

HOMEWORK - 1:

for now I still prefer MS words more

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September 11, 2020

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1 Programming experiences

I was overwhelmed with programming classes in my Mater degree in computer applications. And I have studied various languages such as **C**, **C++**, **C# (the C family)**, **Java**, etc. **Python** was never put into the syllabus, but I studied it on my own since then. Meanwhile, you have to study many other languages such as **HTML**, **CSS**, **PHP**, **JavaScript** those language in web technologies. It was scary to use out-dated WAMP server since the programming exams were all performed on the system of the department. Also, database management system is fun to play with.

Currently, I am typing the script on the **MacOS** system in my lab, with Mojave installed (luckily the system prevented me from upgrading the OS months ago). My personal Windows laptop Dell G7 is used for ~~gaming~~ parallel working experience when I am ~~listening to music~~ doing researches in the lab.

I prefer **terminal** on Mac since ~~Mac is much more expensive than Linux laptop~~ MacOS is smooth to use. When talking about editor, I prefer **Sublime** for the code viewing. If it is the file at remote server, **vim** is the tool I use instead of emacs. Without no offense to emacs at all. **Anaconda** is the favorite IDE I use for data handling (graph drawing, stats calculation) with python script. I also install anaconda to remote server to install packages in really good handling.

21 **2 Physics equation**

22 The Gauss's Law in differential form:

$$\vec{\nabla} \cdot \vec{E} = \frac{\rho}{\varepsilon_0} \tag{1}$$

23 And for the details of the parameters in the Equation 1

24

Variable	Description
\vec{E}	Electric field
ρ	Density of charges enclosed
ε_0	Electric constant

Table 1: Gauss's Law differential form

25 The Equation 1 shows the divergence of electric field equals to the ratio
26 between density of charge enclosed and the electric constant. This equation
27 is very neat in providing the way to calculate electric field by focusing on the
28 charge density enclosed! I have met it a lot when doing the homeworks and
29 especially during the exams. Kind of PTSD awesome.

30 **3 Comment**

31 It is a very detailed tutorial including some many useful demonstrations in using
32 the modules. ~~Thus, I have not finished reading all the parts.~~

33 Some suggestions might go there:

- 34 1. It looks better if we centralize the front page vertically;
- 35 2. Can we be taught how to include GIFs in L^AT_EX?

36 4 Related works

37 I am going to ~~copy-and-paste~~ refer from the paper I have written.

38 Total Electron Content (TEC) is an important parameter characterizing the
39 ionospheric plasma number density [Mannucci et al., 1998]. Especially, the dy-
40 namic TEC value can be used to identify travelling ionospheric disturbance,
41 which indicates magnetic storm events. TEC also influences the communication
42 between satellites and the ground stations and has been included as a param-
43 eter in the space weather forecasting [Jakowski et al., 2002, Afraimovich and
44 Astafyeva, 2008]. And we have used the deep convolutional generative adver-
45 sarial network (DCGAN) to train the International Global Navigation Satel-
46 lite System (GNSS) Service (IGS)-TEC data with the post processing Poisson
47 blending, and it outperforms conventional image inpainting methods Pan et al.
48 [2020]. Sadly, it will not increase my citation.

5 More Memes

Frankly speaking, I really ~~learned a lot~~ collected a lot of memes from this class.
And here is an absolutely good chance for me to put more.
So this is my favorite cartoon character shown in Figure 1, really adorable, isn't it?



Figure 1: That is a bad idea.

55 6 Show me something new

56 Unlikely, I was trying to include a GIF into this pdf but both movie15 and
57 media9 have failed. (Faith in L^AT_EXdropped ↓↓).

58 6.1 This is a Python class

59 As you can see below, I am adding my python script file with a better visual-
60 ization effect 1.
61 To add the coding block, we are going to use a lot of

62 `\lstset{}`

63 commands. So type the following in your .tex file:

64

```
\lstset{language=Python} % set the programming language
\lstset{frame=lines} % you are going to put multiple lines
\lstset{caption={A simple python example}} % caption is important
\lstset{label={lst:python_1}} % you don't want to refer to it?
\lstset{basicstyle=\small} % fontsize
```

```
\begin{lstlisting}
```

```
[your code section]
```

```
\end{lstlisting}
```

65 And it goes like below:

Listing 1: A simple python example

66

67 **import** numpy as np

68

69 yang = np.arange(-180, 180.1, 5)

70

71 **for** item **in** yang:

72 **print**(item)

73

74 6.2 Coloured text

75 To enable this module, import the package `xcolor` as `\usepackage{xcolor}`.
76 Then `\textcolor{color}{Text to be colored}` to `color` the text you want.
77

78 6.3 Highlightened

79 You could import `xcolor` module along with `soul` module as `\usepackage{xcolor, soul}`.
80 Use `\hl{the highlighted part}` for the command. If we do not specify the
81 color we want, by default `yellow` would be applied. Name the color before use
82 `\hl{}`, with `\sethlcolor{unicorn_color}`. `How are doing Ms. Brown?`

83 References

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