

哈尔滨工业大学 计算学部

2023年秋季学期《开源软件开发实践》

Lab3：自选开源项目编程

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1 实验要求

简要复述实验手册中要求达到的实验目标与过程。

1. 能够根据开源项目提供的文档，对项目进行了解和分析
2. 掌握基本的Markdown语法
3. 实际参与某开源项目，贡献代码
4. 本次实验由不超过3人的小组团队完成

2 实验内容1 掌握基本Markdown语法

给出在Markdown网站上完成的各任务成功后的截图，截图中要包含Markdown代码和渲染后的结果。

1.Italics&bold

We'll start by learning two basic elements in text formatting: *italics* and **bold**. In these lessons, you'll notice some *formatted red text*; this is in Markdown! Regular Markdown doesn't look any different than regular text, but we're providing some highlighting to make it easier to see.

To make a phrase *italic* in Markdown, you can surround words with an underscore (`_`). For example, `_this_` word would become *italic*.

For this next lesson, make the word "not" italic.

Writing in Markdown is `_not_` that hard!

Writing in Markdown is *not* that hard!

Skip

markdown Italic: `_not_`

Awesome! Great job.

Similarly, to make phrases **bold** in Markdown, you can surround words with two asterisks (`**`). This will **really** get your point across.

In the box below, make the word "will" bold.

I `**will**` complete these lessons!

I **will** complete these lessons!

Skip

markdown bold: `**will**`

Good work!

Of course, you can use `_both italics and bold_` in the same line. You can also span them `**across multiple words**`.

In the box below, make the words "Of course" italic, and the words "a little moxie" bold.

`"_Of course,_" she whispered. Then, she shouted: "All I need is a little moxie!"`

"Of course," she whispered. Then, she shouted: "All I need is **a little moxie!**"

Skip

markdown bold&italic: Of course ***a little moxie***

Fantastic!

For the final exercise in this lesson, we're going to make some words *bold and italic*.

In general, it doesn't matter which order you place the asterisks or underscores. In the box below, make the words "This is unbelievable" both bold and italic. Place the asterisks , just to make it more legible. ***on the outside***

```
If you're thinking to yourself, This is unbelievable, you'd
probably be right.__This is unbelievavle__
```

If you're thinking to yourself, This is unbelievable, you'd
probably be right.***This is unbelievavle***

Skip

markdown italic&bold: ***__*** This is unbelievable ***__***

2.Headers

This is header one

This is header two

This is header three

This is header four

This is header five

This is header six

To make headers in Markdown, you preface the phrase with a hash mark (#). You place the same number of hash marks as the size of the header you want. For example, for a header one, you'd use one hash mark (# Header One), while for a header three, you'd use three (### Header Three).

For this next lesson, make each header the right size.

```
#header one
##header two
###header three
####header four
#####header five
#####header six
```

Header one

Header two

Header three

Header four

Header five

Header six

Skip

Markdown的Headers决定于#（Hash Mark）的个数。

All right!

It's up to you to decide when it's appropriate to use which header. In general, headers one and six should be used sparingly.

You can also mix and match inline styles within headers, such as *italicizing* them. In the box below, make the first line a heading level four, and italicize the first line of the book:

```
#### Colombian Symbolism in One Hundred Years of Solitude
Here's some words about the book One Hundred Years....
```

Colombian Symbolism in One Hundred Years of Solitude

Here's some words about the book *One Hundred Years....*

Skip

3. Links

We'll now learn how to make links to other web sites on the World Wide Web.

There are two different link types in Markdown, but both of them render the exact same way. The first link style is called an *inline link*. To create an inline link, you wrap the link text in brackets (`[]`), and then you wrap the link in parentheses (`()`). For example, to create a hyperlink to `www.github.com`, with a link text that says, Visit GitHub!, you'd write this in Markdown: `[Visit GitHub!](www.github.com)`.

