Regular Expression

Regular Expression are special characters which help search data and matching complex patterns. Regular expressions are shortened as 'regexp' or 'regex'.

* Types of Regular Expression
1. Basic regular expression:
   Listed below are some basic Regex.

Symbol	Description
.	Replace only character
^	Matches start of string
$	Matches end of string
*	Matches up zero or more times the preceding character
\	Represent special characters
?	Matches up exactly one character

Example: $ cat sample
   apple
   bat
   ball
   ant
   plant
   people
   taste

To search for content containing letter 'a'
   $ cat sample | grep a
      apple
      bat
      ball
      ant

* '^' matches start of a string. Let's search for contents that starts with a

```
$ cat sample |.grep ^a
apple
ant
```

only lines that start with a filtered

$ matches end of a string
```
$ cat sample |grep t
bat
ant
eat
pant
taste
```

select only those lines that end with t using $
```
$ cat sample | grep t$
bat
ant
eat
pant
```

2. Interval regular expressions
   These expressions tell us about the number of occurrences of a character in a string.

Expression	Description
{n}	Matches the preceding character appearing 'n' times exactly.
{n,m}	Matches preceeding character appearing 'n' times but not more than m
{n,}	Matches preceeding character only when it appears 'n' times / more

Example:

We want to check that in apple 'P' appears exactly 2 times in a string one of the other

∴ $ cat sample | grep -E P\{2\}
    apple

3. Extended Regular Expressions:

These regular expressions contains combination of more than one expression.

Expressions	Description
\+	Matches one or more occurance of previous character
\?	Matches zero or one occurance of the previous character

Example:

Suppose we want to filter out lines where character 'a' preceeds character 'b'

$ cat sample | grep "a\+b"
    bat
    eat