Regular Expressions

Diptesh Kanojia

e-Yantra Team
ERTS Lab, IIT Bombay

IIT Bombay
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Agenda for Discussion

1. RegEx: Why?
   - Why do I need to know this?
2. RegEx: What?
   - The One with the Basic Patterns
   - The One with the Practice
   - The One with the Advanced Patterns
   - The One with More Practice
3. RegEx: How?
   - How to fully understand regex?

Motivation

Regular expressions help us capture text or match patterns in text. They are immensely useful when you are looking to replace text, delete text, or add something in a selective manner.

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Our question is:

Do you need to go write a time-consuming piece code if you can perform regular expression based operations on the BASh terminal?
Think about it!

Express yourself, Regularly!

Regular expressions are strings of character that define a search pattern, they are primarily used for performing 'Find' or 'Find Replace' operations.
Some common examples are:

- [a-z]
- [0-9]
- A dot(.) or A plus(+) or An asterisk(*)

Understanding these patterns

- **t[aeiou]l** means a string starting with t and ending with l, but it can contain either of the five vowels a, e, i, o, or u in the middle; tel, tal, tilt, still *etc.*
- **t[aeiou]l+** means a string which will match strings like tel, tell, tellll, tal, tall, stall, still, stall *etc.*
- **t[aeiou]*l** means that the string starts with a t, ends with an l, but in the middle of these, either of these vowels can appear any number of times, and in any sequence.
- **ta***
- **ta.**
- **ta?**

Remember 'grep' ?

'grep' helps you match patterns from any output (file/command) and provides the line matched as output, based on this pattern.

- Did you attempt the assignment from last week?
- Do you remember using grep to grab the lines with player info, for players whose name starts with a particular letter?
- Let us try something similar on the terminal, but let us keep getting sophisticated in our attempts to learn regular expressions.

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- But is that all regular expressions are good for? Matching words.
- Can it help you do anything else? Can you validate email addresses? IP addresses? **If they are a pattern, why not!**

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- We saw the use of some basic patterns to match words using regular expressions
- But is that all regular expressions are good for? Matching words.
- Can it help you do anything else? Can you validate email addresses? IP addresses? **If they are a pattern, why not!**
- Please know that if they are in a pattern, regular expression can *catch 'em all!*

Practice, let us!

- Let us go straight to terminal to look at more advanced regular expressions and see how they can validate more sophisticated patterns for us.

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- Learning these will help you with advancing your skills in programming languages as well.
- It will also help you use BASh utilities like SED and AWK, which are your next few lessons.
- Let us see a few example on the terminal, again, but with system commands. RegEx is everywhere!

References

- TLDP: Regular Expressions
- e-Yantra Homepage

Thank You!

Author: Diptesh Kanojia
Contributor: Prashant Sharma

Post your queries at: resources@e-yantra.org