In the box below, make a link to `www.google.com`, with link text that says "Search for it."

| | |
|---|----------------|
| <pre>[Search for it.](www.google.com)</pre> | Search for it. |
|---|----------------|

Skip

Nice work!

You can add emphasis to link texts, if you like. In the box below, make the phrase "really, really" bold, and have the entire sentence link to `www.dailykitten.com`. You'll want to make sure that the bold phrasing occurs within the link text brackets.

| | |
|---|---|
| <pre>[You're really, really going to want to see this.](www.dailykitten.com)</pre> | You're really, really going to want to see this. |
|---|---|

Skip



Design and
Development tips in

Fantastic!

Although it might make for an awkward experience, you can make links within headings, too.

For this next tutorial, make the text a heading four, and turn the phrase "the BBC" into a link to `www.bbc.com/news`:

| | |
|---|------------------------------|
| <pre>####The Latest News from [the BBC](www.bbc.com/news)</pre> | The Latest News from the BBC |
|---|------------------------------|

Skip

the link.

In the box below, we've started writing out some reference links. You'll need to finish them up! Call the first reference tag "a fun place", and make it link to `www.zombo.com`; make the second link out to `www.stumbleupon.com`.

| | |
|---|--|
| <pre>Do you want to [see something fun][a fun place](www.zombo.com)? Well, do I have [the website for you][another fun place](www.stumbleupon.com)</pre> | Do you want to [see something fun]a fun place? Well, do I have [the website for you]another fun place |
|---|--|

Skip

4.Images

Images

If you know how to create links in Markdown, you can create images, too. The syntax is nearly the same.


Images also have two styles, just like links, and both of them render the exact same way. The difference between links and images is that images are prefaced with an exclamation point (!).

The first image style is called an *inline image link*. To create an inline image link, enter an exclamation point (!), wrap the alt text in brackets [], and then wrap the link in parentheses (). (Alt text is a phrase or sentence that describes the image for the visually impaired.)

For example, to create an inline image link to <https://octodex.github.com/images/bannekat.png>, with an alt text that says, Benjamin Bannekat, you'd write this in Markdown: `![[Benjamin Bannekat]](https://octodex.github.com/images/bannekat.png)`

In the box below, turn the link to an image, and fill out the alt text brackets to say "A pretty tiger":

`![[A pretty tiger]](https://upload.wikimedia.org/wikipedia/commons/5/56/Tiger_58.jpg)`






Although you don't need to add alt text, it will make your content accessible to your audience, including people who are visually impaired, use screen readers, or do not have high speed internet connections.

For a reference image, you'll follow the same pattern as a reference link. You'll precede the Markdown with an exclamation point, then provide two brackets for the alt text, and then two more for the image tag, like this: At the bottom of your Markdown page, you'll define an image for the tag, like this:

`![[The Founding Father]](Father) [Father]: http://octodex.github.com/images/founding-father.jpg`

In the box below, we've started placing some reference images; you'll need to complete them, just like the last lesson. Call the first reference tag "Black", and make it link to , make the second image link out to https://upload.wikimedia.org/wikipedia/commons/a/a3/El_DNF_DTV_551.jpg <http://icons.iconarchive.com/icons/google/emojis-animals-nature/256/22221-cat-icon.png>

`![[cat]](https://upload.wikimedia.org/wikipedia/commons/a/a3/El_DNF_DTV_551.jpg)
![[orange cat]](orange) [orange]: http://icons.iconarchive.com/icons/google/emojis-animals-nature/256/22221-cat-icon.png
![[cat]](https://upload.wikimedia.org/wikipedia/commons/a/a3/El_DNF_DTV_551.jpg)`

5.Blockquotes

If you need to call special attention to a quote from another source, or design a pull quote for a magazine article, then Markdown's *blockquote* syntax will be useful. A blockquote is a sentence or paragraph that's been specially formatted to draw attention to the reader. For example:

"The sin of doing nothing is the deadliest of all the seven sins. It has been said that for evil men to accomplish their purpose it is only necessary that good men should do nothing."

