Weekly Report(Feb.5,2018-Feb.18,2018)

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Abstract

In the last two weeks,I have read the book ***A Byte of Python***,which focuses on Python3,and learned some courses of ***LAFF: Linear Algebra - Foundations to Frontiers***.Besides,I have solved some questions of the C programming language and learned some basic usage methods of MerkdownPad2.

1 A Byte of Python

This is a concise book with many useful links.I'm disposed to list some syntax of Python3 that is new to me.

1.1 format()

Like the function of '%',format() helps formatted output.I think using a function is much more clear.

1.2 print()

Python3 makes print() a function.Thus sentence like print ' ' is dimmed.

1.3 Raw String

> If you need to specify some strings where no special processing such as escape sequences are handled, then what you need is to specify a raw string by prefixing r or R to the string.

- But actually I don't have much idea about its function.In which case should we use raw string?What will happen if we don't use it when needed?

1.4 Division

1/3 gives 0.33333... not 0 any more.'//' means divide and floor:divide x by y and round the answer down to the nearest integer value.13//3 gives 4 and -13//3 gives -5.It's much more convenient without type conversion but be careful to use.

1.5 VarArgs parameters

> When we declare a starred parameter such as *param, then all the positional arguments from that point till the end are collected as a tuple called 'param'.Similarly, when we declare a double-starred parameter such as **param, then all the keyword arguments from that point till the end are collected as a dictionary called 'param'.

Yeah it's useful but I'm not quite into it for it contains too much in the bracket.

1.6 DocStrings

DocStrings are an important tool since it helps to document the program better and makes it easier to understand.

> Amazingly, we can even **get the docstring back from, say a function**, when the program is actually running!

> The convention followed for a docstring is a multi-line string where the first line starts with a capital letter and ends with a dot. Then **the second line is blank** followed by any detailed explanation starting from the third line. You are strongly advised to follow this convention for all your docstrings for all your non-trivial functions.

- How to get the docstring back from a function?And why is the second line blank?I found that it still works without the blank second line.

1.7 Pickle

Python provides a standard module called pickle which you can use to store any plain Python object in a file and then get it back later.

1.8 Lambda Forms

> A lambda statement is used to create new function objects. Essentially, the lambda takes a parameter followed by a single expression. Lambda becomes the body of the function. The value of this expression is returned by the new function.

- This statement puzzles me a lot.Can I see it as an anonymous function and the content after ':' is what it returns?

1.9 The assert statement

The assert statement is used to assert that something is true.If not,it will raise an error.Most of the time, it is better to catch exceptions, either handle the problem or display an error message to the user and then quit.

2 LAFF: Linear Algebra - Foundations to Frontiers

The courses of Linear Algebra I have learned these weeks are just a few,so I didn't run into something that is very difficult,but there are still some gains and questions.

2.1 Vector

What I want to say is that using a column matrix instead of a coordinate to represent a vector is so amazing that it makes linear algebra more understood.It really broadens my horizons and makes things more easier.

2.2 Flops and Memops

- I can't truly understand what flops and memops mean.Can flops be interpreted as the times we do operation like addition or multiplication and memops be interpreted as the times we read and write all the elements?

2.3 Vector Functions That Map a Vector to a Vector

- How to map a vector of size n into a vector of size m?I haven't found out how it works yet.So these questions are puzzling me.

> 1. If $f:R^n \rightarrow R^m$ then,$f(0)=0$ **Sometimes**
> 2. If $f:R^n \rightarrow ^m$,$\lambda \in R$ and $x \in R^n$,then $f(\lambda x)=\lambda f(x)$ **Sometimes**
> 3. If $f:R^n \rightarrow R^m$,and $x,y \in R^n$,then $f(x+y)=f(x)+f(y)$ **Sometimes**

3 MarkdownPad2

It's my first time to use it and it's so interesting and refreshing for me,although I haven't found what features it has are better than Word,for it takes me a very long time to discover how to make my weekly report nice and it lacks spell check.And the followings are some problems I haven't solved yet.

1. How to make an indentation for many lines?That is,how to indent the abstract paragraph 1/2 inch (3 picas) on both left and righthand margins?

2. How to print this mark '**Ⅳ**'?I can print ∋ by using '& ni; ' but I can't print '**Ⅳ**' by '∈',by the way,how to print the orignal marks of '∋'?Is there any complete sheet for special numeric?

3. Can I change the size of the cut-off rule?

4. Is there spell check?Can I add one to it?

5. How to master the size of letters?After exported in PDF,it looks not pretty while in HTML it looks fine.

4 Plans for next two weeks

The beginning of next term is around the corner,thus the plan is light.

1. Keep on learning ***LAFF: Linear Algebra - Foundations to Frontiers***.
2. Review the basic of ***C*** programming language and ***Python***.