5,mid6,mid7,mid8,mid9,mid10,mid11},
274 }
275 \chapimage{\beautybook@chapterimagenam}
276 \partimage{\beautybook@partimagenam}
277 \makeatother
278 %
-----

```

```

279 %
280 %
281 %
282 %
283 %
284 %
285 \colorlet{framegolden}{fg} % The line color of the magic box
286 \colorlet{framegray}{bg!50} % The background color of the magic box
287 %
288 %
289 %
290 %
291 \frontmatter
292 \pagenumbering{Roman}
293
294 {% Preface
295 \thispagestyle{empty}
296 % \addcontentsline{toc}{chapter}{Preface}
297 \chapter*{Preface}
298 An introduction to the beautybook template.
299
300
301 \hfill
302 \begin{tabular}{lr}
303     &-- author\\
304     & 2024-06-30
305 \end{tabular}
306 \clearpage
307 %%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%
308
309 \thispagestyle{empty}
310 \tableofcontents\let\cleardoublepage\clearpage
311
312
313 \mainmatter
314 \pagenumbering{arabic}
315
316 \partabstract{\hspace*{2em} Here is the introduction area of each part,

```



```

    where you can write a concise overview of the part, of course, if there
      is nothing to say, you can leave it blank.}
317 \part{Part}
318
319 \chapter{Chapter}
320
321 \section{Section}
322
323 % your main contents here!
324
325
326 \printindex\thispagestyle{empty}
327 \bottomimage{inner_pics/coverimage.jpg}
328 \ISBNcode{\EANisbn[ISBN=978-80-7340-097-2]} %
329 \summary{Summary.}
330 \makebottomcover
331 \end{document}

```

1.2.2 Release installation and updates

The test environment for this template is

1. Win11 23H2 + T_EX Live 2024;

For the installation of T_EXLive/MacT_EX , please refer to articles online, which is omitted here.

After installing T_EX Live, it is recommended to upgrade all macro packages after installation, upgrade methods: use “cmd” or “terminal” to run `tlmgr update --all`, if `tlmgr` needs to be updated, use `cmd` to run `tlmgr update --self`, if there is a break in the update process, please use `tlmgr update --self --all --reinstall-forcibly-removed` update, that is

```

1 | tlmgr update --self
2 | tlmgr update --all
3 | tlmgr update --self --all --reinstall-forcibly-removed

```

Please refer to [How do I update my T_EX distribution?](#) for more information.

The English version of this template is based on the basic “book” class, and the Chinese version is based on the “ctexbook” class, so the option of book or ctexbook is also valid for this template. The default encoding is UTF-8, and it is recommended to compile with T_EX Live.

Sec 2.1 Language Mode

This template includes two basic locales: `Beautybook-CN.cls` in Chinese and `Beautybook-EN.cls` in English. Changing the locales alters the headings (including figures and tables) of the chart title, the article formatting (such as table of contents and references), and the language used for theorem contexts (such as Theorem, Lemma, etc.). You can switch between these language modes using the following instructions in the top of the preamble:

```
1 \documentclass{beautybook-CN} % chinese
2 \documentclass{beautybook-EN} % english
```

In addition to the two language settings that come with the template, if you need to use another language, you can do so by modifying the `.cls` file as follows

1. Change the name of the part environment `Part\ \thepart` to (translation of part in your language) `\ \thepart`
2. Theorem environment guide words in preamble, such as Theorem.
3. Please remember that only Asian languages can be modified based on `beautybook-CN.cls`, other foreign languages need to be modified based on `beautybook-EN.cls`.

Sec 2.2 Theme Color

The colors of this template can be configured according to personal preferences in the following way :

```
1 \definecolor{bg}{HTML}{e0e0e0} % Overall style background color % i.
   e. theme light color
2 \definecolor{fg}{HTML}{455a64} % Overall style foreground color %
   i.e. theme dark color
3 %% The colors below are in the stys/bottompage.sty file
4 \definecolor{coverbgcolor}{HTML}{f9b868} % Cover and bottom
   page background color
5 \definecolor{coverfgcolor}{HTML}{503D4B} % foreground color on
   the front and back covers
6 \definecolor{coverbar}{HTML}{BF8E6F} % cover bar color
```

2.3. CHOICE OF COVER

