Nov 22

COMPSCI 3331

Fall 2022

What's next?

- ▶ Assignment 3: due today.
- ▶ Assignment 4: now available, gradescope update later.
- ▶ Quiz 7 tomorrow - **Lectures 12 and 13**.
- ▶ Assignment 2: marks now available.
- ▶ Quiz 5, Quiz 6: being marked.

Feedback

- ▶ Feedback now available on `feedback.uwo.ca`
- ▶ Available until Dec 9.

- ▶ "Technology resources used during lectures (e.g. computer, DVD player, web, PowerPoint) contributed to my learning of the course material." (mentimeter)
- ▶ "The online discussion board contributed to my learning of the course material."
- ▶ "The blending of online learning and in-class learning in this course enhanced my understanding of the course material. " (recorded lectures, etc.)

Complement example

$L = \{a^i b^j c^k \; : \; i, j, k \geq 0, i \neq j\}.$

Square example

$$L_7 = \{a^r b^{r^2} \ : \ r \geq 0\}$$

Turing Machine basics

- ► TM transitions: $a, b/D$
- ► B for blank.

Turing Machine example

Single Tape TM for $L = \{w \in \{a, b, c\}^* \ : \ |w|_a = |w|_b = |w|_c\}$

Turing Machine example

Multi-tape TM for $L = \{a^n b^m c^n d^m \ : \ n, m \geq 0\}$.

What constitutes a good TM description?

► Make sure you completely specify the set-up - how many tapes.

► Make sure you describe how acceptance works.

► Use **basic operations** as much as possible: match, count, copy, etc.

► Avoid complex descriptions that may not be obvious how to do.

► If you use complex operations, describe how they are done with the basic function of a TM.