$(?:(?:\r\n)?[\t])*(?:(?:(?:[^()<>0,;:\t]) + (?:(?:(?:\r\n)?[\t]) + |\Z|(?=[\["()<>0,;:\t]))|"(?:[^\"\r\t])|\t.|(?:(?:\r\n)?[\t]))*"(?:(?:(?:\r\n)?[\t])) + |\Z|(?=[\["()<>0,;:\t]))|"(?:[^\"\r\t])|\t.|(?:(?:\r\n)?[\t]))|$ \t]))*"(?:(?:\r\n)?[\t])*))*@(?:(?:\r\n)?[\t])*(?:[^()<>@,;:\\".\[\] \000-\031]+(?:(?:\r\n)?[\t])+\\Z\(?=[\["()<>@,;:\\".\[\]]))\\[([^\[\]\r\\]\\.)*\](?:(?:\r\n)?[\t])*)(?:\.(?:(?:\r\n)?[\t])*(?:[^()<>@,;:\\".\[\] \000-\031]+(?:(?:\r\n)?[\t])+|\Z|(?=[\["()<>@,;:\\".\[\]]))|\[([^\[\]\r\\]|\\.)*\](?: $(?:\r\n)?[\t])*))*|(?:[^()<>0,;:\\".\[\]\ \000-\031]+(?:(?:(?:\r\n)?[\t])+|\Z|(?=[\["()<>0,;:\\".\[\]]))|"(?:[^\"\r\n)?[\t])|\.|(?:(?:\r\n)?[\t]))*"(?:(?:\r\n)?[\t]))$?[\t])*)*\<(?:(?:\r\n)?[\t])*(?:@(?:[^()<>@,;:\\".\[\] \000-\031]+(?:(?:\r\n)?[\t])+|\Z|(?=[\["()<>@,;:\\".\[\]]))|\[([^\[\]\r\\]|\\.)*\](?:(?:\r\n)?[)*))*(?:,@(?:(?:\r\n)?[\t])*(?:[^()<>@,;:\\".\[\] \000-\031]+(?:(?:\r\n)?[\t])+|\Z|(?=[\["()<>@,;:\\".\[\]]))|\[([^\[\]\r\\]|\\.)*\](?:(?:\r\n)?[\t])*)(?:\.(?:(?:\r\n)?[\t])*(?:[^()<>@,;:\\".\[\]\000-\031]+(?:(?:\r\n)?[\t])+\\Z\(?=[\["()<>@,;:\\".\[\]]))\\[([^\[\]\r\\]\\.)*\](?:(?:\r\n)?[\t])*))*) *:(?:(?:\r\n)?[\t])*)?(?:[^()<>@,;:\\".\[\] \000-\031]+(?:(?:(?:\r\n)?[\t])+|\Z|(?=[\["()<>@,;:\\".\[\]]))|"(?:[^\"\r\\]|\\.|(?:(?:\r\n)?[\t]))*"(?:(?:\r]))*"(?:(?:\r\n)?[\t])*))*@(?:(?:\r\n)?[\t])*(?:[^()<>@,;:\\".\[\] \000-\031]+(?:(?:\r\n)?[\t])+|\Z|(?=[\["()<>@,;:\\".\[\]]))|\[([^\[\]\r\\]|\\.)*\](?:(?:\r\n)?[\t])*)(?:\.(?:(?:\r\n)?[\t])*(?:[^()<>@,;:\\".\[\] \000-\031]+(?:(?:\r\n)?[\t])+\\Z\(?=[\["()<>@,;:\\".\[\]]))\\[([^\[\]\r\\]\\.)*\](?:(?:\r\n)?[\t])+\\Z\(?=[\["()<>@,;:\\".\[\]]))\\[([^\[\]\r\\]\\.)*\](?:(?:\r\n)?[\t]) :\r\n)?[\t])*))*\>(?:(?:\r\n)?[\t])*)|(?:[^()<>@,;:\\".\[\] \000-\031]+(?:(?:\r\n)?[\t])+|\Z|(?=[\["()<>@,;:\\".\[\]]))|"(?:[^\"\r\\]|\\.|(?:(?:\r\n)? \\.|(?:(?:\r\n)?[\t]))*"(?:(?:\r\n)?[\t])*)(?:\.(?:(?:\r\n)?[\t])*(?:[^()<>@,;:\\".\[\] \000-\031]+(?:(?:\r\n)?[\t])+|\Z|(?=[\["()<>@,;:\\".\[\]]))|" (?:[^\"\r\\]|\\.|(?:(?:\r\n)?[\t]))*"(?:(?:\r\n)?[\t])*))*@(?:(?:\r\n)?[\t])*(?:[^()<>@,;:\\".\[\] \000-\031]+(?:(?:\r\n)?[\t])+|\Z|(?=[\["()<>@,;:\\ $". [\]])) | [([^[]\r\]] | \cline{-0.000} | \cline{-0.00$ \]]))|\[([^\[\]\\.)