Title of Note Template ElegantNote

Subtitle of Note Template ElegantNote

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June, 2022

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1 ElegantNote Instructions

The brand new ElegantNote is redesigned on the basis of LaTeX article, a more elegant note template! You can use either pdfLaTeX or XeLaTeX to compile[1]. It is recommended that pdfLaTeX be used for notes in English while XeLaTeX be used for notes in Chinese.

The new template has the following features:

- two modes: good for eye mode (geye) and hazy mode;
- different devices: Pad (default), Screen(beamer size), Kindle, PC (double-page) and normal (A4);
- 5 color themes: blue (default), green, cyan, sakura and black;
- languages support: Chinese (default), English;
- support pdfLaTeX and XeLaTeX;
- prettier captions, list environments, and unified fonts;
- custmized global font size: 8pt, 9pt, 10pt, 11pt, 12pt, 14pt, 17pt and 20pt;
- support for math font options for `newtx` and `mtpro2`;

[1]The test environment is Win10 + TeX Live 2019.

- with the option of `bibstyle` (default: apalike) for changing style of bibliography;
- change the citation style with `cite` option: `authoryear`, `numbers` and `super`.

1.1 Optional Modes

This template provides optional modes: good for eye mode (geye) and hazy mode, while the paper color is green for the former and light blue for the latter. you can use the following code to activate the desired mode:

```
\documentclass[geye]{elegantnote} % or
\documentclass[mode=geye]{elegantnote}
\documentclass[hazy]{elegantnote} % or
\documentclass[mode=hazy]{elegantnote}
```

Remark If you are expected to customize background, use:

```
\definecolor{geyecolor}{RGB}{199,237,204}
\pagecolor{geyecolor}
```

1.2 Device Options

To make the notes more comfortable to read, we designed four output options (of different sizes) that correspond to different reading devices: Pad (default), Kindle, PC and A4paper.

New: For the convenience of notes presentation, version 2.20 offers a new option for device, i.e. `device=screen`, which is similar to the size of MS Powerpoint with ratio aspect of 4:3 (2019/12/06).

The options of output for different devices are

```
\documentclass[device=pad]{elegantnote}    % ipad screen size
\documentclass[device=kindle]{elegantnote} % kindle screen size
\documentclass[device=pc]{elegantnote}     % double pages for pc
\documentclass[device=normal]{elegantnote} % a4 normal page
\documentclass[device=screen]{elegantnote} % 4:3 PPT size
```

Note You can also select the device by using a direct assignment method, such as:

```
\documentclass[pad]{elegantnote}
\documentclass[kindle]{elegantnote}
\documentclass[pc]{elegantnote}
```

```
\documentclass[normal]{elegantnote}
\documentclass[screen]{elegantnote}
```

Note To get a normal A4paper size PDF, please select `device=normal`.

1.3 Math Fonts

This template defines a new option (`math`), with three options:

1. `math=cm` (default), use LaTeX default math font (recommended).
2. `math=newtx`, use `newtxmath` math font (may bring about bugs).
3. `math=mtpro2`, use `mtpro2` package to set math font.

1.4 Color Themes[2]

This template contains 5 color themes, green, cyan, blue(default), sakura and black. If you don't need color, you can choose black theme. The color theme is enabled in the same way as before:

[2]Test for chapter footnote.

```
\documentclass[green]{elegantnote}
\documentclass[color=green]{elegantnote}
....
\documentclass[black]{elegantnote}
\documentclass[color=black]{elegantnote}
```

1.5 Languages

This template contains two sets of language environments, changing the language environment will change the title of table/figure (figure, table), article structure words (such as the table of contents, references, etc.), and the environment Introductory words (such as Theorem, Lemma, etc.). The different language modes are enabled as follows:

```
\documentclass[cn]{elegantnote}
\documentclass[lang=cn]{elegantnote}
\documentclass[en]{elegantnote}
\documentclass[lang=en]{elegantnote}
```

Note Chinese characters are allowed in Chinese mode only. To type in Chinese characters

in English mode, please include ctex[3] or xeCJK package.

1.6 Theorem Class Environments

This template used the amsthm to create theorems, there are 4 types of theorem environments

- **Theorem-Class**: theorem, lemma, proposition, corollary;
- **Definition-Class**: definition, conjecture, example;
- **Remark-Class**: remark, note, case;
- **Proof-Class**: proof.

Remark With the option lang=cn , the introductory words of the theorem class environments will be changed to Chinese.

[3]Please use scheme=plain to retain headlines in English.

2 Writing Sample

We will define the integral of a measurable function in three steps. First, we define the integral of a nonnegative simple function. Let E be the measurable set in $\mathcal{R}^N$.

Definition 2.1 (Left Coset) *Let H be a subgroup of a group G. A* left coset *of H in G is a subset of G that is of the form xH, where $x \in G$ and $xH = \{xh : h \in H\}$. Similarly a* right coset *of H in G is a subset of G that is of the form Hx, where $Hx = \{hx : h \in H\}$*

Note that a subgroup H of a group G is itself a left coset of H in G.

Lemma 2.1 (Size Of Left Coset) *Let H be a finite subgroup of a group G. Then each left coset of H in G has the same number of elements as H.*

Theorem 2.2 (Lagrange's Theorem) *Let G be a finite group, and let H be a subgroup of G. Then the order of H divides the order of G.*

Proof. Let z be some element of $xH \cap yH$. Then $z = xa$ for some $a \in H$, and $z = yb$ for some $b \in H$. If h is any element of H then $ah \in H$ and $a^{-1}h \in H$, since H is a subgroup of

G. But $zh = x(ah)$ and $xh = z(a^{-1}h)$ for all $h \in H$. Therefore $zH \subset xH$ and $xH \subset zH$, and thus $xH = zH$. Similarly $yH = zH$, and thus $xH = yH$, as required.

