

# A Thesis Template for Huazhong University of Science and Technology: the hustthesis class \*

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\*This document corresponds to hustthesis.cls v1.1, dated 2013/07/01.

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# I Introduction

This is a thesis template for [Huazhong University of Science & Technology](#). This template is distributed in the hope that it will be useful, but WITHOUT ANY WARRANTY; without even the implied warranty of MERCHANTABILITY or FITNESS FOR A PARTICULAR PURPOSE.

The whole project is published under LPPL v1.3 License at [GitHub](#).

中文使用说明见 [Part II](#)。

English version instruction is in [Part III](#).

## II 中文使用说明

### 1 使用必要条件

1. 安装最新版本的 **TeXLive** (推荐) 或 **MiKTeX**。因为未及时更新的宏包可能存在未修复的 **bug**，请确保所有宏包都更新至最新。
2. 安装如下中文字体<sup>1</sup>:
  - a) AdobeSongStd-Light
  - b) AdobeKaitiStd-Regular
  - c) AdobeHeitiStd-Regular
  - d) AdobeFangsongStd-Regular



如果使用 LuaTeX，安装字体之后需运行命令 `mkluatexfontdb` 生成字体索引。

### 2 安装

#### 2.1 安装到本地

使用如下命令即可安装本模板到本地：

```
make install
```

如需卸载，则使用如下命令：

```
make uninstall
```

对于没有安装 **Make** 的 **Windows** 系统用户，可以使用如下命令安装：

```
makewin32.bat install
```

如需卸载，则使用如下命令：

```
makewin32.bat uninstall
```

虽然 `makewin32.bat` 表现与 **Makefile** 极其相似，但是还是强烈建议你安装 **Make**，对于 **Windows** 用户可以在[这里](#)下载。

---

<sup>1</sup>本模板所用到的英文字体 **Tex Gyre Termes**，**Droid Sans** 和 **CMU Typewriter Text** 均默认安装于 **TeXLive** 和 **MiKTeX** 中。

## 2.2 免安装使用

如果你希望临时使用本模板，而非安装到本地供长期使用。使用如下命令解压模板文件：

```
make unpack
```

对于没有安装 Make 的 Windows 系统用户，则使用如下命令解压：

```
makewin32.bat unpack
```

再将 `hustthesis` 目录下的如下文件拷贝到你  $\text{T}_{\text{E}}\text{X}$  工程根目录下即可：

- `hustthesis.bst`
- `hustthesis.cls`
- `hust-title.eps`
- `hust-title.pdf`

## 3 基本用法



本文档只能使用  $\text{X}_{\text{E}}\text{L}_{\text{A}}\text{T}_{\text{E}}\text{X}$  或  $\text{LuaL}_{\text{A}}\text{T}_{\text{E}}\text{X}$ （推荐）编译。

在源文件开头处选择加载本文档类型，即可使用本模板，如下所示：

```
\documentclass{hustthesis}
```

### 3.1 文档类型选项

加载本文档类型时，有如下三个选项提供选择。

---

**format**    `format = <draft | final>`

---

提交草稿选择 `draft` 选项，提交最终版选 `final` 选项。其中草稿正文页包括页眉（“华中科技大学 xx 学位论文”）、页眉修饰线（双线）、页脚（页码）和页脚修饰线（单线）。而最终版正文页不包括页眉、页眉修饰线和页脚修饰线，仅包含页脚（页码）。如果不指定，默认设置为 `final`。

---

**degree**    `degree = <none | fyp | bachelor | master | phd>`

---

指定论文种类，它将通过设置字段 `\HUST@zhapplyname` 和 `\HUST@enapplyname` 来影响中英文封面除的标题和正文处的页眉（如果 `format` 设为 `draft`）。各个不同的选项产生的效果见表 1。如果不指定，默认设置为 `none`。

---

**language**    `language = <chinese | english | english-draft>`

---

Updated: 2013-07-01

指定论文语言。特别的，如果设定为 `english-draft`，将会剔除论文中的所有中文内容，这有利于在未安装中文字体的环境中使用。如果不指定，默认设置为 `chinese`。

Table 1: degree 选项的作用

选项	中文标题 (字段\HUST@zhapplyname)	英文标题 (字段\HUST@enapplyname)
none	学位论文	A Thesis Submitted in Partial Fulfillment of the Requirements for the Degree
fyp	毕业论文	A Thesis Submitted in Partial Fulfillment of the Requirements for Final Year Project
bachelor	学士学位论文	A Thesis Submitted in Partial Fulfillment of the Requirements for the Degree of Bachelor
master	硕士学位论文	A Thesis Submitted in Partial Fulfillment of the Requirements for the Degree of Master
phd	博士学位论文	A Thesis Submitted in Partial Fulfillment of the Requirements for the Ph.D

### 3.2 基本字段设置

模板中定义一些命令用于设置文档中的字段。其中一部分命令是以\zhX{<Chinese var>}, \enX{<English var>}和\X{<Chinese var>}{<English var>}的形式出现, 他们分别意味着设置字段 X 的中文部分, 英文部分及一同设定。

---

\zhtitle	\zhtitle{<Chinese title>}
\entitle	\entitle{<English title>}
\title	\title{<Chinese title>}{<English title>}

---

这一组命令用于设定论文的中英文标题。

---

\zhauthor	\zhauthor{<Chinese author>}
\enauthor	\enauthor{<English author>}
\author	\author{<Chinese author>}{<English author>}

---

这一组命令用于设定论文的中英文作者名。

---

<code>\date</code>	<code>\date{&lt;Year&gt;}{&lt;Month&gt;}{&lt;Day&gt;}</code>
--------------------	--------------------------------------------------------------

---

该命令用于设定论文的答辩日期。如果不设定，则会选择当前编译日期作为答辩日期。

---

<code>\zhschoolname</code>	<code>\zhschoolname{&lt;Chinese schoolname&gt;}</code>
----------------------------	--------------------------------------------------------

<code>\enschoolname</code>	<code>\enschoolname{&lt;English schoolname&gt;}</code>
----------------------------	--------------------------------------------------------

<code>\schoolname</code>	<code>\schoolname{&lt;Chinese schoolname&gt;}{&lt;English schoolname&gt;}</code>
--------------------------	----------------------------------------------------------------------------------

---

这一组命令用于设定论文的中英文学校名。该字段在模板中已默认设置为  
`\schoolname{华中科技大学}{Huazhong University of Science & Technology}`。  
 所以除非需更改学校名，无需使用该命令。

---

<code>\zhaddress</code>	<code>\zhaddress{&lt;Chinese address&gt;}</code>
-------------------------	--------------------------------------------------

<code>\enaddress</code>	<code>\enaddress{&lt;English address&gt;}</code>
-------------------------	--------------------------------------------------

<code>\address</code>	<code>\address{&lt;Chinese address&gt;}{&lt;English address&gt;}</code>
-----------------------	-------------------------------------------------------------------------

---

这一组命令用于设定论文的中英文学校地址。该字段在模板中已默认设置为  
`\address{中国, 武汉, 430074}{Wuhan~430074, P.~R.~China}`。所以除非  
 需更改学校地址，无需使用该命令。

---

<code>\zhmajor</code>	<code>\zhmajor{&lt;Chinese major&gt;}</code>
-----------------------	----------------------------------------------

<code>\enmajor</code>	<code>\enmajor{&lt;English major&gt;}</code>
-----------------------	----------------------------------------------

<code>\major</code>	<code>\major{&lt;Chinese major&gt;}{&lt;English major&gt;}</code>
---------------------	-------------------------------------------------------------------

---

这一组命令用于设定论文的中英文专业名。

---

<code>\zhasssupervisor</code>	<code>\zhasssupervisor{&lt;Chinese asssupervisor&gt;}</code>
-------------------------------	--------------------------------------------------------------

<code>\enasssupervisor</code>	<code>\enasssupervisor{&lt;English asssupervisor&gt;}</code>
-------------------------------	--------------------------------------------------------------

<code>\asssupervisor</code>	<code>\asssupervisor{&lt;Chinese asssupervisor&gt;}{&lt;English asssupervisor&gt;}</code>
-----------------------------	-------------------------------------------------------------------------------------------

---

这一组命令用于设定论文的中英文指导老师名（含职称）。

---

<code>\zhasssupervisor</code>	<code>\zhasssupervisor{&lt;Chinese asssupervisor&gt;}</code>
-------------------------------	--------------------------------------------------------------

<code>\enasssupervisor</code>	<code>\enasssupervisor{&lt;English asssupervisor&gt;}</code>
-------------------------------	--------------------------------------------------------------

<code>\asssupervisor</code>	<code>\asssupervisor{&lt;Chinese asssupervisor&gt;}{&lt;English asssupervisor&gt;}</code>
-----------------------------	-------------------------------------------------------------------------------------------

---

这一组命令用于设定论文的中英文副指导老师名（含职称）。该命令是可选的，  
 如果不加以设定，封面处不会显示相应项。

---

<code>\schoolcode</code>	<code>\schoolcode{&lt;school code&gt;}</code>
--------------------------	-----------------------------------------------

---

用于设置学校代码。

---

<code>\stuno</code>	<code>\stuno{&lt;student number&gt;}</code>
---------------------	---------------------------------------------

---

用于设置学号。

---

<code>\classno</code>	<code>\classno{&lt;classify number&gt;}</code>
-----------------------	------------------------------------------------

---

用于设置分类号。



---

<code>\secretlevel</code>	<code>\secretlevel{&lt;secret level&gt;}</code>
---------------------------	-------------------------------------------------

