LaTeX 的环境 (Environment)

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LaTeX 环境包括文字版式环境, 图表环境和数学版式环境。环境引用的格式是:

```
\begin{环境名}[选项]
    内容
\end{环境名}
```

1 文字版式环境

居中环境:

```
\begin{center}
    The context.
\end{center}
```

The output:

The context.

1.1 左对齐环境

The Code

```
\begin{ flushleft }
    SPIE\\
    P.O.Box 10\\
    Bellingham, W A 98227−0010\\
    USA
\end{ flushleft }
```

The output

SPIE
P.O.Box 10
Bellingham, W A 98227-0010
USA

1.2 右对齐环境

```
\begin{flushright}
    SPIE\\
    P.O.Box 10\\
    Bellingham, W A 98227−0010\\
    USA
\end{flushright}
```

SPIE
P.O.Box 10
Bellingham, W A 98227-0010
USA

1.3 itemize 环境

```
\begin{itemize}
    \item item1
    \item item2
\end{itemize}
```

The output:

- item1
- item2

1.4 enumerate 环境

```
\begin{enumerate}
    \item Optimal information processing
    \item Digital  filtering
\end{enumerate}
```

The output:

1. Optimal information processing
2. Digital filtering

1.5 description 环境

此环境与上述两种环境的差别在于引导列举条款的标志符可以随意选择, 所以特别适合词条的解释: 词条名作标志符, 解释作条款. 例如

```
\begin{description}
    \item[Fox.]  A animal being of four legs, simalar to a dog, but cleverer than the dog.
    \item[Food Dash.] Used daily by the dog, underwent possible damage when the fox landed in it
\end{description}
```

Fox. A animal being of four legs, simalar to a dog, but cleverer than the dog.

Food Dash. Used daily by the dog, underwent possible damage when the fox landed in it.

1.6 minipage 环境

可以定义一个局部宽度，并不是按照原先定义的全局宽度输入。

```
\begin{minipage}{3in}
    This paper describes the use of a neural computational network model for pattern recognition
\end{minipage}
```

This paper describes the use of a neural computational network model for pattern recognition and classification ...

1.7 quote, quotation 环境

```
\begin{quotation}
    This paper describes the use of a neural computational network model for pattern recognition and
\end{quotation}
\begin{quote}
    This paper describes the use of a neural computational network model for pattern recognition and
\end{quote}
```

> This paper describes the use of a neural computational network model for pattern recognition and classification ...

> This paper describes the use of a neural computational network model for pattern recognition and classification ...

实际的输出格式上差别并不大，第一段使用的是 quotation，首行有缩进，而使用 quote 没有缩进。

```
\begin{center}
    {\large \bf Gwendolyn Brooks\\
    The Bean Eaters}
\end{center}
\begin{verse}
    They eat beans mostly, this old yellow air.\\
    Dinner is a casual affair .
\end{verse}
```

Gwendolyn Brooks
The Bean Eaters

They eat beans mostly, this old yellow air.
Dinner is a casual affair.

2 图表环境

2.1 tabbing 环境

```
\begin{tabbing}
    No. \= Description \= Sale Price\\
    1. \> Disk Drive \> \$ 55\\
    2. \> Monitor \> \$ 90
\end{tabbing}
```

No. Description Sale Price
1. Disk Drive $ 55
2. Monitor $ 90

2.2 tabluar 环境

No.	Description	Sale Price
1.	Disk Drive	$ 55
2.	Monitor	$ 90

其中的 '\hline' 负责画出一整条横线，若只想要部分的话，可以使用 'cline{a-b}'

2.3 figure 环境

```
    \begin{figure}[定位参数]
        \caption[short]{ title }
        context
    \end{figure}
```

定位参数选择为：b：图表定位于页面底部；h：图标定位于当前行；t 图标定位于页顶；p：图表单独占据一页。

在作图的时候常常会选择将 table 环境和 tabluar 环境结合使用，table 环境负责设置标题、ref、定位等参数，tabluar 负责具体的绘图。

3 math 环境

用于产生数学符号和文中间的公式所使用，一般用 .. 或

```
    \begin{math}
        mathematical formula
    \end{math}
```

3.1 displaymath 环境

此环境用于单独占行, 但不编号的数学公式排版. 使用格式为 $$...$$ 或\[...\] 或

```
\begin{displaymath}
    ...
\end{displaymath}
```

3.2 equation 环境

单独占据一行，有编号，若不需要编号加入 *。

```
\begin{equation}
    a^2+b^2=c^2
\end{equation}
```

$$a^2 + b^2 = c^2 \tag{1}$$

3.3 array 环境

此环境兼有 array 和 equation 两环境的特点, 特别适合排版复杂的多行公式和方程组。产生的方程组自动编号。使用格式为:

```
\begin{eqnarray/eqnarray*}
    context
\end{eqnarray/eqnarray*}
```

$$Y_{it} = \alpha_1 D_i + \alpha_2 X_{it} + \varepsilon_{it} \tag{2}$$

4 其他环境

```
> matrix(1:12,nrow=3,ncol=4)
     [,1] [,2] [,3] [,4]
[1,]    1    4    7   10
[2,]    2    5    8   11
[3,]    3    6    9   12
```

参考资料:http://staff.ustc.edu.cn/ zwp/teach/Stat-Comp/latex-intro.pdf