

Week 9: Worksheet
CSC 343 Winter 2021
University of Toronto Mississauga

March 25/26, 2021

Recall

DB Design

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Task I

Consider a relation R with a set of attributes $\alpha = \{A, B, C, D, E, F\}$ and the set of Functional Dependencies $\mathcal{F} = \{A \rightarrow BC, B \rightarrow E, C \rightarrow BD, D \rightarrow A, E \rightarrow F, F \rightarrow BE\}$

- (a) Compute the closure of each attribute.
- (b) Find all candidate keys (i.e., minimal keys) of relation R .

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Task II

Consider a relation R with a set of attributes $\alpha = \{A, B, C, D, E\}$ and the set of Functional Dependencies $\mathcal{F} = \{A \rightarrow B, BC \rightarrow E, ED \rightarrow A\}$

- (a) Is R in 3NF?
- (b) Is R in BCNF?

HINT 1: Compute the keys first, then solve (a) and (b).

HINT 2: Define 3NF and BCNF after **HINT 1**.

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