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# CSE 331

## Software Design & Implementation

Winter 2026  
Section 5 – Mutable ADTs

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# Administrivia

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- HW5 released tonight - **Due @ 11:59pm Wednesday**



# Externally Documenting ADTs - Review

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- JavaDoc comments in interface use “tags” to describe what ADT methods do in terms of the **abstract state**

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- \* High level description of what function does
- \* @param a What "a" represents + any conditions
- \* @requires Rules about multiple params and Abstract State (obj)
- \* @returns Detailed description of return value
- \* @throws Condition when errors will be thrown
- \*/

- For mutable ADTs, will have 2 additional tags to describe “mutator” methods

- \* @modifies states what *could* be mutated by function (obj)
- \* @effects Detailed description of *guaranteed* changes

# Specification Strength Mutation - Review

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- Adding more to **@returns** **increases** specification strength
- Adding more to **@effects** **increases** specification strength
- Adding more to **@modifies** **decreases** specification strength
  - Note that this is not a promise or guarantee



# Testing - Review

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- **Statement Coverage**

- Test every executable statement reachable by an allowed input

- **Branch Coverage**

- For every conditional, test all branches for allowed inputs

- **Loop Coverage**

- Every loop/recursive call must be tested on 0, 1, any 2+ iterations for allowed inputs

- **Exhaustive Testing**

- Test all possible inputs for functions with  $\leq 10$  allowed inputs

# Mutable ADT Testing

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- **Mutable ADTs**

- Must also test that mutated values were updated correctly.
- Test state before and after each mutator method.

