← 正则表达式基础 (/courses/90)

正则表达式运用之 sed 工具命令

一、实验介绍

1.1 实验内容

本实验继续以上一个实验的 regular_express.txt 为实验文本，通过正则表达式和 sed 工具简单快捷的完成文件查询、修改等功能。

1.2 实验知识点

- sed 工具
- 文件副本编辑

1.3 实验环境

课程使用的实验环境为 Ubuntu Linux 14.04 64 位版本。实验中会用到程序：

- Xfce终端

二、实验原理

sed 是非交互式的编辑器。它不会修改文件，除非使用 shell 重定向来保存结果。默认情况下，所有的输出行都被打印到屏幕上。

sed 编辑器逐行处理文件（或输入），并将结果发送到屏幕。具体过程如下：首先 sed 把当前正在处理的行保存在一个临时缓存区中（也称为模式空间），然后处理临时缓冲区中的行，完成后把该行发送到屏幕上。sed 每处理完一行就将其从临时缓冲区删除，然后将下一行读入，进行处理和显示。处理完输入文件的最后一行后，sed 便结束运行。sed 把每一行都存在临时缓冲区中，对这个副本进行编辑，所以不会修改原文件。

如果要修改原文件，可使用-i 选项。

三、实验步骤

接下来开始实验。

3.1 将 regular_express.txt 的内容列出并打印行号，同时,将 2-5 行删除显示

代码如下:

```
$ nl regular_express.txt | sed '2,5d'
```

命令解释：'2,5d' 表示 2~5 行，d 表示删除。

操作截图：

```
shiyanlou:~/ $ nl regular_express.txt | sed '2,5d'          [13:13:28]
     1  "Open Source" is a good mechanism to develop programs.
     6  GNU is free air not free beer.
     7  Her hair is very beauty.
     8  I can't finish the test.
     9  Oh! The soup taste good.
    10  motorcycle is cheap than car.
    11  This window is clear.
    12  the symbol '*' is represented as start.
    13  Oh!My god!
    14  The gd software is a library for drafting programs.
    15  You are the best is mean you are the no. 1.
    16  The world <Happy> is the same with "glad".
    17  I like dog.
    18  google is the best tools for search keyword.
    19  goooooogle yes!
    20  go! go! Let's go
    21  # I am VBird
```

注: sed 是 sed -e 的简写, 后接单引号

同上删除第 2 行

```
$ nl regular_express.txt | sed '2d'
```

同上删除第三行到最后一行, $定位到最后一行

```
$ nl regular_express.txt | sed '3,$d'
```

在原文件中删除第 1 行：

```
$ sed -i '1d' regular_express.txt
```

3.2 `a` 表示在行后加上字符串，`i` 表示在行前添加字符串

在第二行后添加 test 字符串

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```
$ nl regular_express.txt | sed '2a test'
```

操作截图：

```
shiyanlou:~/ $ nl regular_express.txt | sed '2a test'          [13:34:48
     1  apple is my favorite food.
     2  Football game is not use feet only.
 test

     3  this dress doesn't fit me.
     4  However, this dress is about $ 3183 dollars.
     5  GNU is free air not free beer.
     6  Her hair is very beauty.
     7  I can't finish the test.
```

在第二行前添加 test 字符串

```
$ nl regular_express.txt | sed '2i test'
```

在第二行后加入两行 test，"\n" 表示换行符

```
$ nl regular_express.txt | sed '2a    test\ntest'
```

操作截图：

```
shiyanlou:~/ $  nl regular_express.txt | sed '2a     test\ntest'     [13
     1  apple is my favorite food.
     2  Football game is not use feet only.
 test
 test