---

用于设置密级。

---

<code>\zhabstract</code>	<code>\zhabstract{&lt;Chinese abstract&gt;}</code>
<code>\enabstract</code>	<code>\enabstract{&lt;English abstract&gt;}</code>
<code>\abstract</code>	<code>\abstract{&lt;Chinese abstract&gt;}{&lt;English abstract&gt;}</code>

---

这一组命令用于设定论文的中英文摘要。

---

<code>\zhkeywords</code>	<code>\zhkeywords{&lt;Chinese keywords&gt;}</code>
<code>\enkeywords</code>	<code>\enkeywords{&lt;English keywords&gt;}</code>
<code>\keywords</code>	<code>\keywords{&lt;Chinese keywords&gt;}{&lt;English keywords&gt;}</code>

---

这一组命令用于设定论文的中英文关键字。

### 3.3 其它基本命令

下面来介绍其它基本命令。

---

<code>\frontmatter</code>	这一组命令用于设定论文的状态、改变样式,其具体使用见简单示例。 <code>\frontmatter</code>
<code>\mainmatter</code>	用在文档最开始,表明文档的前言部分(如封面,摘要,目录等)的开始。
<code>\backmatter</code>	<code>\mainmatter</code> 表示论文正文的开始。 <code>\backmatter</code> 表示论文正文的结束。

---

---

<code>\maketitle</code>	<code>\maketitle</code> 和 <code>\makecover</code> 作用相同,用于生成封面和版权页面。
<code>\makecover</code>	

---

---

<code>\makeabstract</code>	用于生成中英文摘要页面。
----------------------------	--------------

---

---

<code>\tableofcontents</code>	用于生成目录。
-------------------------------	---------

---

---

<code>\zhdateformat</code>	用于打印中英文日期。
<code>\enddateformat</code>	

---

`ack` `ack` 环境用于致谢页面。使用方法如下:

```
\begin{ack}
  <content>
\end{ack}
```

---

<code>\bibliography</code>	<code>\bibliography{&lt;.bib file&gt;}</code>
----------------------------	-----------------------------------------------

---

用于生成参考文献。

`appendix` `appendix` 环境用于附录环境。你可以将附录置于 `appendix` 环境中,如:

```

\begin{appendix}
    <content>
\end{appendix}

```

---

`\appendix` 或者使用 `\appendix` 代表后文均为附录，如：

---

```

\appendix
<content>

```

---

`\listoffigures` 这两个命令分别用于生成图片和表格索引，可以根据要求在论文前言中使用或  
`\listoftables` 附录中使用。

---

`publications` `publications` 环境用于已发表论文页面。一般用于附录中。使用上同  
`enumerate` 环境。如下：

```

\begin{publications}
    \item <thesis>
    <...>
\end{publications}

```

---

`\TurnOffTabFontSetting`  
`\TurnOnTabFontSetting`

---

因为模板中设定了表格的行距和字号，使得使用中无法临时自定义表格的行距和字号。故提供两个命令用于关闭和开启默认表格的行距和字号设置。比如你如果需要输出一个自己定义字号的表格，可以使用如下示例：

```

\begin{group}
\TurnOffTabFontSetting
\footnotesize % 设置字号
\begin{tabular}{...}
    <content>
\end{tabular}
\TurnOnTabFontSetting
\end{group}

```

---

`\email` `\email{<Email Address>}`

---

用于生成邮箱地址。如 `\email{name@example.com}` 会生成如下效果的地址：  
**name@example.com**。

## 4 简单示例

如下为一个使用本模板的简单示例。更完整的例子请见 `hustthesis-zh-example.tex` 文件，其效果见 [hustthesis-zh-example.pdf](#)。

---

```
1 \documentclass[degree=phd,language=chinese]{hustthesis}
2
3 \stuno{你的学号}
4 \schoolcode{10487}
5 \title{中文标题}{英文标题}
6 \author{作者名}{作者名拼音}
7 \major{专业中文}{专业英文}
8 \supervisor{指导老师中文}{指导老师英文}
9 \date{2013}{7}{1} % 答辩日期
10
11 \zhabstract{中文摘要}
12 \zhkeywords{中文关键字}
13 \enabstract{英文摘要}
14 \enkeywords{英文关键字}
15
16 \begin{document}
17
18 \frontmatter
19 \maketitle
20 \makeabstract
21 \tableofcontents
22 \listoffigures
23 \listoftables
24 \mainmatter
25
26 %% 正文
27
28 \backmatter
29
30 \begin{ack}
31 %% 致谢
32 \end{ack}
33 \bibliography{参考文献.bib文件}
34
35 \appendix
36
37 \begin{publications}
38 %% 发表过的论文列表
39 \end{publications}
40
41 %% 附录剩余部分
```

## 5 预设宏包介绍

本模板中预设了一些宏包，下面对其进行简单介绍。

- **algorithm2e** 算法环境。
- **enumitem** 自定义列表环境的式样。
- **fancynum** 用于将大数每三位断开。
- **listings** 代码环境。如需更好的代码高亮可以使用 **minted** 宏包。
- **longtable** 跨页的超长表格环境。
- **ltxtable** **longtable** 环境和 **tabularx** 环境的合并。
- **multirow** 用于表格中合并行。
- **overpic** 用于在图片上层叠其他内容。
- **tabularx** 扩展到表格环境。
- **xy-pic** 用于绘制简单图形。如需更高级功能可以使用 **tikz** 宏包。
- **zhnumber** 用于生成中文数字。

## 6 高级设置

### 6.1 切换字体

模板正文字体为宋体 (AdobeSongStd-Light)，同时我们提供如下命令切换中文字体：

---

```
\HEI {\HEI <content>}
```

```
\hei {\hei{<content>}}
```

---

切换字体为黑体 (AdobeHeitiStd-Regular)。

---

```
\KAI {\KAI <content>}
```

```
\kai {\kai{<content>}}
```

---

切换字体为楷体 (AdobeKaitiStd-Regular)。

---

```
\FANGSONG {\FANGSONG <content>}
```

```
\fangsong{\fangsong{<content>}}
```

---

切换字体为仿宋 (AdobeFangsongStd-Regular)。

如果需要加载其他字体，请参阅宏包 **fontspec**，宏包 **xeCJK** (对于  $\text{\LaTeX}$ ) 和宏包 **luatex-jafontspec** (对于  $\text{\LaTeX}$ ) 的文档。

## 6.2 内部字段设置

本模板定义了很多内部字段，其具体内容见 [section 7](#)。通过更改这些字段，可以对论文格式进行自定义。

## III English Version Instruction

### 1 Requirement

Install the latest version of **TeXLive**(Recommend) or **MiKTeX**. Please ensure that all the packages are up-to-date.

If you need to produce the final format of thesis (see **subsection 3.1** for more details), you should also need to install following Chinese fonts:

- AdobeSongStd-Light
- AdobeKaitiStd-Regular
- AdobeHeitiStd-Regular
- AdobeFangsongStd-Regular



*If you use LuaTeX, you need to run the command `mkluatexfontdb` to refresh font database index after installing the fonts.*

### 2 Installation

#### 2.1 Install into local

Use the command below to install this template into local.

```
make install
```

If you need uninstall it, use the command below.

```
make uninstall
```

For Windows User who don't install Make, use the command below to install.

```
makewin32.bat install
```

If you need uninstall it, use the command below.

```
makewin32.bat uninstall
```

Although `makewin32.bat` behaves much like `Makefile`, I still recommend you install Make into your Windows. You can download it from [here](#).

## 2.2 Use without installation

If you want to use this template temporary rather than installing it into local for long term use. Run below command to unpack the package.

```
make unpack
```

For Windows User who don't install Make, use the command below to unpack the package.

```
makewin32.bat unpack
```

Then copy the following files from directory `hustthesis` into your  $\text{\TeX}$  project root directory.

- `hustthesis.bst`
- `hustthesis.cls`
- `hust-title.eps`
- `hust-title.pdf`

## 3 Usage



*This template can only be compiled by  $\text{\LaTeX}$  or  $\text{\Lua\TeX}$ (Recommend).*

Insert below code in the top of source code to use this template:

```
\documentclass[language=english]{hustthesis}
```

### 3.1 Option

There's three options available when use this template.

---

<code>format</code>	<code>format = <math>\langle</math><i>draft</i>   <i>final</i><math>\rangle</math></code>
---------------------	-------------------------------------------------------------------------------------------

---

If `format` is set to `final`, the header will be removed. This option is only valid if `language` is not set to `english-draft`. The default value is `final`.

---

<code>language</code>	<code>language = <math>\langle</math><i>chinese</i>   <i>english</i>   <i>english-draft</i><math>\rangle</math></code>
-----------------------	------------------------------------------------------------------------------------------------------------------------

---

Set what language is used in the document. Specially, if it's set to `english-draft`, all the Chinese characters will be removed in the document. This is extremely helpful when you don't install Chinese fonts. The default value is `chinese`.

---

Updated: 2013-07-01

---

---

`degree =  $\langle$ none | fyp | bachelor | master | phd $\rangle$` 


---

Set the category of thesis. It will influence the title of document, see Table 2.  
The default value is none.

