

PPL – Recitation One

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About me

Abdall Ahmed

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- ▶ Office hours...

About this course

Subject Matter

- ▶ Unlike most other CS classes
- ▶ One distinct factor: there is quite a bit of homework

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- ▶ Unlike most other CS classes
- ▶ One distinct factor: there is quite a bit of homework
- ▶ Subject matter is not as concrete
- ▶ Not enough time for a deep dive into all the material
- ▶ Goal should be to use the concepts taken from each coding paradigm and apply it

Recitation Structure

- ▶ Not another lecture
- ▶ Will cover last week's material
- ▶ Want this to be centered around you all

Recitation Structure

- ▶ Not another lecture
- ▶ Will cover last week's material
- ▶ Want this to be centered around you all
- ▶ Expectation: come prepared to work with those around you and be active

Regex

Why we care

- ▶ They are powerful
- ▶ If a language is simple enough we can parse it via regexes
- ▶ Handy to have in your back pocket for a multitude of CS questions

Regex to DFA

- ▶ Should have learned about Deterministic Finite Automaton in some course at this point
- ▶ If not a quick summary:
 - ▶ We have a start and accept state
 - ▶ At each state (for a DFA) there should be a clear transition given an input symbol
 - ▶ Can self loop
 - ▶ Can go back to prior states

Backus-Naur Form (BNF)

Context Free Grammars

- ▶ If we want more freedom in the way we describe languages
- ▶ This is very close to what you might see a compiler-generation tool use
- ▶ Example:

$$\begin{aligned}\langle expr \rangle &::= \langle expr \rangle + \langle expr \rangle \\ &| \langle expr \rangle - \langle expr \rangle \\ &| \langle variable \rangle \\ &| \langle number \rangle\end{aligned}$$
$$\langle variable \rangle ::= a \mid b \mid c \mid \dots \mid z$$
$$\langle number \rangle ::= 1 \mid 2 \mid 3 \mid \dots \mid 9$$

An exercise

```
<html>  
  <head>  
    <title>My webpage</title>  
  </head>  
  
  <body>  
      
  </body>  
</html>
```