     3  this dress doesn't fit me.
     4  However, this dress is about $ 3183 dollars.
     5  GNU is free air not free beer.
     6  Her hair is very beauty.
     7  I can't finish the test.
     8  Oh! The soup taste good.
     9  motorcycle is cheap than car.
    10  This window is clear.
    11  the symbol '*' is represented as start.
    12  Oh!My god!
    13  The gd software is a library for drafting programs.
    14  You are the best is mean you are the no. 1.
    15  The world <Happy> is the same with "glad".
```

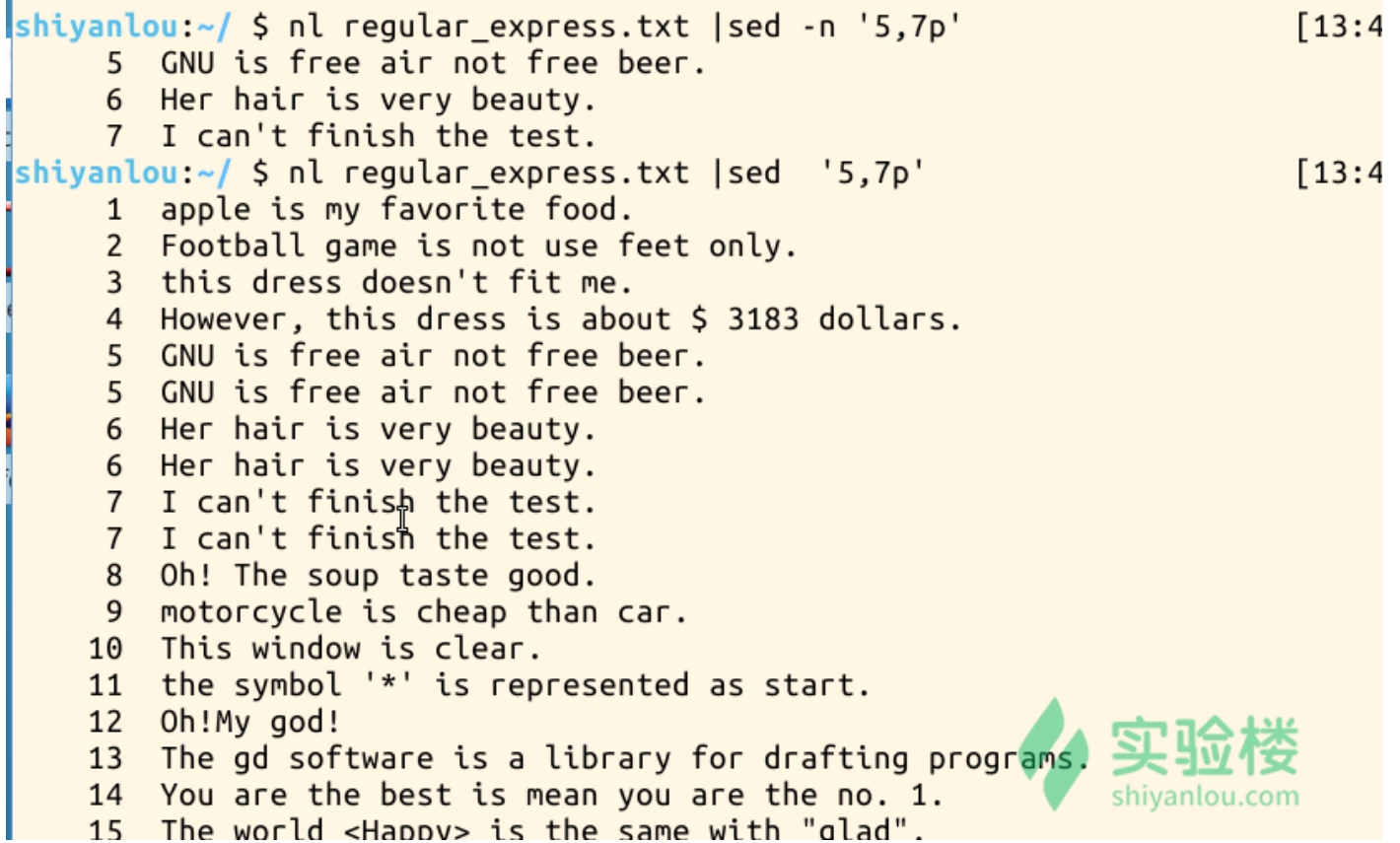# 3.3 将 2-5 行内容取代为 No 2-5 number

c 为替换内容选项。

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3.4 列出 regular_express.txt 内第 5-7 行

sed 命令中-n 为安静模式选项。以下两条命令执行结束后可对比结果。

```
$ nl regular_express.txt |sed -n '5,7p'