Table 2: Title under different degree

Option	Title
none	A Thesis Submitted in Partial Fulfillment of the Requirements for the Degree
fyp	A Thesis Submitted in Partial Fulfillment of the Requirements for Final Year Project
bachelor	A Thesis Submitted in Partial Fulfillment of the Requirements for the Degree of Bachelor
master	A Thesis Submitted in Partial Fulfillment of the Requirements for the Degree of Master
phd	A Thesis Submitted in Partial Fulfillment of the Requirements for the Ph.D

## 3.2 Variables setting

There're some commands which are used to set the variables for the thesis.

---

`\title \title{title}`


---

Set title.

---

`\author \author{author}`


---

Set author.

---

`\date \date{Year}{Month}{Day}`


---

Set date. If you don't set it, template will use current date.

---

`\schoolname \schoolname{school name}`


---

Set the name of school which has been set as

`\schoolname{Huazhong University of Science \& Technology}` by default. So unless you want to change the name, you don't need to use this command.



---

<code>\address</code>	<code>\address{\&lt;address&gt;}</code>
-----------------------	-----------------------------------------

---

Set the address of school which has been set as  
`\address{Wuhan~430074, P.~R.~China}` by default. So unless you want to change the address, you don't need to use this command.

---

<code>\major</code>	<code>\major{\&lt;major&gt;}</code>
---------------------	-------------------------------------

---

Set your major.

---

<code>\supervisor</code>	<code>\supervisor{\&lt;supervisor&gt;}</code>
--------------------------	-----------------------------------------------

---

Set your supervisor.

---

<code>\asssupervisor</code>	<code>\asssupervisor{\&lt;ass-supervisor&gt;}</code>
-----------------------------	------------------------------------------------------

---

Set your ass-supervisor if you have.

---

<code>\abstract</code>	<code>\abstract{\&lt;abstract&gt;}</code>
------------------------	-------------------------------------------

---

Put your abstract.

---

<code>\keywords</code>	<code>\keywords{\&lt;keywords&gt;}</code>
------------------------	-------------------------------------------

---

Put your keywords.

### 3.3 Other commands

---

<code>\frontmatter</code>	Used to determine the different part of document. You can see the example at <a href="#">section 4</a> .
<code>\mainmatter</code>	
<code>\backmatter</code>	

---

---

<code>\maketitle</code>	<code>\maketitle</code> and <code>\makecover</code> are the same. Used to create the title page.
<code>\makecover</code>	

---

---

<code>\makeabstract</code>	Used to create abstract page.
----------------------------	-------------------------------

---

---

<code>\tableofcontents</code>	Used to create table of contents.
-------------------------------	-----------------------------------

---

---

<code>\endateformat</code>	Used to print the date.
----------------------------	-------------------------

---

`ack`      The `ack` environment is used to create acknowledge page.

```
\begin{ack}
  <content>
\end{ack}
```

---

`\bibliography`    `\bibliography{(.bib file)}`

---

Used to create bibliography page.

`appendix`        The appendix environment is for appendix of course. Used like this:

```
\begin{appendix}
    <content>
\end{appendix}
```

---

`\appendix`    Or simple use `\appendix` to indicate that the rest of document are all in appendix, like this:

---

```
\appendix
<content>
```

---

`\listoffigures`    Create the index for all the figures and tables separately.  
`\listoftables`

---

`publications`        The publications environment is where you list all of your published theses. It's usually putted in appendix.

```
\begin{publications}
    \item <thesis>
    <...>
\end{publications}
```

---

`\TurnOffTabFontSetting`  
`\TurnOnTabFontSetting`

---

This template has set the font size and line spread for all the tables which makes it's impossible to change font format temporary in one table. So it provides these to command to temporary disable or enable default font setting in table. For example, if you want to change table font size, you can use the code like this:

```
\begingroup
\TurnOffTabFontSetting
\footnotesize % Set your font format as you like.
\begin{tabular}{...}
    <content>
\end{tabular}
\TurnOnTabFontSetting
\endgroup
```

---

`\email` `\email{Email Address}`

---

A command to display email address. For example, `\email{name@example.com}` would look like this: `name@example.com`.

## 4 Simple example

Below is a simple example of using this template. For a complete example see `hustthesis-en-example.tex` which will generate `hustthesis-en-example.pdf`.

---

```
1 \documentclass[degree=phd,language=english]{hustthesis}
2
3 \title{your title}
4 \author{your name}
5 \major{your major}
6 \supervisor{your supervisor}
7 \date{2013}{7}{1}
8
9 \abstract{the abstract}
10 \keywords{the keywords}
11
12 \begin{document}
13
14 \frontmatter
15 \maketitle
16 \makeabstract
17 \tableofcontents
18 \listoffigures
19 \listoftables
20 \mainmatter
21
22 %% main body
23
24 \backmatter
25
26 \begin{ack}
27 %% acknowledge
28 \end{ack}
29 \bibliography{.bib file}
30
31 \appendix
32
33 \begin{publications}
34 %% your publications
35 \end{publications}
36
```

37 *%% rest of appendix*

38

39 `\end{document}`

---

## 5 Introduction to some packages used in the template

Here's a list of some packages used in the template.

- **algorithm2e** For display algorithm.
- **enumitem** For set the style of enumerate, itemize and description environment.
- **fancynum** Display the really big number.
- **listings** For display the highlighted code. If you need better quality, use the package **minted**.
- **longtable** Create a very long table.
- **ltxtable** Combine the features of longtable and tabularx.
- **multirow** Combine multi-rows in table.
- **overpic** Put something over a picture,
- **tabularx** A better table environment.
- **xy-pic** To draw some picture. If you need more advanced features, use the package **tikz**.

## IV Implementation

```
1 <*class>
2 \RequirePackage{ifthen}
```

### 1 Process Options

Use **xkeyval** to process options.

```
3 \RequirePackage{xkeyval}
4
5 Option format.
6
7 \newif\ifHUST@finalformat
8 \HUST@finalformattrue
9 \DeclareOptionX{format}[final]{
10   \ifthenelse{\equal{#1}{final}}{
11     \HUST@finalformattrue
12   }{
13     \ifthenelse{\equal{#1}{draft}}{
14       \HUST@finalformatfalse
15     }{
16       \ClassError{hustthesis}
17       {Option format can only be 'final' or 'draft'}
18       {Try to remove option format^^J}
19     }
20   }
21 }
```

Option language.

```
22 \DeclareOptionX{language}[chinese]{
23   \ifthenelse{\equal{#1}{chinese} \OR \equal{#1}{english} \OR \equal{#1}{en-
24     glish-draft}}{
25     \gdef\HUST@language{#1}
26   }{
27     \ClassError{hustthesis}
28     {Option language can only be 'chinese', 'english' or 'english-draft'}
29     {Try to remove option language^^J}
30   }
31 }
```

Option degree.

```
32 \DeclareOptionX{degree}[none]{
```

```

29 \ifthenelse{\equal{#1}{none} \OR \equal{#1}{fyp} \OR \equal{#1}{bach-
    elor} \OR \equal{#1}{master} \OR \equal{#1}{phd}}{
30     \gdef\HUST@degree{#1}
31 }{
32     \ClassError{hustthesis}
33     {Option degree can only be 'none', 'fyp', 'bachelor', 'master' or 'phd'}
34     {Try to remove option degree^^J}
35 }
36 }

```

Process options and load class book.

```

37 \DeclareOption*{\PassOptionsToClass{\CurrentOption}{book}}
38 \ProcessOptionsX
39 \LoadClass[12pt, a4paper, openany]{book}

```

## 2 Check Engine

Check engine, only  $\text{\LaTeX}$  and  $\text{\LuaTeX}$  are supported.

```

40 \RequirePackage{iftex}
41 \ifXeTeX\else
42     \ifLuaTeX\else
43         \begingroup
44             \errorcontextlines=-1\relax
45             \newlinechar=10\relax
46             \errmessage{^^J
47                 *****^^J
48                 * XeTeX or LuaTeX is required to compile this document.^^J
49                 * Sorry!^^J
50                 *****^^J
51             }%
52         \endgroup
53     \fi
54 \fi

```

## 3 Font Setting

Set font used in document. Firstly, it's font setting for English font under english-draft mode. We use **fontspec** package to handle font. We choose Tex Gyre Termes, Droid Sans and CMU Typewriter Text as document main font, sans font and mono font.

```

55 \ifthenelse{\equal{\HUST@language}{english-draft}}{
56     \RequirePackage{fontspec}
57     \setmainfont[
58         Ligatures={Common,TeX},
59         Extension=.otf,
60         UprightFont=*-regular,
61         BoldFont=*-bold,
62         ItalicFont=*-italic,
63         BoldItalicFont=*-bolditalic]{texgyretermes}
64     \setsansfont[Ligatures={Common,TeX}]{Droid Sans}
65     \setmonofont{CMU Typewriter Text}
66     \defaultfontfeatures{Mapping=tex-text}

```

Now let's set the Chinese font commands into empty, when document is under english-draft mode.

```

67     \let\HEI\relax
68     \let\KAI\relax
69     \let\FANGSONG\relax
70     \newcommand{\hei}[1]{#1}
71     \newcommand{\kai}[1]{#1}
72     \newcommand{\fangsong}[1]{#1}
73 }{}