*\](?:(?:\r\n)?[\t])*))*|(?:[^()<>@,;:\\".\[\] \000-\031]+(?:(?:\r\n)?[\t])+|\Z|(?=[\["()<>@,;:\\".\[\]]))|"(?:[^\"\r\\]|\\.|(?:(?:\r\n)?[\t]))*"(?:(?:\r\n)?[\t])*)*\<(?:(?:\r\n)?[\t])*(?:@(?:[^()<>@,;:\\".\[\] \000-\031]+(?:(?:\r\n)?[\t])+|\Z|(?=[\["()<>@,;:\\".\[\]]))|\[([^\[\]\r\\]|\\.)*\](?:(?:\r\n)?[\t])*)(?:\.(?:(?:\r\n)?[\t])*(?:[^()<>@,;:\\".\[\] \000-\031]+(?:(?:\r\n)?[\t])+|\Z|(?=[\["()<>@,;:\\".\[\]]))|\[([^\[\]\r\\]|\\.)*\](?:(?:\r\n)?[\t])*))*(?:,@(?:(?:\r\n)?[\t])*(?:[^()<>@,;:\\".\[\] \000-\031]+(?:(?:\r\n)?[\t])+|\Z|(?=[\["()<>@,;:\\".\[\]]))|\[([^\[\]\ |\\.)*\](?:(?:\r\n)?[\t])*))*)*:(?:(?:\r\n)?[\t])*)?(?:[^()<>@,;:\\".\[\] \000-\031]+(?:(?:\r\n)?[\t])+|\Z|(?=[\["()<>@,;:\\".\[\]]))|"(?:[^\"\r\\]|\\ :[^\"\r\\]|\\.|(?:(?:\r\n)?[\t]))*"(?:(?:\r\n)?[\t])*))*@(?:(?:\r\n)?[\t])*(?:[^()<>@,;:\\".\[\] \000-\031]+(?:(?:\r\n)?[\t])+|\Z|(?=[\["()<>@,;:\\". $[\])) | [([^\[]\r\]] | \.)*\] (?:(?:\r\n)?[\t])*)(?:\.(?:(?:\r\n)?[\t])*(?:[^()<>0,;:\\".\[\] \000-\031]+(?:(?:(?:\r\n)?[\t])+|\Z|(?=[\["()<>0,;:\\".\[\] \000-\031]+(?:(?:\r\n)?[\t])+|\Z|(?=[\["()<>0,;:\\".\[".\[] \000-\031]+(?:(?:\r\n)?[\t])+|\Z|(?=[\["()<>0,;:\\".\[".\[] \000-\031]+(?:(?:\["()<\["()<\["()<\["()<\["()<\["()<\["()<\["()<\["()<\["()<\["()<\["()<\["()<\["()<\["()<\["()<\["()<\["()<\["()<\["()<\["()<\["()<\["()<\["()<\["()<\["()<\["()<\["()<\["()<\["()<\["()<\["()<\["()<\["()<\["()<\["()<\["()<\["()<\["()<\["()<\["()<\["()<\["()<\["()<\["()<\["()<\["()<\["()<\["()<\["()<\["()<\["()<\["()<\["()<\["()<\["()<\["()<\["()<\["()<\["()<\["()<\["()<\["()<\["()<\["()<\["()<\["()<\["()<\["()<\["()<\["()<\["()<\["()<\["()<\["()<\["()<\["()<\["()<\["()<\["()<\["()<\["()<\["()<\["()<\["()<\["()<\["()<\["()<\["()<\["()<\["()<\["()<\["()<\["()<\["()<\["()<\["()<\["()<\["()<\["()<\["()<\["()<\["()<\["()<\["()<\["()<\["()<\["()<\["()<\["()<\["()<\["()<\["()<\["()<\["()<\["()<\["()<\["()<\["()<\["()<\["()<\["()<\["()<\["()<\["()<\["()<\["()<\["()<\["()<\["()<\["()<\["()<\["()<\["()<\["()<\["()<\["()<\["()<\["()<\["()<\["()<\["()<\["()<\["()<\["()<\["()<\["()<\["()<\["()<\["()<\["()<\["()<\["()<\["()<\["()<\["()<\["()<\["()<\["()<\["()<\["()<\["()<\["