```

7 \definecolor{bottomcolor}{HTML}{B3686A} % The theme color of
  bottom page
8 %%%%%%%%%%%%%%%
9 \colorlet{framegolden}{fg} % Antique
  box's line color
10 \colorlet{framegray}{Dilu!5} % Antique
   box's background color

```

In the preamble of the main file, certain theorem environments' colors can be set. This will be further explained in the upcoming section on mathematical environments.

Here it is recommended to use the color configuration of the `encolours` macro package developed by Lin Lianzhi, and you can select the appropriate color for comparison.

Sec 2.3 Choice of Cover

2.3.1 How to choose your favorite cover?

This template has multiple sets of covers that can be used at will, and the use of them is as follows:

1. Chinese classic cover (Chinese default) –corresponding macro package `cover-choose=cn`,
2. Springer Classic Cover 1 (English default) –corresponding to the macro package `cover-choose=en`,
3. Springer Classic Cover 2 (image background) –corresponding to macro package `cover-choose=enfig`,
4. Springer Classic cover 3 (Geometric style) –corresponding to the macro package `cover-choose=birkar`.

Note that the information corresponding to the cover is not the same, look at the above example, just follow the requirements.

Table 2.1: cover element information

Information	Commands	Information	Commands	Information	Commands
Title	<code>\title</code>	subtitle	<code>\subtitle</code>	author	<code>\author</code>
Publisher	<code>\pressname</code>	Version	<code>\edition</code>	cover image	<code>\coverimage</code>
Logo	<code>\presslogo</code>				

2.3.2 Logo

You can search and obtain the publisher's logo yourself. To avoid copyright infringement, please ensure to choose a proper and lawful image when replacing the current one.

2.3.3 Custom Cover

Moreover, in case you opt for a personalized cover, say an A4 PDF file created through Adobe Illustrator or any other software, comment out the `\makecover` command, and subsequently include the custom cover using the `pdfpages` macro package. Likewise, if you utilize the `titlepage` environment.

Sec 2.4 Title Style

This template is fully customized for section headings, if this is not to your liking, you can comment them out to restore the default style.

Sec 2.5 Introduction to the Mathematical Environments

Our template includes four distinct theorem environments. These consist of the default theorem style provided by “amsthm” in simple mode, as well as a custom style provided by “thmtools.” Additionally, we offer a color emphasis box style, an exquisite box style that I developed, and an ancient style box provided by Mr. Wuyue, which can also be used as a theorem box.

2.5.1 Usage of theorem environments

Here is the effect of the theorem environment provided by amsthm.

2.5.1.1 amsthm

Remark. *This is an amsthm-based annotation environment*

2.5.1.2 thmtools

Proof (description of proof). Proof environment

Solution (description of solution). Solution environment

2.5.1.3 Color emphasis box style

Definition 2.5.1 (name of the definition). *The first defines the environment*

Theorem 2.5.1 (name of the thm). *The first theorem environment*

Corollary 2.1 (name of the corollary). *The first inference environment*

Proposition 2.5.1 (name of the prop). *The first propositional environment*

Example 2.1 (name of the example). *The first example problem environment*

Lemma 2.5.1 (name of the lem). *The first lemma environment*

Sec 2.6 Two exquisite theorem boxes crafted by the author!

Definition 2.6.1. (Name)

Here are the guidelines for using these two boxes.

- If the theorem name and label are both empty, you can write it like this :

```
1 | \begin{definition}
```

```

2 |           Define the environment content
3 |       \end{definition}
4 |

```

- If you don't have a label but have a name, use it as

```

1 |       \begin{definition}[][Name]
2 |           Define the environment content
3 |       \end{definition}
4 |

```

- If you have a tag, then whether or not it has a name, use it as

```

1 |       \begin{definition}[][Yes, fill in, no blank][Tag]
2 |           Define the environment content
3 |       \end{definition}
4 |

```

- If you want to change some setting options of the box, such as bordering, etc., use it as

```

1 |       \begin{definition}[tcolorbox options][If so, write
   |       the name, if not, delete it along with the outside brackets.][
   |       tag (Here is where the label is written, if there is no label
   |       should be deleted together with the outside brackets.)]
2 |           Define the environment content
3 |       \end{definition}
4 |

```

Theorem 2.6.1.

*The usage is the same as above, refer to the tag 2.6.1 below or you can **Definition 2.6.1.***

Lemma 2.6.1.

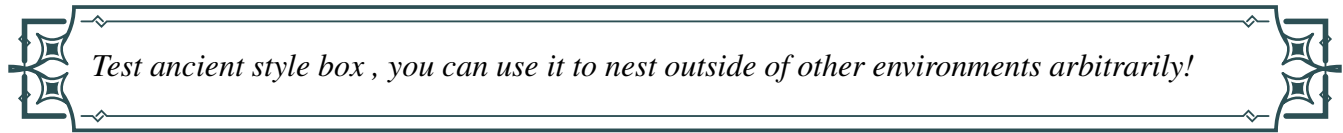
*The usage is the same as above, refer to the tag 2.6.1 below or you can **Definition 2.6.1.***

Corollary 2.6.1.

*The usage is the same as above, refer to the tag 2.6.1 below or you can **Definition 2.6.1.***

Example 2.6.1.

The usage is the same as above, refer to the tag 2.6.1 below or you can **Definition 2.6.1.**

Ancient style box**2.6.1 Theorem counter adjustment**

If you want to modify the theorem environment to count by section, you can modify the `chapter` in the counter option `counter/.code`, the available options are `chapter` (default) and `section`, `subsection`, etc.

2.6.2 How to define a new theorem environment?

There are four ways in which users can define their own theorem environments. Among them `amsthm` and `thmtools` can be learned through their macro package documentations. The latter two theorems are defined in the following way.

For example, in preamble of the main file, you can write it as