```

Below is the font setting under chinese or english mode. We choose the same English font as under english-draft mode. We use **xecjk** package (for Xe<sub>La</sub>TeX) or **luatex-j**a package (for Lua<sub>La</sub>TeX, recommend) to handle Chinese font. We will use font: AdobeSongStd-Light, AdobeKaitiStd-Regular, AdobeHeitiStd-Regular and AdobeFangsongStd-Regular.

```

74 \ifthenelse{\equal{\HUST@language}{english-draft}}{ }{
75     \ifXeTeX % XeTeX 下使用 fontspec + xeCJK 处理字体
76         % 英文字体
77         \RequirePackage{fontspec}
78         \RequirePackage{xunicode}
79         \setmainfont[
80             Ligatures={Common,TeX},
81             Extension=.otf,
82             UprightFont=*-regular,
83             BoldFont=*-bold,
84             ItalicFont=*-italic,
85             BoldItalicFont=*-bolditalic]{texgyretermes}
86         \setsansfont[Ligatures={Common,TeX}]{Droid Sans}
87         \setmonofont{CMU Typewriter Text}

```

```

88 \defaultfontfeatures{Mapping=tex-text}
89 % 中文字体
90 \RequirePackage[CJKmath]{xeCJK}
91 \setCJKmainfont[
92     BoldFont={Adobe Heiti Std},
93     ItalicFont={Adobe Kaiti Std}]{Adobe Song Std}
94 \setCJKsansfont{Adobe Kaiti Std}
95 \setCJKmonofont{Adobe Fangsong Std}
96 \xeCJKsetup{PunctStyle=kaiming}
97
98 \newcommand\ziju[2]{\renewcommand{\CJKglue}{\hskip #1} #2}}

```

**\HEI**

```

99 \newCJKfontfamily\HEI{Adobe Heiti Std}

```

**\KAI**

```

100 \newCJKfontfamily\KAI{Adobe Kaiti Std}

```

**\FANGSONG**

```

101 \newCJKfontfamily\FANGSONG{Adobe Fangsong Std}

```

**\hei**

```

102 \newcommand{\hei}[1]{\HEI #1}}

```

**\kai**

```

103 \newcommand{\kai}[1]{\KAI #1}}

```

**\fangsong**

```

104 \newcommand{\fangsong}[1]{\FANGSONG #1}}

```

```

105 \else\fi

```

```

106 \ifLuaTeX % LuaTeX 下使用 luatex-jā 处理字体 [推荐]

```

```

107 \RequirePackage{luatexja-fontspec}

```

```

108 % 英文字体

```

```

109 \setmainfont[Ligatures={Common,TeX}]{Tex Gyre Termes}

```

```

110 \setsansfont[Ligatures={Common,TeX}]{Droid Sans}

```

```

111 \setmonofont{CMU Typewriter Text}

```

```

112 \defaultfontfeatures{Mapping=tex-text,Scale=MatchLowercase}

```

```

113 % 中文字体

```

```

114 \setmainjfont[

```

```

115     BoldFont={AdobeHeitiStd-Regular},

```

```

116     ItalicFont={AdobeKaitiStd-Regular}]{AdobeSongStd-Light}

```

```

117 \setsansjfont{AdobeKaitiStd-Regular}

```



```

118     \defaultjfontfeatures{JFM=kaiming}
119
120     \newcommand\ziju[2]{\vbox{\ltjsetparameter{kanjiskip=#1} #2}}

\HEI
121     \newjfontfamily\HEI{AdobeHeitiStd-Regular}

\KAI
122     \newjfontfamily\KAI{AdobeKaitiStd-Regular}

\FANGSONG
123     \newjfontfamily\FANGSONG{AdobeFangsongStd-Regular}

\hei
124     \newcommand{\hei}[1]{\jfontspec{AdobeHeitiStd-Regular} #1}}

\kai
125     \newcommand{\kai}[1]{\jfontspec{AdobeKaitiStd-Regular} #1}}

\fangsong
126     \newcommand{\fangsong}[1]{\jfontspec{AdobeFangsongStd-Regular} #1}}
127     \else\fi

Generate Chinese number using zhnumber.

128     \RequirePackage{zhnumber}
129     \def\CJKnumber#1{\zhnumber{#1}} % 兼容 CJKnumb
130 }

```

## 4 Basic Format

Use **interfaces** package to handle font size and line spread. We set global line spread to 1.2.

```

131 \RequirePackage{interfaces-Latex}
132 \changeft{linespread=1.2}

```

Use **geometry** package to handle paper page.

```

133 \RequirePackage{geometry}
134 \geometry{
135     a4paper,
136     top=1.2in,
137     bottom=1.2in,
138     left=1in,

```

```

139   right=1in,
140   includefoot
141 }
142 \pdfpagewidth=\paperwidth
143 \pdfpageheight=\paperheight

```

Indent of paragraph and skip between paragraphs.

```

144 \RequirePackage[indentfirst]
145 \setlength{\parindent}{2em}
146 \setlength{\parskip}{0pt plus 2pt minus 1pt}

```

Packages to handle color.

```

147 \RequirePackage{color}
148 \RequirePackage[table]{xcolor}

```

Use **hyperref** package to generate cross-reference link.

```

149 \RequirePackage[unicode]{hyperref}
150 \hypersetup{
151   bookmarksnumbered=true,
152   bookmarksopen=true,
153   bookmarksopenlevel=1,
154   breaklinks=true,
155   colorlinks=true,
156   allcolors=black,
157   linktoc=all,
158   plainpages=false,
159   pdfpagelabels=true,
160   pdfstartview={XYZ null null 1},
161   pdfinfo={Template.Info={hustthesis.cls v1.1 2013/07/01, Copyright (C) 2013 by Xu C
sis}}
162 }

```

## 5 Load Packages

Load packages for math.

```

163 \RequirePackage{amsmath,amssymb,amsfonts}
164 \RequirePackage[amsmath,amsthm,thmmarks,hyperref,thref]{ntheorem}
165 \RequirePackage{fancytsum}
166 \setfnumgsym{\,}
167 \RequirePackage[lined,boxed,linesnumbered,ruled,vlined]{algorithm2e}

```

Load packages for picture.

```

168 \RequirePackage[all]{xy}

```

```

169 \RequirePackage{overpic}
170 \RequirePackage{graphicx,caption,subcaption}

    Load packages for table.

171 \RequirePackage{array}
172 \RequirePackage{multirow,tabularx,ltxttable}

    Load package for code highlight. Here we use listings to highlight the
    code. But if you need more features, use minted.

173 \RequirePackage{listings}

    Load package for bibliography cite style.

174 \RequirePackage[numbers,square,comma,sort&compress]{natbib}

    Other packages for style setting.

175 \RequirePackage{titlesec}
176 \RequirePackage{titletoc}
177 \RequirePackage{tocvsec2}
178 \RequirePackage[inline]{enumitem}
179 \RequirePackage{fancyhdr}
180 \RequirePackage{afterpage}
181 \RequirePackage{datenumbers}
182 \RequirePackage{etoolbox}
183 \RequirePackage{appendix}
184 \RequirePackage[titles]{tocloft}
185 \RequirePackage{xstring}
186 \RequirePackage{perpage}

```

## 6 Variables Setting

```

\zhtitle Commands to set the title.
\entitle 187 \def\zhtitle#1{\gdef\HUST@zhtitle{#1}\hypersetup{pdftitle={#1}}}
\title 188 \def\entitle#1{\gdef\HUST@entitle{#1}}
189 \DeclareDocumentCommand\title{m g}
190 {
191   \IfNoValueTF{#2}{
192     \zhtitle{#1}\entitle{#1}
193   }{
194     \zhtitle{#1}\entitle{#2}
195   }
196 }
197 \title{}{}

```

**\zhauthor** Commands to set the author.

```
\enauthor 198 \def\zhauthor#1{\gdef\HUST@zhauthor{#1}\hypersetup{pdfauthor={#1}}}
\author 199 \def\enauthor#1{\gdef\HUST@enauthor{#1}}
200 \DeclareDocumentCommand\author{m g}
201 {
202   \IfNoValueTF{#2}{
203     \zhauthor{#1}\enauthor{#1}
204   }{
205     \zhauthor{#1}\enauthor{#2}
206   }
207 }
208 \author{}}}
```

**\date** A command to set the date and several commands to display date.

```
\zhdateformat 209 \def\date#1#2#3{
\enddateformat 210 \setdate{#1}{#2}{#3}
\dateformat 211 }
212 \setdatetoday
213 \def\zhdateformat{~\thedateyear~年~\thedatemonth~月~\thedateday~日}
214 \def\enddateformat{\datedate}
215 \ifthenelse{\equal{\HUST@language}{chinese}}{
216   \let\dateformat\zhdateformat
217 }{
218   \let\dateformat\enddateformat
219 }
```

**\zhschoolname** Commands to set the school name.

```
\enschoolname 220 \def\zhschoolname#1{\gdef\HUST@zhschoolname{#1}}
\schoolname 221 \def\enschoolname#1{\gdef\HUST@enschoolname{#1}}
222 \DeclareDocumentCommand\schoolname{m g}
223 {
224   \IfNoValueTF{#2}{
225     \zhschoolname{#1}\enschoolname{#1}
226   }{
227     \zhschoolname{#1}\enschoolname{#2}
228   }
229 }
230 \schoolname{华中科技大学}{Huazhong University of Science~\char38~Tech-
nology}
```

**\zhaddress** Commands to set the address.

**\enaddress**  
**\address**

```

231 \def\zhaddress#1{\gdef\HUST@zhaddress{#1}}
232 \def\enaddress#1{\gdef\HUST@enaddress{#1}}
233 \DeclareDocumentCommand\address{m g}
234 {
235   \IfNoValueTF{#2}{
236     \zhaddress{#1}\enaddress{#1}
237   }{
238     \zhaddress{#1}\enaddress{#2}
239   }
240 }
241 \address{中国, 武汉, 430074}{Wuhan~430074, P.~R.~China}

