Section 1:
Intro & RegEx

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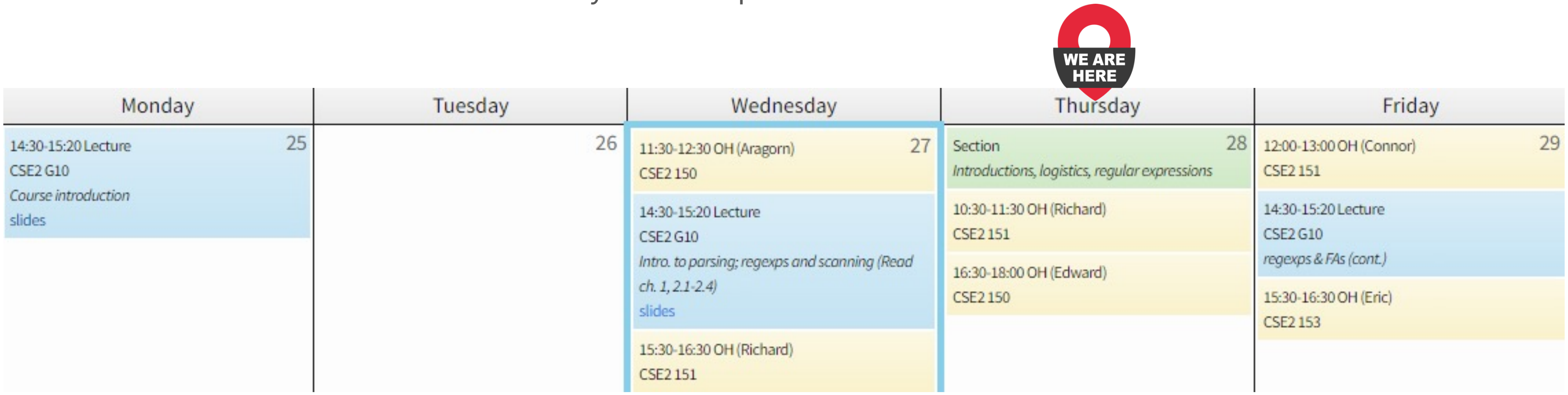
Adapted from 20au, 22au, 23sp

Announcements

- Due early next week (Tuesday, 11:59pm): Project partner info
  - Check Ed discussion board if you need a partner!



Monday	Tuesday	Wednesday	Thursday	Friday
25	26	27	28	29
14:30-15:20 Lecture CSE2 G10 *Course introduction* slides		11:30-12:30 OH (Aragorn) CSE2 150	Section *Introductions, logistics, regular expressions*	12:00-13:00 OH (Connor) CSE2 151
		14:30-15:20 Lecture CSE2 G10 *Intro. to parsing; regexps and scanning (Read ch. 1, 2.1-2.4)* slides	10:30-11:30 OH (Richard) CSE2 151	14:30-15:20 Lecture CSE2 G10 *regexps & FAs (cont.)*
		15:30-16:30 OH (Richard) CSE2 151	16:30-18:00 OH (Edward) CSE2 150	15:30-16:30 OH (Eric) CSE2 153

(this screenshot was taken on Wednesday)

TA Intro

- TA #1
  - Year
  - Industry/research/etc. experience(s)
  - Class(es) you've TA'd.
- TA #2
  - Year
  - Industry/research/etc. experience(s)
  - Class(es) you've TA'd.

TAs’ Tips

- Get started on project parts early!
    - *Especially* on the parts of the project which we explicitly advise to do so.
- Work *with* your partner on the project so you can both be up-to-speed on everything instead of dividing the tasks up amongst yourselves.
    - The project is entirely cumulative, so making sure that you both know all content helps with debugging the project as it progresses.
    - Project content can (*and likely will*) show up on exams as well, so make sure you know all of it.
- Instead of thrashing when you can’t get a solution, come to OH!
- If you are having non-academic issues which are preventing you from meeting any deadlines (ex: illness), please contact the course staff ASAP so we can try to arrange an accommodation for you.

Icebreakers

- Find a partner, discuss what you did over Spring Break.
- Once time’s up, state the following:
  - Your partner’s name
  - Your partner’s year
  - What you’re partner is studying (major/ minor/ field(s) of interest/ research project)
  - What your partner did over Spring Break.

RegEx Worksheets!

Answers

Problem 1i

1) Describe the meaning of each of the following regular expressions in English and give two different strings it can produce:

i) (1 | 0)* 0

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i) (1 | 0)* 0

Non-empty binary strings ending with 0

Problem 1ii

1) Describe the meaning of each of the following regular expressions in English and give two different strings it can produce:

ii) ([A-Z][a-z]* | [0-9]+)

Problem 1ii

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ii) ([A-Z][a-z]* | [0-9]+)

Non-empty sequence of lower case letters with first letter upper cased or sequence of base 10 digits

Problem 1iii

1) Describe the meaning of each of the following regular expressions in English and give two different strings it can produce:

iii) (ε | 4?0+1* X 3+)

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iii) (ε | 4?0+1* X 3+)

This one does not have a simple description, but some strings generated include ε, 0X3, 401X333, 40000111X333

However, an approximate description would be: an empty string, or strings starting with an optional 4 followed by one or more 0's then zero or more 1's, followed by the letter X and one or more 3's.

Problem 2i

2) Write a regular expression for each of the following specifications:

i) All strings consisting of 0’s and 1’s (binary digits) with an even number of 0s

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i) All strings consisting of 0’s and 1’s (binary digits) with an even number of 0s

1* (0 1* 0 1*)*

(There are other regular expressions that generate the same set of strings)

Problem 2ii

2) Write a regular expression for each of the following specifications:

ii) camelCased variable name in Java, where the alphabet is upper and lower-cased letters without any numbers or underscores

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ii) camelCased variable name in Java, where the alphabet is upper and lower-cased letters without any numbers or underscores

[a-z]+([A-Z][a-z]*)*

Note: this solution allows multiple upper-case letters to appear adjacent to each other.
Challenge: produce a solution that does not allow adjacent upper-case letters.

Problem 2iii

2) Write a regular expression for each of the following specifications:

iii) Non-empty binary strings where each 1 directly follows a 0 (challenge: only use symbols in table up until *)

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2) Write a regular expression for each of the following specifications:

iii) Non-empty binary strings where each 1 directly follows a 0 (challenge: only use symbols in table up until *)

Challenge 1: (0 | 01) (0 | 01)*

Normal: (0+1?)+