```

1 % This is the first one.
2 \mynewtheorem{
3     defi={\textbf{Definition}}[section]{interior style={left color=
ReD!8,right color=ReD!5!CyaN!50}, borderline west={1.5mm}{0mm}{ReD}},
% It is a example of the first one, then you can mimic it to build the
theorem setting you need.
4 }
5
6 % This is the second one.
7 <environment name>={
8     counter=tcb<theorem counter>,
9     the counter=\thesection.\arabic{tcb<theorem counter>},
10    autoref name=\bfseries <environment name>,
11    style={
12    arc=3pt,breakable,enhanced,interior style={top color=<your color
>!12 ,middle color=<your color>!9, bottom color=<your color>!6},boxrule
=0pt,top=8mm,
13    fuzzy shadow={-0.6mm}{0.6mm}{0mm}{0.3mm}{white!50!gray},
14    fuzzy shadow={0.6mm}{-0.6mm}{0mm}{0.3mm}{fill=white!40!gray},
15    opacityframe=0, opacityback=0.98,
16    fontupper=\itshape, step={tcb<theorem counter>},
17    before pre=\smallskip, after app=\smallskip,
18    overlay unbroken=\my@theorem@overlay@unbroken{<environment name>\
\thetcb<theorem counter>}{<your color>},
19    overlay first=\my@theorem@overlay@first{<environment name>\ \
thetcb<theorem counter>}{<your color>},
20    overlay last=\my@theorem@overlay@last{<your color>},

```

```

21     }
22 },
23 <environment name>={
24     counter=tcb<theorem counter>,
25     the counter=\thesection.\arabic{tcb<theorem counter>},
26     autoref name=\bfseries <environment name>,
27     style={
28         arc=0mm,breakable,enhanced,interior style={top color=<your color
>!12 ,middle color=<your color>!9, bottom color=<your color>!6},arc=3pt
,boxrule=0pt,top=7mm,bottom=5mm,
29         fuzzy shadow={-0.6mm}{0.6mm}{0mm}{0.3mm}{white!50!gray},
30         fuzzy shadow={0.6mm}{-0.6mm}{0mm}{0.3mm}{fill=white!40!gray},
31         opacityframe=0, opacityback=0.98,
32         fontupper=\normalsize,step={tcb<theorem counter>},
33         before pre=\smallskip, after app=\smallskip,
34         overlay unbroken=\my@lemma@overlay@unbroken{<environment name>\ \
thetcb<theorem counter>}{<your color>},
35         overlay first=\my@lemma@overlay@first{<environment name>\ \
thetcb<theorem counter>}{<your color>},
36         overlay last=\my@lemma@overlay@last{<your color>},
37     }
38 },
39 }

```

Remark. Change the following parts :

<i><environment name></i>	→	<i>your new defined theorem name</i>
<i><theorem counter></i>	→	<i>your new defined theorem counter</i>
<i><your color></i>	→	<i>your new defined theorem color</i>

Sec 2.7 list environment

This template is customizable with the help of `enumitem`, see the `enumitem` macro package documentation. Here are two examples.

- | | |
|---------------------------|-----------------------------|
| ⊙ first item of nesti; | 1) first item of nesti; |
| ⊙ second item of nesti; | 2) second item of nesti; |
| – first item of nestii; | (a) first item of nestii; |
| – second item of nestii; | (b) second item of nestii; |
| * first item of nestiii; | i. first item of nestiii; |
| * second item of nestiii. | ii. second item of nestiii. |

Sec 2.8 References

2.8.1 print reference

`ref.bib` is a file stored in the reference and needs to be placed in the working folder.

2.8.2 modify reference format

In addition, this template calls the Biblatex macro package and provides Biber engine to compile references. Of course, you can also directly delete the Biblatex macro package in cls file (the last few lines of cls) to use Bibtex.

For bib items, you can pick them up in Google Scholar, Mendeley, Endnote and add them to `ref.bib`. When quoting in the text, just quote their bib key.

The default reference style used by the template is “numeric”.

```
1 \usepackage[
2 backend=biber, % It can be changed to bibtex.
3 style=numeric, % It can be changed to others, cf the documentation of
  biblatex.
4 sorting=nty
5 ]{biblatex}
6 \addbibresource{ref.bib}
```


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