()<\["()<\["()<\["()<\["()<\["()<\["()<\["()<\["()<\["()<\["()<\["()<\["()<\["()<\["()<\["()<\["()<\["()<\["()<\["()<\["()<\["()<\["()<\["()<\["()<\["()<\["()<\["()<\["()<\["()<\["()<\["()<\["()<\["()<\["()<\["()<\["()<\["()<\["()<\["()<\["()<\["()<\["()<\["()<\["()<\["()<\["()<\["()<\["()<\["()<\["()<\["()<\["()<\["()<\["()<\["()<\["()<\["()<\["()<\["()<\["()<\["()<\["()<\["()<\["()<\["()<\["()<\["()<\["()<\["()<\["()<\[$]))|\[([^\[\]\\.)*\](?:(?:\r\n)?[\t])*))*\>(?:(?:\r\n)?[\t])*)(?:,\s*(?:(?:[^()<>@,;:\\".\[\] \000-\031]+(?:(?:(?:\r\n)?[\t])+|\Z|(?=[\["()<>@,;:\\ ".\[\]]))|"(?:[^\"\r\\]|\\.|(?:(?:\r\n)?[\t]))*"(?:(?:\r\n)?[\t])*)(?:\.(?:(?:\r\n)?[\t])*(?:[^()<>@,;:\\".\[\] \000-\031]+(?:(?:\r\n)?[\t])+|\Z|(?=[\["()<>@,;:\\".\[\]]))|"(?:[^\"\r\\]|\\.|(?:(?:\r\n)?[\t]))*"(?:(?:\r\n)?[\t])*))*@(?:(?:\r\n)?[\t])*(?:[^()<>@,;:\\".\[\] \000-\031]+(?:(?:\r\n)?[\t])+|\Z|(?=[\["()<>@,;:\\".\[\]]))|\[([^\[\]\\]|\\.)*\](?:(?:\r\n)?[\t])*)(?:\.(?:(?:\r\n)?[\t])*(?:[^()<>@,;:\\".\[\] \000-\031]+(?:(?:\r\n)?[\t])+|]]))|"(?:[^\"\r\\]|\\.|(?:(?:\r\n)?[\t]))*"(?:(?:\r\n)?[\t])*)*\<(?:(?:\r\n)?[\t])*(?:@(?:[^()<>@,;:\\".\[\] \000-\031]+(?:(?:\r\n)?[\t])+|\Z|(?=[\[" @,;:\\".\[\]]))|\[([^\[\]\\.)*\](?:(?:\r\n)?[\t])*))*(?:,@(?:(?:\r\n)?[\t])*(?:[^()<>@,;:\\".\[\] \000-\031]+(?:(?:\r\n)?[\t])+|\Z|(?=[\["()<>@, ;:\\".\[\]]))|\[([^\[\]\\.)*\]|\\.)*\](?:(?:\r\n)?[\t])*)(?:\.(?:(?:\r\n)?[\t])*(?:[^()<>@,;:\\".\[\] \000-\031]+(?:(?:(?:\r\n)?[\t])+|\Z|(?=[\["()<>@,;:\\ ".\[\]]))|\[([^\[\]\r\\]|\\.)*\](?:(?:\r\n)?[\t])*))*)*:(?:(?:\r\n)?[\t])*)?(?:[^()<>@,;:\\".\[\] \000-\031]+(?:(?:\r\n)?[\t])+|\Z|(?=[\["()<>@,;:\\". \[\]]))|"(?:[^\"\r\\]|\\.|(?:(?:\r\n)?[\t]))*"(?:(?:\r\n)?[\t])*)(?:\.(?:(?:\r\n)?[\t])*(?:[^()<>@,;:\\".\[\] \000-\031]+(?:(?:\r\n)?[\t])+|\Z|(?=[\["()<>@,;:\\".\[\]]))|"(?:[^\"\r\\]|\\.|(?:(?:\r\n)?[\t]))*"(?:(?:\r\n)?[\t])*))*@(?:(?:\r\n)?[\t])*(?:[^()<>@,;:\\".\[\] \000-\031]+(?:(?:\r\n)?[\t]) $+|Z|(?=[["()<>0,;:\\".\[\]]))||[([^\[\]\r\\]|\\.)*\](?:(?:\r\n)?[\t])*)(?:\.(?:(?:\r\n)?[\t])*(?:[^()<>0,;:\\".\[\] \000-\031]+(?:(?:\r\n)?[\t])+|\Z|$ |(?=[\["()<>@,;:\\".\[\]]))|\[([^\[\]\r\\]|\\.)*\](?:(?:\r\n)?[\t])*))*\>(?:(?:\r\n)?[\t])*))*\>