```

**\zhmajor** Commands to set the major.

```

\enmajor 242 \def\zhmajor#1{\gdef\HUST@zhmajor{#1}}
\major 243 \def\enmajor#1{\gdef\HUST@enmajor{#1}}
244 \DeclareDocumentCommand\major{m g}
245 {
246   \IfNoValueTF{#2}{
247     \zhmajor{#1}\enmajor{#1}
248   }{
249     \zhmajor{#1}\enmajor{#2}
250   }
251 }
252 \major{}{}

```

**\zhsupervisor** Commands to set the supervisor.

```

\ensupervisor 253 \def\zhsupervisor#1{\gdef\HUST@zhsupervisor{#1}}
\supervisor 254 \def\ensupervisor#1{\gdef\HUST@ensupervisor{#1}}
255 \DeclareDocumentCommand\supervisor{m g}
256 {
257   \IfNoValueTF{#2}{
258     \zhsupervisor{#1}\ensupervisor{#1}
259   }{
260     \zhsupervisor{#1}\ensupervisor{#2}
261   }
262 }
263 \supervisor{}{}

```

**\zhasssupervisor** Commands to set the asssupervisor.

```

\enasssupervisor 264 \def\zhasssupervisor#1{\gdef\HUST@zhasssupervisor{#1}}
\asssupervisor 265 \def\enasssupervisor#1{\gdef\HUST@enasssupervisor{#1}}
266 \DeclareDocumentCommand\asssupervisor{m g}

```

```

267 {
268   \IfNoValueTF{#2}{
269     \zhasssupervisor{#1}\enasssupervisor{#1}
270   }{
271     \zhasssupervisor{#1}\enasssupervisor{#2}
272   }
273 }
274 \asssupervisor{}{}

```

**\schoolcode** A command to set school code.

```

275 \def\schoolcode#1{\gdef\HUST@schoolcode{#1}}
276 \schoolcode{}

```

**\stuno** A command to set student number.

```

277 \def\stuno#1{\gdef\HUST@stuno{#1}}
278 \stuno{}

```

**\classno** A command to set classification number.

```

279 \def\classno#1{\gdef\HUST@classno{#1}}
280 \classno{}

```

**\secretlevel** A command to set secret level.

```

281 \def\secretlevel#1{\gdef\HUST@secretlevel{#1}}
282 \secretlevel{}

```

**\zhabstract** Commands to set the abstract.

**\enabstract** 283 \long\def\zhabstract#1{\long\gdef\HUST@zhabstract{#1}}

**\abstract** 284 \long\def\enabstract#1{\long\gdef\HUST@enabstract{#1}}

```

285 \DeclareDocumentCommand\abstract{+m +g}
286 {
287   \IfNoValueTF{#2}{
288     \zhabstract{#1}\enabstract{#1}
289   }{
290     \zhabstract{#1}\enabstract{#2}
291   }
292 }
293 \abstract{}{}

```

**\zhkeywords** Commands to set the keywords.

**\enkeywords** 294 \def\zhkeywords#1{\gdef\HUST@zhkeywords{#1}\hypersetup{pdfkeywords={#1}}}

**\keywords** 295 \def\enkeywords#1{\gdef\HUST@enkeywords{#1}}

```

296 \DeclareDocumentCommand\keywords{m g}

```

```

297 {
298   \IfNoValueTF{#2}{
299     \zhkeywords{#1}\enkeywords{#1}
300   }{
301     \zhkeywords{#1}\enkeywords{#2}
302   }
303 }
304 \keywords{}{}

```

## 7 Localization

Chinese localization. <sup>2</sup>

```

305 \ifthenelse{\equal{\HUST@language}{chinese}}{
306   \def\indexname{索引}
307   \def\figurename{图}
308   \def\tablename{表}
309   \def\listingscaption{代码}
310   \def\bibname{参考文献}
311   \def\contentsname{目\hspace{1em}录}
312   \def\contentsnamenospace{目录}
313   \def\appendixname{附录}
314   \def\HUST@listfigurename{插图索引}
315   \def\HUST@listtablename{表格索引}
316   \def\equationautorefname{公式}
317   \def\footnoteautorefname{脚注}
318   \def\itemautorefname~#1\null{第~#1~项\null}
319   \def\figureautorefname{图}
320   \def\tableautorefname{表}
321   \def\appendixautorefname{附录}
322   \expandafter\def\csname\appendixname autorefname\endcsname{\ap-
pendixname}
323   \def\chapterautorefname~#1\null{第\zhnumber{#1}章\null}
324   \def\sectionautorefname~#1\null{#1~小节\null}
325   \def\subsectionautorefname~#1\null{#1~小节\null}
326   \def\subsubsectionautorefname~#1\null{#1~小节\null}
327   \def\FancyVerbLineautorefname~#1\null{第~#1~行\null}
328   \def\pageautorefname~#1\null{第~#1~页\null}
329   \def\lstlistingautorefname{代码}

```

---

<sup>2</sup>The autorefname Reference:<http://tex.stackexchange.com/questions/52410/how-to-use-the-command-autoref-to-implement-the-same-effect-when-use-the-command>

```

330 \def\definitionautorefname{定义}
331 \def\propositionautorefname{命题}
332 \def\lemmaautorefname{引理}
333 \def\theoremautorefname{定理}
334 \def\axiomautorefname{公理}
335 \def\corollaryautorefname{推论}
336 \def\exerciseautorefname{练习}
337 \def\exampleautorefname{例}
338 \def\proofautorefname{证明}
339 \SetAlgorithmName{算法}{算法}{算法索引}
340 \SetAlgoProcName{过程}{过程}
341 \SetAlgoFuncName{函数}{函数}
342 \def\AlgoLineautorefname~#1\null{第~#1~行\null}
343 }{}

```

English localization.

```

344 \ifthenelse{\equal{\HUST@language}{chinese}}{}{
345 \def\HUST@listfigurename{List of Figures}
346 \def\HUST@listtablename{List of Tables}
347 \def\equationautorefname{Equation}
348 \def\footnoteautorefname{Footnote}
349 \def\itemautorefname{Item}
350 \def\figureautorefname{Figure}
351 \def\tableautorefname{Table}
352 \def\appendixautorefname{Appendix}
353 \expandafter\def\csname\appendixname autorefname\endcsname{\ap-
pendixname}
354 \def\chapterautorefname{Chapter}
355 \def\sectionautorefname{Section}
356 \def\subsectionautorefname{Subsection}
357 \def\subsubsectionautorefname{Sub-subsection}
358 \def\FancyVerbLineautorefname{Line}
359 \def\pageautorefname{Page}
360 \def\lstlistingautorefname{Code Fragment}
361 \def\definitionautorefname{Definition}
362 \def\propositionautorefname{Proposition}
363 \def\lemmaautorefname{Lemma}
364 \def\theoremautorefname{Theorem}
365 \def\axiomautorefname{Axiom}
366 \def\corollaryautorefname{Corollary}
367 \def\exerciseautorefname{Exercise}
368 \def\exampleautorefname{Example}

```



```

369 \def\proofautorefname{Proof}
370 \SetAlgorithmName{Algorithm}{Algorithm}{List of Algorithms}
371 \SetAlgoProcName{Procedure}{Procedure}
372 \SetAlgoFuncName{Function}{Function}
373 \def\AlgoLineautorefname{Line}
374 }

Internal variables.

375 \def\HUST@classnotitle{{分}\hfill{类}\hfill{号}}
376 \def\HUST@stunotitle{学号}
377 \def\HUST@schoolcodetitle{学校代码}
378 \def\HUST@secrettitle{密级}
379 \def\HUST@zhauthortitle{{学}\hfill{位}\hfill{申}\hfill{请}\hfill{人}}
380 \def\HUST@zhmajortitle{{学}\hfill{科}\hfill{专}\hfill{业}}
381 \def\HUST@zhsupervisortitle{{指}\hfill{导}\hfill{教}\hfill{师}}
382 \def\HUST@zhasssupervisortitle{{副}\hfill{指}\hfill{导}\hfill{教}\hfill{
  师}}
383 \def\HUST@zhdatetitle{{答}\hfill{辩}\hfill{日}\hfill{期}}
384
385 \def\HUST@enauthortitle{Student}
386 \def\HUST@enmajortitle{Major}
387 \def\HUST@ensupervisortitle{Supervisor}
388 \def\HUST@enasssupervisortitle{Co-Supervisor}
389
390 \def\HUST@originaldeclare{独创性声明}
391 \long\def\HUST@originaldeclaretext{
392 本人声明所呈交的学位论文是我个人在导师的指导下进行的研究工作及取得的
  研究成果。尽我所知，除文中已标明引用的内容外，本论文不包含任何其他人或集体已
  经发表或撰写过的研究成果。对本文的研究做出贡献的个人和集体，均已在文中以明
  确方式标明。本人完全意识到本声明的法律结果由本人承担。
393 }
394 \def\HUST@zhauthorsig{学位论文作者签名：}
395 \def\HUST@zhdatefield{日期：\hspace{2em}年\hspace{2em}月\hspace{2em}
  日}
396
397 \def\HUST@authtitle{学位论文版权使用授权书}
398 \long\def\HUST@authorizationtext{
399 本学位论文作者完全了解学校有关保留、使用学位论文的规定，即：学校有权保留
  并向国家有关部门或机构送交论文的复印件和电子版，允许论文被查阅和借阅。本人
  授权华中科技大学可以将本学位论文的全部或部分内容编入有关数据库进行检索，可
  以采用影印、缩印或扫描等复制手段保存和汇编本学位论文。
400 }