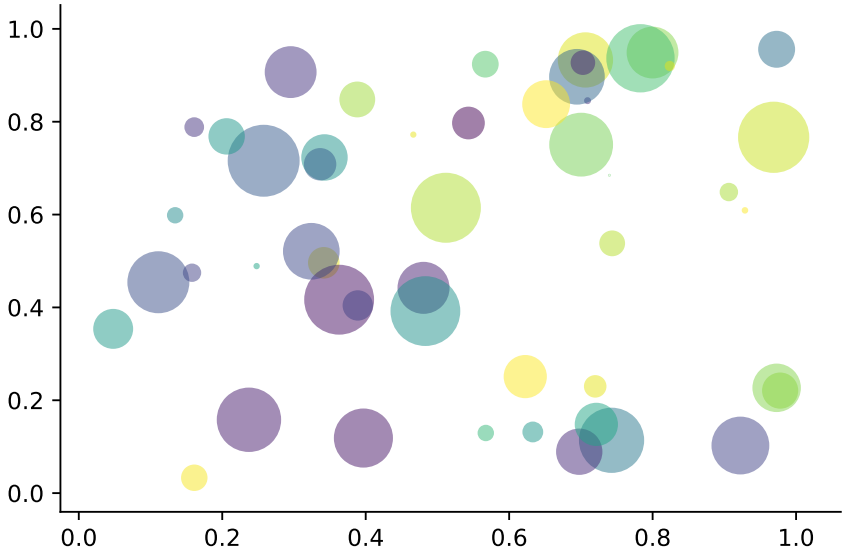

Figure 1: Matplotlib: Scatter Plot Example

Regression analysis is a powerful statistical method that allows you to examine the relationship between two or more variables of interest. While there are many types of regression analysis, at their core they all examine the influence of one or more independent variables

on a dependent variable. The process of performing a regression allows you to confidently determine which factors matter most, which factors can be ignored, and how these factors influence each other.

Let's continue using our application training example. In this case, we'd want to measure the historical levels of satisfaction with the events from the past three years or so, as well as any information possible in regards to the independent variables.

- Routing and resource discovery;
  - Language Models
  - Vector Space Models
- Resilient and scalable computer networks;
- Distributed storage and search.

Citation [3] and [1, 4]. Citation [1, 2].

Table 1: Auto MPG and Price

	(1)	(2)
mpg	-238.90***	-49.51
	(53.08)	(86.16)
weight		1.75***
		(0.641)
constant	11,253***	1,946
	(1,171)	(3,597)
obs	74	74
R^2	0.220	0.293

Standard errors in parentheses

*** p<0.01, ** p<0.05, * p<0.1

3 Acknowledgement

Thank sikouhjw and syvshc for their quick response to Github issues and continuously support work for ElegantLaTeX. Thank ChinaTeX and LaTeX Studio for their promotion.

4 FAQ

1). *How to remove the information of version?*

Please comment `\version{x.xx}`.

2). *How to remove the information of date?*

Please type in `\date{}`.

3). *How to add several authors?*

Use `\and` in `\author` and use \\ to start a new line.

```
\author{author 1\\ org. 1 \and author 2 \\ org. 2 }
```

5 code highlight

MATLAB code

MATLAB code

```matlab
% Euler method for the ODE model
% u'(x)=x^2+x-u, x in [0,1]
% Initial condition: u(0)=0 ;
% Exact solution: u(x)=-exp(-x)+x^2-x+1.
clear all;  clf
h=0.1;
x=0:h:1;
N=length(x)-1;
u(1)=0;                          % initial value
fun=@(t,u) t.^2+t-u;             % RHS

for n=1:N
    u(n+1)=u(n)+h.*fun(x(n),u(n));
end

ue=-exp(-x)+x.^2-x+1;            % exact solution
plot(x,ue,'b-',x,u,'r+','LineWidth',1)
legend('Exact','Numerical','location','North')
%title('Euler method','fontsize',12)
```

```
set(gca,'fontsize',12)
xlabel('x','fontsize',16), ylabel('u','fontsize',16,'Rotation',0)
```

Python code

Python code

```
#PythonDraw.py
import turtle as t
t.setup(650, 350, 200, 200)
t.penup()
t.fd(-250)
t.pendown()
t.pensize(25)
t.pencolor("purple color")
t.seth(-40)
for i in range(4):
    t.circle(40, 80)
    t.circle(-40, 80)
t.circle(40, 80/2)
t.fd(40)
t.circle(16, 180)
t.fd(40 * 2/3)
t.done()
```

References

[1] Robert A Adams and John J F Fournier. *Sobolev spaces*. Elsevier, 2003.

[2] Jie Shen. Efficient spectral-Galerkin method I. Direct solvers of second- and fourth-order equations using Legendre polynomials. *SIAM J. Sci. Comput.*, 15(6):1489–1505, 1994.

[3] Eitan Tadmor. A review of numerical methods for nonlinear partial differential equations. *Bull. Amer. Math. Soc.*, 49(4):507–554, 2012.

[4] L. N. Trefethen and J. A. C. Weideman. The exponentially convergent trapezoidal rule. *SIAM Rev.*, 56(3):385–458, 2014.