IF.06.22 THEORETICAL INFORMATICS

Unit 10 – Regular Expressions – Regex in Java

AGENDA

- Terminology: Regex
- Overview: Regex in Java
- Live Coding

TERMINOLOGY

Regex: text[\w\s]*important

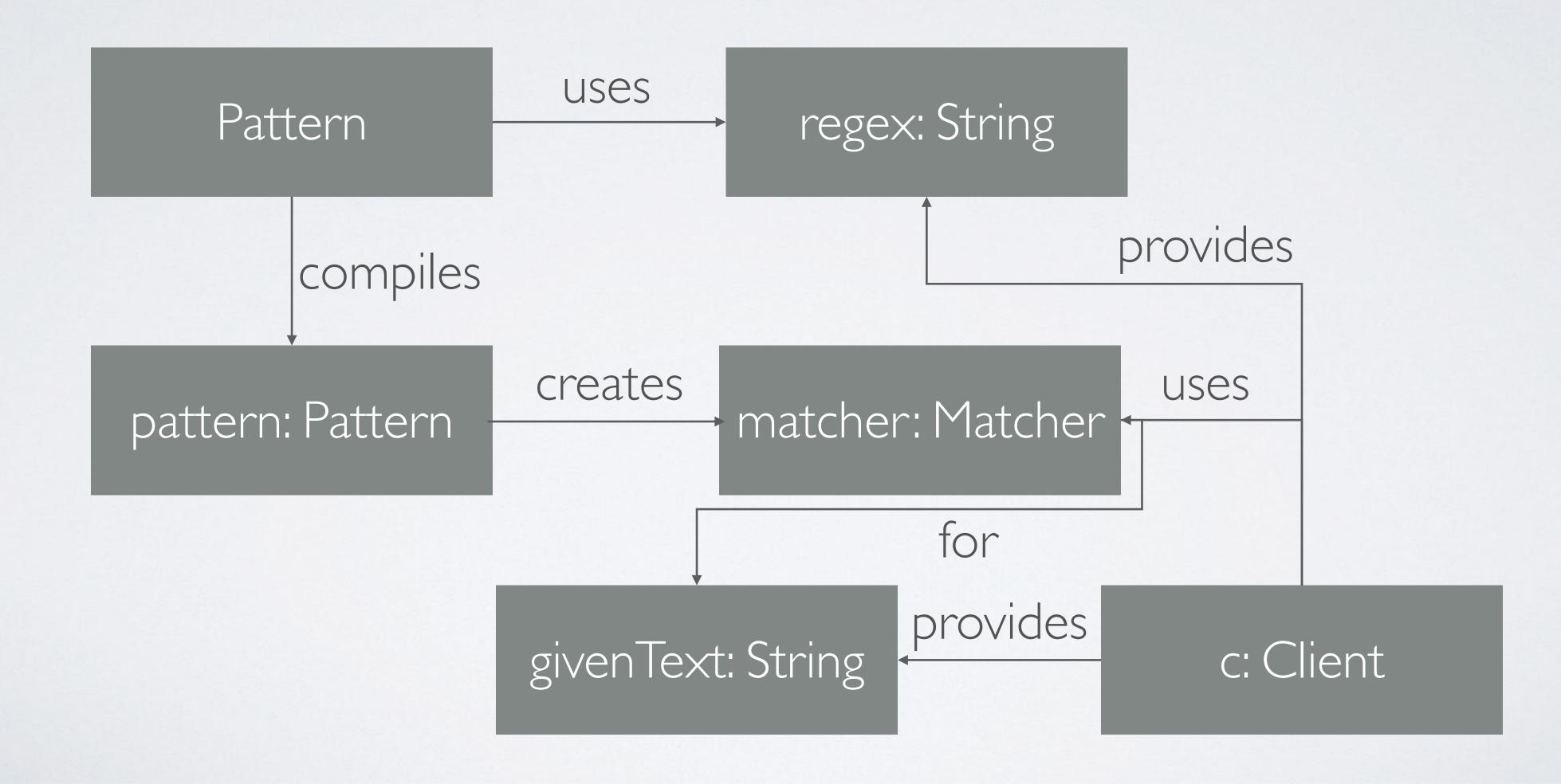
Text:

Hey there, I am texting you some important news: DON'T PANIC!

Questions:

- Does the text match at least once this regex?
 - · We call this match a group
- · Where does a group start in the text? Where does it end?
- Do we have a further group?

OVERVIEW



INJAVA

```
Pattern p = Pattern.compile("bauer");

Matcher m = p.matcher("franz bauer and peter bauer");

System.out.println(m.find());
```

INTERFACE OF MATCHER

• find() ... tries to find the given pattern in the given string and returns true on success or false otherwise.

Attention: not idempotent

- group() ... returns the subsequence found in the previous find(). Throws exception if no subsequence found
- start() ... returns start index of subsequence found in the previous find()