```

```

401 \long\def\HUST@authorizationaddon{
402 本论文属于
403 \tabincell{1}{
404 保密$\square$, 在~\makebox[2em]{\hrulefill} 年解密后适用本授权书。\\
405 不保密~$\square$。
406 }
407 }
408 \def\HUST@authorizationcheck{(请在以上方框内打 “$\surd$”)}
409 \def\HUST@zhteachersig{指导教师签名: }
410
411 \def\HUST@zhabstractname{摘\hspace{1em}要}
412 \def\HUST@zhabstractnamenospace{摘要}
413 \def\HUST@zhkeywordstitle{关键词: }
414 \def\HUST@enabstractname{Abstract}
415 \def\HUST@enkeywordstitle{Key words:}
416
417 \ifthenelse{\equal{\HUST@language}{chinese}}{
418 \def\HUST@ackname{致\hspace{1em}谢}
419 \def\HUST@acknamenospace{致谢}
420 \def\HUST@publicationtitle{攻读学位期间发表的学术论文}
421 }{
422 \def\HUST@ackname{Acknowledge}
423 \def\HUST@acknamenospace{Acknowledge}
424 \def\HUST@publicationtitle{Publication}
425 }
426
427 \ifthenelse{\equal{\HUST@degree}{none}}{
428 \def\HUST@zhapplyname{学位论文}
429 \def\HUST@enapplyname{A Thesis Submitted in Partial Fulfillment of the Re-
430 quirements for the Degree}
431 }{}
432
433 \ifthenelse{\equal{\HUST@degree}{fyp}}{
434 \def\HUST@zhapplyname{毕业论文}
435 \def\HUST@enapplyname{A Thesis Submitted in Partial Fulfillment of the Re-
436 quirements for Final Year Project}
437 }{}
438
439 \ifthenelse{\equal{\HUST@degree}{bachelor}}{
440 \def\HUST@zhapplyname{学士学位论文}

```

```

439 \def\HUST@enapplyname{A Thesis Submitted in Partial Fulfillment of the Re-
    requirements for the Degree of Bachelor}
440 }{}
441
442 \ifthenelse{\equal{\HUST@degree}{master}}{
443 \def\HUST@zhapplyname{硕士学位论文}
444 \def\HUST@enapplyname{A Thesis Submitted in Partial Fulfillment of the Re-
    requirements for the Degree of Master}
445 }{}
446
447 \ifthenelse{\equal{\HUST@degree}{phd}}{
448 \def\HUST@zhapplyname{博士学位论文}
449 \def\HUST@enapplyname{A Thesis Submitted in Partial Fulfillment of the Re-
    requirements for the Ph.D}
450 }{}
451
452 \ifthenelse{\equal{\HUST@language}{chinese}}{
453 \hypersetup{pdfsubject={\HUST@zhschoolname\HUST@zhapplyname}}
454 }{
455 \hypersetup{pdfsubject={\HUST@enapplyname}}
456 }

```

Set \listfigurename and \listtablename.

```

457 \def\listfigurename{\HUST@listfigurename}
458 \def\listtablename{\HUST@listtablename}

```

## 8 Style Setting

### 8.1 Equation Style

Allow long equation breaking between lines or pages.

```

459 \allowdisplaybreaks[4]

```

Set skip between equation and context.

```

460 \abovedisplayskip=10bp plus 2bp minus 2bp
461 \abovedisplayshortskip=10bp plus 2bp minus 2bp
462 \belowdisplayskip=\abovedisplayskip
463 \belowdisplayshortskip=\abovedisplayshortskip

```

Set equation numbering style.

```

464 \numberwithin{equation}{chapter}

```

## 8.2 Theorem Style

We use `amsthm` to handle the proof environment and use `ntheorem` to handle other theorem environments.

```
465 \theoremnumbering{arabic}
466 \ifthenelse{\equal{\HUST@language}{chinese}}{
467   \theoremseparator{: }
468 }{
469   \theoremseparator{:}
470 }
471 \theorempreskip{1.2ex plus 0ex minus 1ex}
472 \theorempostskip{1.2ex plus 0ex minus 1ex}
473 \theoremheaderfont{\normalfont\bfseries\HEI}
474 \theoremsymbol{}
475
476 \theoremstyle{definition}
477 \theorembodyfont{\normalfont}
478 \ifthenelse{\equal{\HUST@language}{chinese}}{
479   \newtheorem{definition}{定义}[chapter]
480 }{
481   \newtheorem{definition}{Definition}[chapter]
482 }
483
484 \theoremstyle{plain}
485 \theorembodyfont{\itshape}
486 \ifthenelse{\equal{\HUST@language}{chinese}}{
487   \newtheorem{proposition}{命题}[chapter]
488   \newtheorem{lemma}{引理}[chapter]
489   \newtheorem{theorem}{定理}[chapter]
490   \newtheorem{axiom}{公理}[chapter]
491   \newtheorem{corollary}{推论}[chapter]
492   \newtheorem{exercise}{练习}[chapter]
493   \newtheorem{example}{例}[chapter]
494   \def\proofname{\hei{证明}}
495 }{
496   \newtheorem{proposition}{Proposition}[chapter]
497   \newtheorem{lemma}{Lemma}[chapter]
498   \newtheorem{theorem}{Theorem}[chapter]
499   \newtheorem{axiom}{Axiom}[chapter]
500   \newtheorem{corollary}{Corollary}[chapter]
501   \newtheorem{exercise}{Exercise}[chapter]
```

```

502 \newtheorem{example}{Example}[chapter]
503 \def\proofname{\textbf{Proof}}
504 }

```

### 8.3 Floating Objects Style

Set the skip to the context for floating object with argument ‘h’.

```

505 \setlength{\intextsep}{0.7\baselineskip plus 0.1\baselineskip minus 0.1\baselineskip}

```

Set the skip to the context for top or bottom floating object.

```

506 \setlength{\textfloatsep}{0.8\baselineskip plus 0.1\baselineskip minus 0.2\baselineskip}

```

Set the fraction of floating object. Make the fraction less crowded than default value to prevent floating object occupying too much space.

```

507 \renewcommand{\textfraction}{0.15}
508 \renewcommand{\topfraction}{0.85}
509 \renewcommand{\bottomfraction}{0.65}
510 \renewcommand{\floatpagefraction}{0.60}

```

### 8.4 Table Style

`\tabincell` A command make it easier to insert a new table into an existing cell.

```

511 \newcommand{\tabincell}[2]{\begin{tabular}{@{}#1@{}}#2\end{tabular}}

```

To prevent `\cline` breaking page in **longtable** environment, use in this way: `<table content> \\* \nopagebreak \cline{i-j}`<sup>3</sup>

```

512 \def\@cline#1-#2\@nil{%
513   \omit
514   \@multicnt#1%
515   \advance\@multispan\m@ne
516   \ifnum\@multicnt=\@ne\@firstofone{&\omit}\fi
517   \@multicnt#2%
518   \advance\@multicnt-#1%
519   \advance\@multispan\@ne
520   \leaders\hrule\@height\arrayrulewidth\hfill
521   \cr
522   \noalign{\nobreak\vskip-\arrayrulewidth}}

```

---

<sup>3</sup>Reference:<http://tex.stackexchange.com/questions/52100/longtable-multirow-problem-with-cline-and-nopagebreak>

Here we set the global font setting (font size: 11pt and line spread: 1.4) for tables. But first we will declare a variable to determine whether table global font setting is activated.

```
523 \newif\ifHUST@useoldtabular
524 \HUST@useoldtabularfalse
```

**OffTabFontSetting** Use `\TurnOffTabFontSetting` to deactivate global font setting.

```
525 \def\TurnOffTabFontSetting{\HUST@useoldtabulartrue}
```

**OnTabFontSetting** Use `\TurnOnTabFontSetting` to activate global font setting.

```
526 \def\TurnOnTabFontSetting{\HUST@useoldtabularfalse}
```

Hook the **tabular**, **tabularx** and **longtable** environment to imply the global font setting.

```
527 \AtBeginEnvironment{tabular}{
528   \ifHUST@useoldtabular\else
529     \changeont{size=11pt,linespread=1.4}
530   \fi
531 }
532 \AtBeginEnvironment{tabularx}{
533   \ifHUST@useoldtabular\else
534     \changeont{size=11pt,linespread=1.4}
535   \fi
536 }
537 \AtBeginEnvironment{longtable}{
538   \ifHUST@useoldtabular\else
539     \changeont{size=11pt,linespread=1.4}
540   \fi
541 }
```

## 8.5 Caption Style

Set caption font size as 11pt, use hang format, remove ‘:’ after number and set the skip between context as 12pt.

```
542 \DeclareCaptionFont{HUST@captionfont}{\changeont{size=11pt}}
543 \DeclareCaptionLabelFormat{HUST@caplabel}{#1~#2}
544 \captionsetup{
545   font=HUST@captionfont,
546   labelformat=HUST@caplabel,
547   format=hang,
548   labelsep=quad,
549   skip=12pt}
```

```
550 }
```

Set figure and table numbering style.

```
551 \renewcommand{\thetable}{\arabic{chapter}.\arabic{table}}
552 \renewcommand{\thefigure}{\arabic{chapter}-\arabic{figure}}
```

