Regular expressions

STRING MANIPULATION WITH STRINGR IN R

Charlotte Wickham
Assistant Professor at Oregon State University

Regular expressions

- A language for describing patterns

```
^.[\d]+
```

- "the start of the string, followed by any single character, followed by one or more digits"

Regular expressions as a pattern argument

```r
str_detect(c("R2-D2", "C-3P0"), pattern = "^.\\d+")
```

```
TRUE FALSE
```

```r
START %R%
    ANY_CHAR %R%
    one_or_more(DGT)
```

```
<regex> ^.[\d]+
```

rebus

```
START %R%
   ANY_CHAR %R%
   one_or_more(DGT)
```

Regular expression

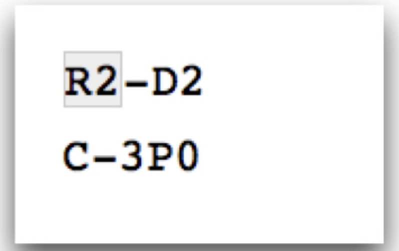
```
^.[\d]+
```

Regular expressions as a pattern argument

```
str_detect(c("R2-D2", "C-3P0"),
  pattern = START %R%
            ANY_CHAR %R%
            one_or_more(DGT))
```

```
TRUE FALSE
```

```
str_view(c("R2-D2", "C-3P0"),
           pattern = START %R%
                     ANY_CHAR %R%
                     one_or_more(DGT))
```



```
R2-D2
C-3P0
```

In HTML viewer

Let's practice!

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More regular expressions

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Regular expression review

Pattern	Regular expression	rebus
Start of string	`^`	`START`
End of string	`$`	`END`
Any single character	`.`	`ANY_CHAR`

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Regular expression review

Pattern	Regular expression	rebus
Start of string	`^`	`START`
End of string	`$`	`END`
Any single character	`.`	`ANY_CHAR`
Literal dot, carat, dollar	`\.` , `\^` , `\$`	`DOT` , `CARAT` , `DOLLAR`

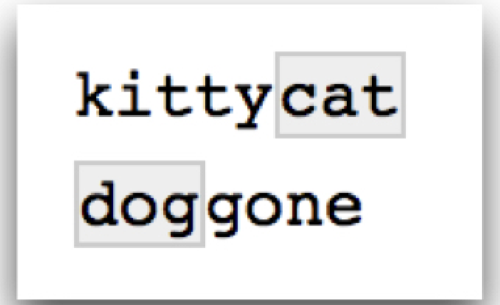
Alternation

`(dog|cat)`

```
or("dog", "cat")
```

```
<regex> (?:dog|cat)`
```

```
str_view(c("kittycat", "doggone"),
    pattern = or("dog", "cat"))
```



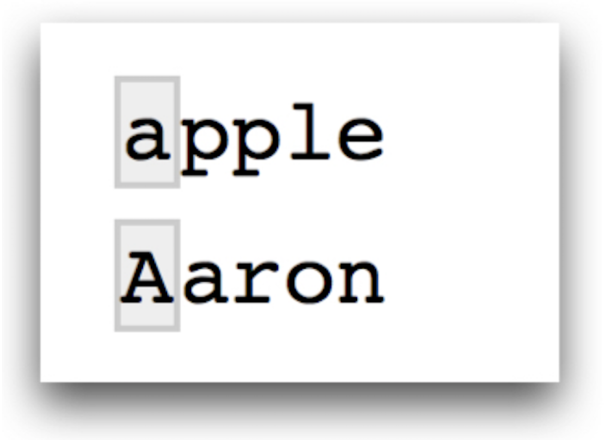
```
kittycat
doggone
```

Character classes

```
char_class("Aa")
```

```
<regex> [Aa]
```

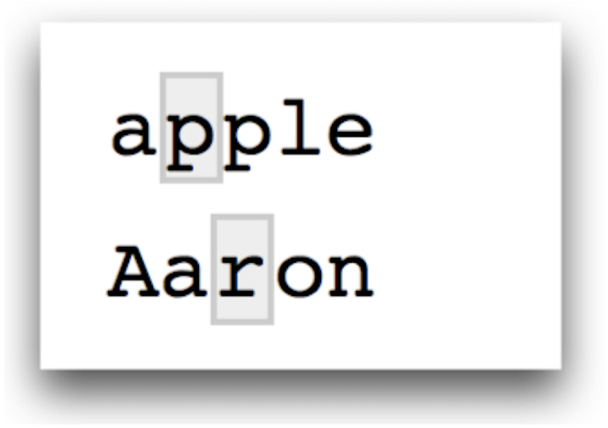
```
str_view(c("apple", "Aaron"),
  pattern = char_class("Aa"))
```


apple
Aaron

```
negated_char_class("Aa")
```

```
<regex> [^Aa]
```

```
str_view(c("apple", "Aaron"),
  pattern = negated_char_class("Aa"))
```

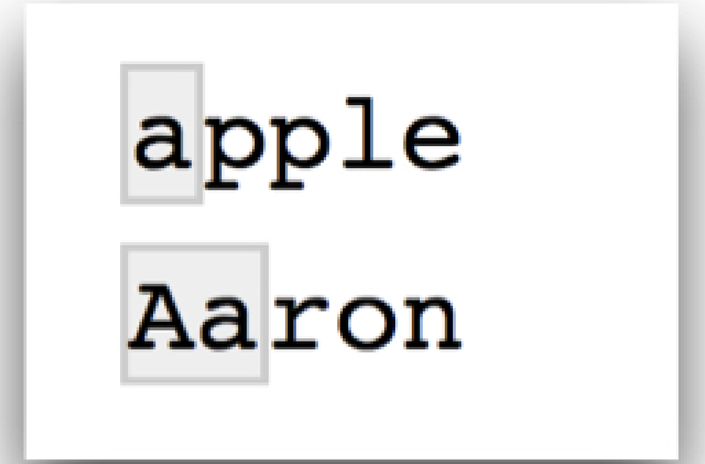

apple
Aaron

Repetition

Pattern	Regular expression	rebus
Optional	`?`	`optional()`
Zero or more	`*`	`zero_or_more()`
One or more	`+`	`one_or_more()`
Between m and n times	`{m,n}`	`repeated()`

Repetition

```
str_view(c("apple", "Aaron"),
  pattern = one_or_more("Aa"))
```



```
apple
Aaron
```

Let's practice!

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Shortcuts

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Ranges in character classes

```
DOLLAR %R% char_class("0123456789")
```

```
<regex> \\$[0123456789]
```

A digit

```
char_class("0-9")
```

```
<regex> [0-9]
```

A lower case letter

```
char_class("a-z")
```

```
<regex> [a-z]
```

An upper case letter

```
char_class("A-Z")
```

```
<regex> [A-Z]
```

Shortcuts

```
DGT                    # A digit -->
```

```
<regex> \d
```

```
WRD           # A word character -->
```

```
<regex> \w
```

```
SPC         # A whitespace character
```

```
<regex> \s
```

```
char_class("0-9")
```

```
<regex> [0-9]
```

```
char_class("a-zA-z0-9_")
```

```
<regex> [a-zA-z0-9_]
```

National Electronic Injury Surveillance System (NEISS)

- neiss package **https://github.com/hadley/neiss**
- Injuries reported in ER of random sample of hospitals

19YOM-SHOULDER STRAIN-WAS TACKLED WHILE
PLAYING FOOTBALL W/ FRIENDS

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19YOM-SHOULDER STRAIN-WAS TACKLED WHILE PLAYING FOOTBALL W/ FRIENDS

19 year old male

Let's practice!

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