To create a block quote, all you have to do is preface a line with the "greater than" caret (>). For example:

```
> "In a few moments he was barefoot, his stockings folded in his pockets and his canvas shoes dangling by their knotted laces over his shoulders and, picking a pointed salt-eaten stick out of the jetsam among the rocks, he clambered down the slope of the breakwater."
```

In the box below, turn the book quotation into a blockquote:

I read this interesting quote the other day:

"Her eyes had called him and his soul had leaped at the call. To live, to err, to fall, to triumph, to recreate life out of life!"

I read this interesting quote the other day:

"Her eyes had called him and his soul had leaped at the call. To live, to err, to fall, to triumph, to recreate life out of life!"

Skip

Marvelous!

You can also place a caret character on each line of the quote. This is particularly useful if your quote spans multiple paragraphs. For example:

```
> His words seemed to have struck some deep chord in his own nature. Had he spoken
of himself, of himself as he was or wished to be? Stephen watched his face for some
moments in silence. A cold sadness was there. He had spoken of himself, of his own
loneliness which he feared.
>
> -Of whom are you speaking? Stephen asked at length.
>
> Cranly did not answer.
```

Notice that even blank lines must contain the caret character. This ensures that the entire blockquote is grouped together.

In the box below, Make the entire quotation a block quote by inserting a caret on each line.

```
>Once upon a time and a very good time it was there was a moocow
coming down along the road and this moocow that was coming down
along the road met a nicens little boy named baby tuckoo...
>
>His father told him that story: his father looked at him through a
glass: he had a hairy face.
>
>He was baby tuckoo. The moocow came down the road where Betty
Byrne lived: she sold lemon platt.
```

Once upon a time and a very good time it was there was a moocow coming down along the road and this moocow that was coming down along the road met a nicens little boy named baby tuckoo...

His father told him that story: his father looked at him through a glass: he had a hairy face.

He was baby tuckoo. The moocow came down the road where Betty Byrne lived: she sold lemon platt.

Skip

Th fo Ma I've lean buik Now ever ADS

Tremendous!

Block quotes can contain other Markdown elements, such as italics, images, or links.

In the box below, make the French text *italic* (not including the exclamation point). Also, turn the entire quote into a blockquote.

```
>He left her quickly, fearing that her intnacy might turn to
jibing and wishing to be out of the way before she offered her ware
to another, a tourist from England or a student of Trinity, Grafton
Street, along which he walked, prolonged that moment of discouraged
poverty. In the roadway at the head of the street a slab was set to
the memory of Wolfe Tone and he remembered having been present with
his father at its laying. He remembered with bitterness that scene
of tawdry tribute. There were four French delegates in a brake and one,
a plump smilng young man, held, wedged on a stick, a card on
which were printed the words: „VIVE L'IRLANDE!“
```

He left her quickly, fearing that her intimacy might turn to jibing and wishing to be out of the way before she offered her ware to another, a tourist from England or a student of Trinity. Grafton Street, along which he walked, prolonged that moment of discouraged poverty. In the roadway at the head of the street a slab was set to the memory of Wolfe Tone and he remembered having been present with his father at its laying. He remembered with bitterness that scene of tawdry tribute. There were four French delegates in a brake and one, a plump smiling young man, held, wedged on a stick, a card on which were printed the words: *VIVE L'IRLANDE!*

6.Lists

This tutorial is all about creating lists in Markdown.

There are two types of lists in the known universe: unordered and ordered. That's a fancy way of saying that there are lists with bullet points, and lists with numbers.