## 8.6 Code Highlight Style

```
553 \definecolor{HUST@lstgreen}{rgb}{0,0.6,0}
554 \definecolor{HUST@lstmauve}{rgb}{0.58,0,0.82}
555
556 \lstset{
557   basicstyle=\footnotesize\ttfamily\changeont{linespread=1}\FANGSONG,
558   keywordstyle=\color{blue}\bfseries,
559   commentstyle=\color{HUST@lstgreen}\itshape\KAI,
560   stringstyle=\color{HUST@lstmauve},
561   showspaces=false,
562   showstringspaces=false,
563   showtabs=false,
564   numbers=left,
565   numberstyle=\tiny\color{black},
566   frame=lines,
567   rulecolor=\color{black},
568   breaklines=true
569 }
```

## 8.7 Section Title Style

Set the numbering depth for section.

```
570 \setcounter{secnumdepth}{3}
```

Chapter title format and spacing setting.

```
571 \titleformat{\chapter}
572 {
573   \bfseries
574   \HEI
575   \centering
576   \changeont{size=18pt}
577 }
578 {
579   \ifthenelse{\equal{\HUST@language}{chinese}}
580     {\zhnumber{\thechapter}}
581     {Chapter~\thechapter}
```

```

582 }
583 {1em}
584 {}
585 \titlespacing*{\chapter}{0pt}{0pt}{20pt}
    Section tilte format and spacing setting.
586 \titleformat*{\section}{\bfseries\HEI\changeont{size=16pt}}
587 \titlespacing*{\section}{0pt}{18pt}{6pt}
    Subsection tilte format and spacing setting.
588 \titleformat*{\subsection}{\bfseries\HEI\changeont{size=14pt}}
589 \titlespacing*{\subsection}{0pt}{12pt}{6pt}
    Subsubsection tilte format and spacing setting.
590 \titleformat*{\subsubsection}{\bfseries\HEI\changeont{size=13pt}}
591 \titlespacing*{\subsubsection}{0pt}{12pt}{6pt}

```

## 8.8 TOC Style

TOC depth.

```

592 \setcounter{tocdepth}{2}

```

TOC right margin.

```

593 \contentsmargin{2.0em}

```

Remove vertical space between two continues chapter entries. <sup>4</sup>

```

594 \newskip\HUST@oldcftbeforechapskip
595 \HUST@oldcftbeforechapskip=\cftbeforechapskip
596 \newskip\HUST@oldcftbeforesecskip
597 \HUST@oldcftbeforesecskip=\cftbeforesecskip
598 \let\HUST@oldl@chapter\l@chapter
599 \let\HUST@oldl@section\l@section
600 \let\HUST@oldl@subsection\l@subsection
601 \def\l@chapter#1#2{\HUST@oldl@chapter{#1}{#2}\cftbeforechapskip=3pt}
602 \def\l@section#1#2{\HUST@oldl@section{#1}{#2}\cftbeforechapskip=\HUST@old-
    cftbeforechapskip\cftbeforesecskip=3pt}
603 \def\l@subsection#1#2{\HUST@oldl@subsection{#1}{#2}\cftbeforesecskip=\HUST@old-
    cftbeforesecskip}

```

Set LOF LOT style. <sup>5</sup>

```

604 \renewcommand*\cftfigpresnum{\figurename~}
605 \newlength{\HUST@cftfignumwidth@tmp}

```

---

<sup>4</sup>Reference:<http://tex.stackexchange.com/questions/89103/remove-vertical-space-between-two-chapters-in-table-of-contents-in-latex>

<sup>5</sup>Reference:<http://www.latex-community.org/viewtopic.php?f=5&t=1838>



```

606 \settowidth{\HUST@cftfignumwidth@tmp}{\cftfigpresnum}
607 \addtolength{\cftfignumwidth}{\HUST@cftfignumwidth@tmp}
608 \renewcommand{\cftfigaftersnumb}{\quad~}
609 \renewcommand*\cfttabpresnum{\tablename~}
610 \newlength{\HUST@cfttabnumwidth@tmp}
611 \settowidth{\HUST@cfttabnumwidth@tmp}{\cfttabpresnum}
612 \addtolength{\cfttabnumwidth}{\HUST@cfttabnumwidth@tmp}
613 \renewcommand{\cfttabaftersnumb}{\quad~}

```

## 8.9 Head & Foot Style

```

614 \let\ps@plain\ps@fancy
615 \pagestyle{fancy}
616 \fancyhf{}
617 \renewcommand{\headrulewidth}{0pt}
618 \renewcommand{\footrulewidth}{0pt}
619
620 \ifthenelse{\equal{\HUST@language}{english-draft}}{
621   \fancyfoot[C]{\thepage}
622 }{
623   \ifHUST@finalformat
624     \fancyfoot[C]{\thepage}
625   \else
626     \fancyhead[C]{
627       \ziju{1em}{\kai{\changeont{size=14pt}\HUST@zhschoolname\HUST@zhap-
        plyname}}
628       \vskip -5pt
629       \vbox{
630         \hrule width \textwidth height 0.4pt
631         \vskip 1.0pt
632         \hrule width \textwidth height 0.4pt
633       }
634     }
635     \fancyfoot[C]{
636       \hrule width \textwidth height 0.4pt
637       \vskip 0.3\normalbaselineskip
638       \thepage
639     }
640   \fi
641 }

```

## 8.10 List Environment Style

```
642 \setlist{noitemsep,partopsep=0pt,topsep=.8ex}
643 \setlist[1]{labelindent=\parindent}
644 \setlist[enumerate,1]{label=\arabic*.,ref=\arabic*}
645 \setlist[enumerate,2]{label*=\arabic*,ref=\theenumi.\arabic*}
646 \setlist[enumerate,3]{label=\emph{\alph*}),ref=\theenumii\emph{\alph*}}
647 \setlist[description]{font=\bfseries\HEI
648 }
```

## 8.11 Footnote Style

```
649 \MakePerPage{footnote}
```

# 9 Specical Page

```
\frontmatter
\mainmatter 650 \def\frontmatter{
\backmatter 651 \clearpage
652 \@mainmatterfalse
653 \pagenumbering{Roman}
654 }
655 \def\mainmatter{
656 \clearpage
657 \@mainmattertrue
658 \pagenumbering{arabic}
659 }
660 \def\backmatter{
661 \clearpage
662 \@mainmatterfalse
663 \settocdepth{chapter}
664 \hypersetup{bookmarksopenlevel=0}
665 }

Chinese title page.
666 \def\HUST@zhtitlepage{
667 \begin{center}
668 \vspace*{-1.0cm}
669 \parbox[t][2.2cm][t]{\textwidth}{
670 \begin{center}
671 \setlength{\tabcolsep}{0pt}
672 \setlength{\extrarowheight}{12pt}
673 \TurnOffTabFontSetting
```

```

674     \changeont{size=14pt,linespread=1.2}
675     \begin{tabularx}{\textwidth}{p{4em}p{5em}Xp{2em}p{12em}}
676         \HUST@classnotitle      & \makebox[5em][l]{\rule[-2.0pt]{5em}{1pt}\hspace{-5em}}
677         \HUST@stunotitle        & \makebox[12em][l]{\rule[-2.0pt]{12em}{1pt}\hspace{-1em}}
678         \HUST@schoolcodetitle   & \makebox[5em][l]{\rule[-2.0pt]{5em}{1pt}\hspace{-5em}}
679         \HUST@secrettile        & \makebox[12em][l]{\rule[-2.0pt]{12em}{1pt}\hspace{-1em}}
680     \end{tabularx}
681     \TurnOnTabFontSetting
682 \end{center}
683 }
684 \parbox[t][6cm][t]{\textwidth}{
685     \vspace{1.0cm}
686     \begin{center}
687         \includegraphics[scale=1.1]{hust-title.pdf}\[0.8cm]
688         \ziju{10bp}{\changeont{size=42pt}\HUST@zhapplyname}
689     \end{center}
690 }
691 \parbox[t][4.8cm][t]{.8\textwidth}{
692     \vspace{1.4cm}
693     \begin{center}
694         \changeont{size=22pt,linespread=1.6}\hei{\HUST@zhtitle}
695     \end{center}
696 }
697 \parbox[t][7.4cm][t]{\textwidth}{
698     \vspace{1.2cm}
699     \begin{center}
700         \changeont{size=18pt,linespread=1.5}
701         \setlength{\extrarowheight}{0pt}
702         \TurnOffTabFontSetting
703         \begin{tabular}{p{5em}@{\hspace{1em}}l}
704             \HUST@zhauthortitle      & {\HUST@zhauthor} \\
705             \HUST@zhmajortitle       & {\HUST@zhmajor} \\
706             \HUST@zhsupervisortitle & {\HUST@zhsupervisor} \\
707             \ifthenelse{\equal{\HUST@zhasssupervisor}{}}{\}{
708                 \HUST@zhasssupervisortitle & {\HUST@zhasssupervisor} \\
709             }
710             \HUST@zhdatetitle & \zhdateformat
711         \end{tabular}
712         \TurnOnTabFontSetting
713     \end{center}
714 }

