

Overview of Week 12

#	DATE	LECTURES	IPAD NOTES	STUDY MATERIALS
12	WED, Dec 2 to TUE, Dec 8	<p>▶ <u>Playlist for Week 12</u> (<u>≈ 3 hours</u>) <i>15 min ↑</i></p> <ul style="list-style-type: none"> Lecture 12 - Introduction and Overview of Week 12 Lecture 12 - Part 1a: <u>Motivating Example 1</u> - <u>Precondition Too Weak?</u> Lecture 12 - Part 1b: <u>Motivating Example 2</u> - <u>Precondition Too Strong?</u> Lecture 12 - Part 2a: <u>Hoare Triple</u> <i>{-} - {-} Strong</i> Lecture 12 - Part 2b: Proving Hoare Triple using <u>Weakest Precondition (wp)</u> Lecture 12 - Part 3a: Rules of <u>wp Calculus</u> - <u>Variable Assignment</u> Lecture 12 - Part 3b: Rules of <u>wp Calculus</u> - <u>Conditionals</u> Lecture 12 - Part 3c: Rules of <u>wp Calculus</u> - <u>Sequential Composition</u> Lecture 12 - Part 4a: Contracts of <u>Loops</u> - <u>Syntax</u> and <u>Runtime Checks</u> Lecture 12 - Part 4b: Contracts of <u>Loops</u> - <u>find_max</u> and Exercise Lecture 12 - Part 5: <u>Proofs of Loop Correctness</u> 	<p><i>INTRO</i></p> <p><i>PRE</i></p> <p><i>POST</i></p>	<ul style="list-style-type: none"> <u>Slides</u> <ul style="list-style-type: none"> Lecture 12: Program Correctness Lecture 12 11: Program Correctness [4up] <u>Questions?</u> <i>2</i> <ul style="list-style-type: none"> <u>Post Your Questions in this Document.</u> <u>Source Code</u> <ul style="list-style-type: none"> Example of Loop Contracts (LI and LV) <u>Exercise</u> <ul style="list-style-type: none"> <u>Exercise on Proving Total Correctness of a Loop</u> <p><i>mandatory.</i></p>

Learning Objectives of Week 12

- Software Correctness
- Hoare Triple ← *tautology?*
- Weakest Precondition (wp)
- Rules of wp Calculation ✓
- Contracts of Loops: LI vs. LV
- Correctness Conditions of Loops

Milestones of Week 12

- Complete Project
- Complete Quiz11
- Start Lecture Series W12
- Exercise: Proving Total Correctness of a Loop