To create an unordered list, you'll want to preface each item in the list with an asterisk (`*`). Each list item also gets its own line. For example, a grocery list in Markdown might look like this: `*`

```
* Milk
* Eggs
* Salmon
* Butter
```

This Markdown list would render into the following bullet points:

- Milk
- Eggs
- Salmon
- Butter

In the box below, turn the words separated by a comma into a list.

```
* Flour,
* Cheese,
* Tomatoes,
```

- Flour,
- Cheese,
- Tomatoes,

5

All right! That's how you write an unordered list. Now, let's talk about ordered ones.

An ordered list is prefaced with numbers, instead of asterisks. Take a look at this recipe:

1. Crack three eggs over a bowl

2. Pour a gallon of milk into the bowl

3. Rub the salmon vigorously with butter

4. Drop the salmon into the egg-milk bowl

To write that in Markdown, you'd do this:

1. Crack three eggs over a bowl

2. Pour a gallon of milk into the bowl

3. Rub the salmon vigorously with butter

4. Drop the salmon into the egg-milk bowl

Easy, right? It's just like you'd expect a list to look.

In the box below, turn the rest of the recipe into an ordered list.

* Cut the cheese

* Slice the tomatoes

* Rub the tomatoes in flour

• Cut the cheese

• Slice the tomatoes

• Rub the tomatoes in flour

Skip

Fantastic work!

You can choose to add *italics*, **bold**, or links within lists, as you might expect. In the box below, turn the Latin names for the plants into *italics*.

* Azalea (.Ericaceae Rhododendron.)

* Chrysanthemum (.Anthemideae Chrysanthemum.)

* Dahlia (.Coreopsideae Dahlia.)

• Azalea (*Ericaceae Rhododendron*)

• Chrysanthemum (*Anthemideae Chrysanthemum*)

• Dahlia (*Coreopsideae Dahlia*)

Skip

In the box below, turn the character's characteristics into sub-bullets.

* Calculus

* A professor

* Has no hair

* Often wears green

* Castaflore

* An opera singer

* Has white hair

* Is possibly mentally unwell

• Calculus

◦ A professor

◦ Has no hair

◦ Often wears green

• Castaflore

◦ An opera singer

◦ Has white hair

◦ Is possibly mentally unwell

* Always have a towel nearby in case of messes

Notice that the first two items have a single space. This looks a bit odd, so you might want to indent properly to match the characters up (like items three and four). In these paragraphs, you can include all sorts of other Markdown elements, like blockquotes, or even other lists!

In the box below, convert the bullet points into their own paragraphs.

1. Cut the cheese

Make sure that the cheese is cut into little triangles.

2. Slice the tomatoes

Be careful when holding the knife.

> For more help on tomato slicing, see Thomas Jefferson's seminal essay *Tom Ate Those*.

1. Cut the cheese

Make sure that the cheese is cut into little triangles.

2. Slice the tomatoes

Be careful when holding the knife.

For more help on tomato slicing, see Thomas Jefferson's seminal essay *Tom Ate Those*.

Skip

7.paragraphs

Fantastic work!

Aside from formatting poetry, one of the common uses for these soft breaks is in formatting paragraphs in lists. Recall in the previous lesson that we insert new lines for multiple paragraphs within a list.

In the box below, instead of using hard breaks, tighten the sub-paragraphs with soft breaks:

1. Crack three eggs over a bowl.

Now, you're going to want to crack the eggs in such a way that you don't make a mess.

If you do make a mess, use a towel to clean it up!

2. Pour a gallon of milk into the bowl.

Basically, take the same guidance as above: don't be messy, but if you are, clean it up!

1. Crack three eggs over a bowl.

Now, you're going to want to crack the eggs in such a way that you don't make a mess.

If you *do* make a mess, use a towel to clean it up!

2. Pour a gallon of milk into the bowl.

Basically, take the same guidance as above: don't be messy, but if you are, clean it up!