$ nl regular_express.txt |sed  '5,7p'
```

操作截图：

```
shiyanlou:~/ $ nl regular_express.txt |sed -n '5,7p'               [13:4
     5  GNU is free air not free beer.
     6  Her hair is very beauty.
     7  I can't finish the test.
shiyanlou:~/ $ nl regular_express.txt |sed  '5,7p'                 [13:4
     1  apple is my favorite food.
     2  Football game is not use feet only.
     3  this dress doesn't fit me.
     4  However, this dress is about $ 3183 dollars.
     5  GNU is free air not free beer.
     5  GNU is free air not free beer.
     6  Her hair is very beauty.
     6  Her hair is very beauty.
     7  I can't finish the test.
     7  I can't finish the test.
     8  Oh! The soup taste good.
     9  motorcycle is cheap than car.
    10  This window is clear.
    11  the symbol '*' is represented as start.
    12  Oh!My god!
    13  The gd software is a library for drafting programs.
    14  You are the best is mean you are the no. 1.
    15  The world <Happy> is the same with "glad".
```

3.5 替换字符串:

sed 's/被替换字符串/新字符串/g'

获取本机 IP 的行

```
$ /sbin/ifconfig eth0 |grep 'inet '

inet 后面的空格不能少
```

命令详解：在/sbin/ifconfig eth0 的结果中查找'inet'，打印至终端

将 IP 前面的部分予以删除，下面两条命令结果相同。

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```
$ /sbin/ifconfig eth0 |grep 'inet '| sed 's/.inet...://g'
```

```
$ /sbin/ifconfig eth0 |grep 'inet '| sed 's/.\{0,9\}://'
```
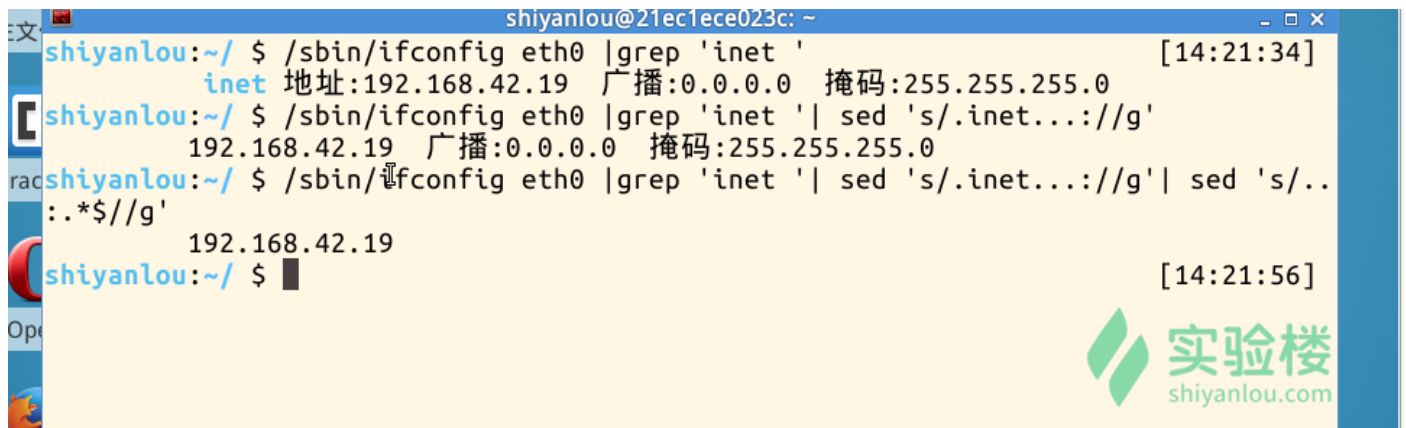
将 IP 后面的部分删除

```
$ /sbin/ifconfig eth0 |grep 'inet '| sed 's/.inet...://g'| sed 's/..:.*$//g'
```

```
$ /sbin/ifconfig eth0 |grep 'inet '| sed 's/.inet...://g'| sed 's/.\{0,3\}:.*$//g'
```

192.168.42.19

操作截图：

上述命令是比较复杂的正则表达式运用，熟悉正则表达式可以明显的简化命令，简单快捷的完成文件查询、修改等功能。

四、实验总结

本实验通过正则表达式和 sed 工具介绍了如何简单快捷的编辑文件副本。下一节我们将介绍一些正则表达式的扩展知识。

五、参考链接

- Shell正则表达式之grep、sed、awk实操笔记 (http://www.jb51.net/article/54961.htm)

◉ 正则表达式基础 (/courses/90)

下一节：扩展正则表达式 (/courses/90/labs/782/document)