```

```

715 \end{center}
716 }

English title page.

717 \def\HUST@entitlepage{
718 \begin{center}
719 \parbox[t][4.5cm][t]{.9\textwidth}{
720 \begin{center}
721 \changeont{size=16pt,linespread=1.1}
722 \HUST@enapplyname
723 \end{center}
724 }
725 \parbox[t][5.7cm][t]{\textwidth}{
726 \begin{center}
727 \changeont{size=18pt,linespread=1.3}
728 \textbf{\textsf{\HUST@entitle}}
729 \end{center}
730 }
731 \parbox[t][5cm][t]{.8\textwidth}{
732 \begin{center}
733 \setlength{\extrarowheight}{5pt}
734 \changeont{size=16pt,linespread=1.5}
735 \TurnOffTabFontSetting
736 \begin{tabular}{l@{~:~}p{18em}}
737 \HUST@enauthortitle & {\HUST@enauthor} \\
738 \HUST@enmajortitle & {\HUST@enmajor} \\
739 \HUST@ensupervisortitle & {\HUST@ensupervisor}
740 \ifthenelse{\equal{\HUST@enasssupervisor}{}}{\}{
741 \\\HUST@enasssupervisortitle & {\HUST@enasssupervisor}
742 }
743 \end{tabular}
744 \TurnOnTabFontSetting
745 \end{center}
746 }
747 \parbox[t][7cm][b]{.8\textwidth}{
748 \begin{center}
749 \bfseries
750 \changeont{size=14pt,linespread=2.0}
751 \HUST@enschoolname \\
752 \HUST@enaddress \\
753 \endateformat
754 \end{center}

```

```

755     }
756   \end{center}
757 }

Copyright page.

758 \def\HUST@authorization{
759   \centerline{\changeont{size=16pt} \HEI \HUST@originaldeclare}
760   \vspace{1cm}
761   {
762     \changeont{size=12pt,linespread=2.0}
763     \indent\HUST@originaldeclaretext
764   }
765   \[1.9cm]
766   \parbox[t]{\textwidth}{
767     \changeont{size=12pt,linespread=1.5}
768     \TurnOffTabFontSetting
769     \hfill\begin{tabular}{ll}
770       \HUST@zhauthorsig & \hspace{2em}\\
771       \HUST@zhdatefield & \hspace{2em}\\
772     \end{tabular}
773     \TurnOnTabFontSetting
774   }
775   \[1.9cm]
776   \centerline{\changeont{size=16pt} \HEI \HUST@authtitle}
777   \[1cm]
778   {
779     \changeont{size=12pt,linespread=2.0}
780     \indent\HUST@authorizationtext \\
781     \indent\HUST@authorizationaddon \\
782     \indent\HUST@authorizationcheck
783   }
784   \[1.9cm]
785   \hspace{2em}\parbox[t]{.9\textwidth}{
786     \changeont{size=12pt,linespread=1.5}
787     \TurnOffTabFontSetting
788     \begin{tabular}{ll}
789       \HUST@zhauthorsig & \hspace{2em}\\
790       \HUST@zhdatefield & \hspace{2em}\\
791     \end{tabular}
792     \hfill
793     \begin{tabular}{ll}
794       \HUST@zhteachersig & \hspace{2em}\\

```

```

795         \HUST@zhdatefield & \hspace{2em}\\
796     \end{tabular}
797     \TurnOnTabFontSetting
798 }
799 \vfill
800 }

```

**\maketitle** Commands to generate title page.

```

\makecover 801 \def\maketitle{
802     \let\HUST@oldthepage\thepage
803     \ifthenelse{\equal{\HUST@language}{english-draft}}{
804         {\def\thepage{Titlepage}}
805         {\def\thepage{封面}}
806     \begin{titlepage}
807         \ifthenelse{\equal{\HUST@language}{english-draft}}{
808             \thispagestyle{empty}
809             \HUST@zhtitlepage
810             \clearpage
811         }
812         \thispagestyle{empty}
813         \HUST@entitlepage
814     \end{titlepage}
815     \ifthenelse{\equal{\HUST@language}{english-draft}}{
816         \def\thepage{版权页}
817         \thispagestyle{empty}
818         \HUST@authorization
819         \clearpage
820     }
821     \let\thepage\HUST@oldthepage
822     \setcounter{page}{1}
823 }
824 \let\makecover\maketitle

```

Chinese abstract page.

```

825 \def\HUST@zhabstractpage{
826     \chapter*{\HUST@zhabstractname}
827     \HUST@zhabstract \par
828     \vskip 1.2ex
829     \noindent\hei{\HUST@zhkeywordstitle}\hspace{.8em} \HUST@zhkeywords
830 }

```

English abstract page.

```

831 \def\HUST@enabstractpage{
832   \chapter*{\textsf{\HUST@enabstractname}}
833   \HUST@enabstract \par
834   \vskip 1.2ex
835   \noindent\textbf{\HUST@enkeywordstitle}\hspace{.8em} \HUST@enkey-
      words
836 }

```

**\makeabstract** A command to generate abstract page.

```

837 \def\makeabstract{
838   \phantomsection
839   \ifthenelse{\equal{\HUST@language}{chinese}}{
840     \addcontentsline{toc}{chapter}{\HUST@zhabstractnamenospace}
841   }{
842     \addcontentsline{toc}{chapter}{\HUST@enabstractname}
843   }
844   \ifthenelse{\equal{\HUST@language}{english-draft}}{ }{
845     \HUST@zhabstractpage
846     \clearpage
847   }
848   \HUST@enabstractpage
849   \clearpage
850 }

```

**\tableofcontents** A command to generate table of contents.

```

851 \let\HUST@tableofcontents\tableofcontents
852 \def\tableofcontents{
853   \ifthenelse{\equal{\HUST@language}{chinese}}{
854     \pdfbookmark{\contentsnamenospace}{\contentsnamenospace}
855   }{
856     \pdfbookmark{\contentsname}{\contentsname}
857   }
858   \HUST@tableofcontents
859   \clearpage
860 }

```

**ack** A command to generate acknowledge page.

```

861 \newenvironment{ack}{
862   \clearpage
863   \phantomsection
864   \addcontentsline{toc}{chapter}{\HUST@acknamenospace}
865   \chapter*{\HUST@ackname}

```

```

866 \begingroup
867 \normalsize
868 }{
869 \endgroup
870 }

```

**publications** A command to generate publications page.

```

871 \newenvironment{publications}{
872 \clearpage
873 \ifHUST@inappendix
874 \chapter{\HUST@publicationtitle}
875 \else
876 \phantomsection
877 \addcontentsline{toc}{chapter}{\HUST@publicationtitle}
878 \chapter*{\HUST@publicationtitle}
879 \fi
880 \begin{enumerate}[labelindent=0pt,label={[\arabic*]}]
881 }{
882 \end{enumerate}
883 }

```

**\bibliography** A command to generate bibliography page.

```

884 \bibliographystyle{hustthesis}
885 \let\HUST@bibliography\bibliography
886 \def\bibliography#1{
887 \clearpage
888 \phantomsection
889 \addcontentsline{toc}{chapter}{\bibname}
890 \HUST@bibliography{#1}
891 }

```

**appendix** The appendix environment.

```

892 \newif\ifHUST@inappendix
893 \HUST@inappendixfalse
894 \newif\ifHUST@appendix@resetmainmatter
895 \HUST@appendix@resetmainmatterfalse
896 \renewenvironment{appendix}{
897 \if@mainmatter
898 \HUST@appendix@resetmainmatterfalse
899 \else
900 \HUST@appendix@resetmainmattertrue
901 \@mainmattertrue

```



```

902 \fi
903 \appendixtitletocon
904 \appendices
905 \titleformat{\chapter}
906 {
907     \bfseries\HEI
908     \centering
909     \changeont{size=18pt}
910 }
911 {\appendixname\,\thechapter}
912 {1em}
913 {}
914 \HUST@inappendixtrue
915 }{
916 \endappendices
917 \HUST@inappendixfalse
918 \ifHUST@appendix@resetmainmatter
919     \HUST@appendix@resetmainmatterfalse
920     \@mainmatterfalse
921 \else\fi
922 }

```

**\listoffigures** A command to generate list of figures.

```

923 \let\HUST@listoffigures\listoffigures
924 \def\listoffigures{
925     \clearpage
926     \ifHUST@inappendix
927         \addtocounter{chapter}{1}
928         \def\listfigurename{\appendixname\,\thechapter\hspace{1em}\HUST@listfigurename}
929     \else
930         \def\listfigurename{\HUST@listfigurename}
931     \fi
932     \phantomsection
933     \ifHUST@inappendix
934         \addcontentsline{toc}{chapter}{\thechapter\hspace{1em}\HUST@list-
figurename}
935     \else
936         \addcontentsline{toc}{chapter}{\listfigurename}
937     \fi
938     \HUST@listoffigures
939     \def\listfigurename{\HUST@listfigurename}

```

```
940 }
```

**\listoftables** A command to generate list of tables.

```
941 \let\HUST@listoftables\listoftables
942 \def\listoftables{
943   \clearpage
944   \ifHUST@inappendix
945     \addtocounter{chapter}{1}
946     \def\listtablename{\appendixname\,\thechapter\hspace{1em}\HUST@listtablename}
947   \else
948     \def\listtablename{\HUST@listtablename}
949   \fi
950   \phantomsection
951   \ifHUST@inappendix
952     \addcontentsline{toc}{chapter}{\thechapter\hspace{1em}\HUST@list-
    tablename}
953   \else
954     \addcontentsline{toc}{chapter}{\listtablename}
955   \fi
956   \HUST@listoftables
957   \def\listtablename{\HUST@listtablename}
958 }
```

## 10 Other Command

**\email**

```
959 \def\email#1{
960   \href{mailto:#1}{\texttt{#1}}
961 }
962 </class>
```

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