Skip

3 实验内容2 参与开源项目

3.1 分析所选项目

给出项目的地址。

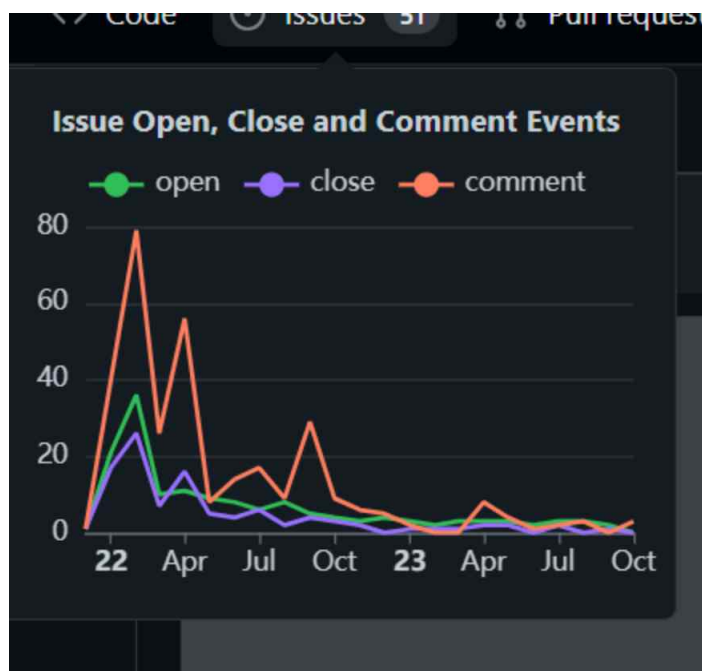
从项目给出的文档以及github提供的分析功能（或Lab2中使用的HyperCRX插件），分析项目的开发目标、项目结构、项目遵守的开源协议、项目活跃度、贡献者多少等。

此处给出阐述，结合各种图表给出分析结果。

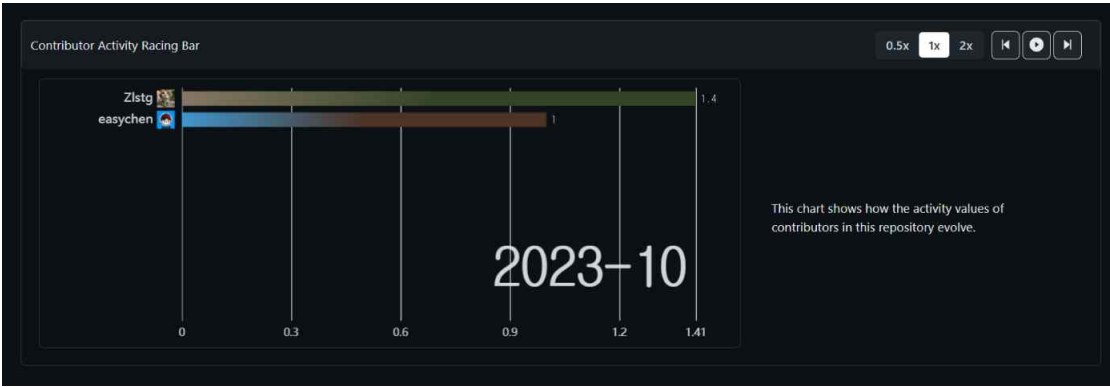
我选择项目的地址是<https://github.com/easychen/pushdeer>。

在这地址<https://github.com/easychen/pushdeer/blob/main/README.md>可以看pushdeer的总体的说明。

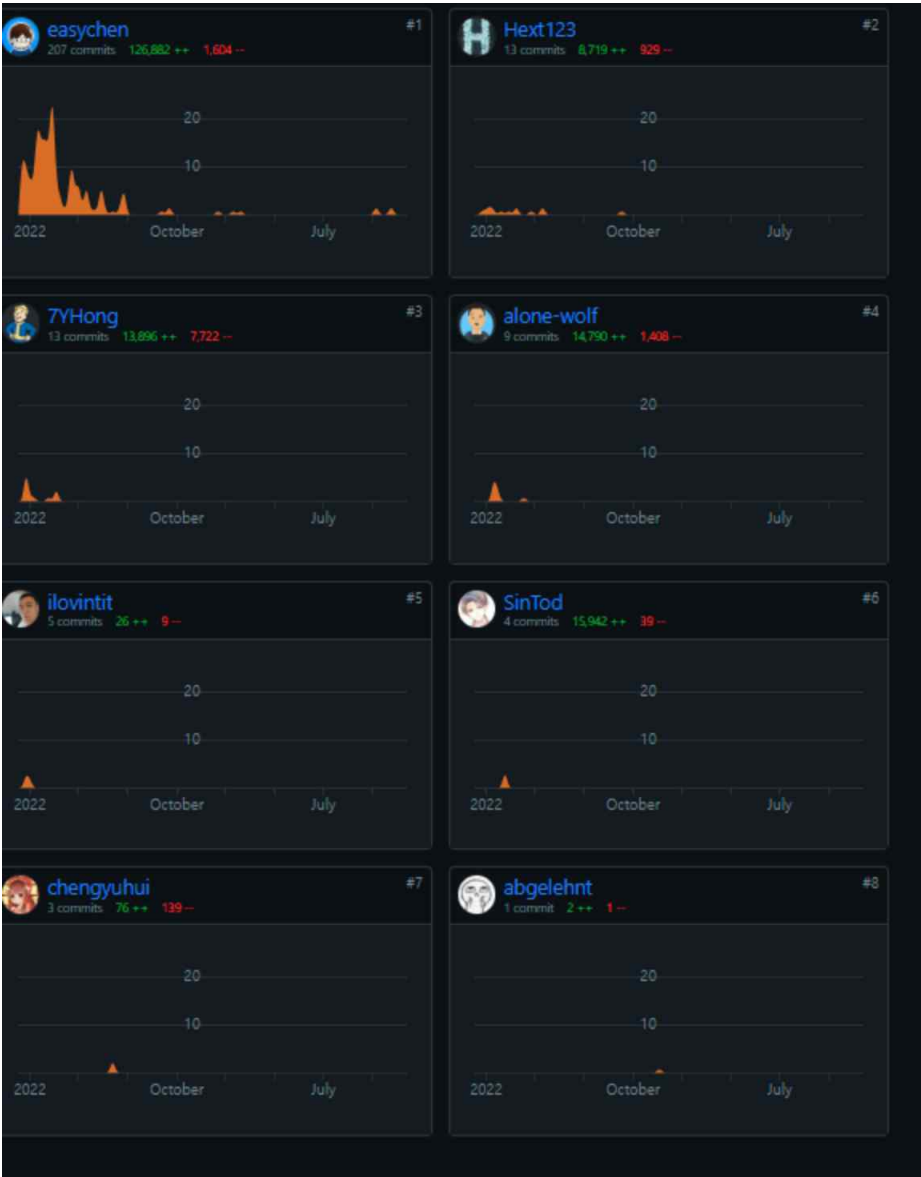
按着这说明，PushDeer是一个可以自行架设的无APP推送服务，同时也为因为某些原因无法使用无APP推送方案的同学提供有APP/自制设备方案，用Python。



这个图片表示的是上述地址的事件。



到今年10月的贡献者活动。



这张图片表示的是pushdeer的贡献者，共8个人。

3.2 项目参与者贡献过程分析

分析项目参与贡献的要求，选择项目某个参与者，分析其针对项目某issue的交流、提交PR的过程。以文字和截图形式给出分析结果。

3.3 贡献代码

给出选择的issue或新建issue的地址，包含issue内容的截图；

给出提交的PR地址，以及截图；

阐述解决所选issue的思路，列出核心代码。

4 小结

对本次实验过程和结果的思考、对本次实验的收获、对本次实验的建议等。

通过这次实验，可以得到markdown的基本内容。