

# Minis for 15-451/651

now submit via

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**will also contain grades for HWs/exams**

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Carnegie Mellon University

IcalpProgram  
icalp10.inria.fr/index.php?n=Main.Program-AIIT

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AndrewID

Password



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## 15-451: Algorithm Design and Analysis (f13)

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### Editing Account Details for testtest

andrewID	testtest
Course	15-451: Algorithm Design and Analysis (f13)
First name:	<input type="text" value="Test"/>
Last name:	<input type="text" value="Tester"/>
Nickname:	<input type="text"/>
Email:	<input type="text" value="testtest@test.com"/>
School	<input type="text"/> Ex: SCS/CIT
Major	<input type="text"/> Ex: CS/ECE
Year	<input type="text"/> Ex: 3
Lecture	<input type="text"/> Ex: 15213/18213
Section	<input type="text" value="A"/> Ex: C

onymizing nicknames on public scoreboards  
Email address to use for the instructors.

Gotta choose a nickname...

Save Changes

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andrewID	testtest
Course	15-451: Algorithm Design and Analysis (f13)
First name:	<input type="text" value="Test"/>
Last name:	<input type="text" value="Tester"/>
Nickname:	<input type="text" value="imjustatester"/>
Email	<input type="text" value="testtest@test.com"/>
School	<input type="text"/>
Major	<input type="text"/>
Year	<input type="text"/>
Lecture	<input type="text"/>
Section	A

Anonymizing nickname to display on the public scoreboards

Email address to use for bulk emails from the instructors.

Ex: SCS/CIT

Ex: CS/ECE

Ex: 3

Ex: 15213/18213

Ex: C

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**Due date:** Tuesday, September 17 2013 at 23:59:00 (**Last day to handin:** Tuesday, September 17 2013 at 23:59:00)

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Mini #1, 15451 Fall 2013

=====

This mini is due via \*email\* to your TA, by 11:59pm Tuesday Sept 3.  
Please use the subject line "15-451 MINI #1" in your email.

Problem 1: For each pair  $\langle f, g \rangle$  of functions below, list which of the following are true:  $f(n) = o(g(n))$ ,  $f(n) = \Theta(g(n))$ , or  $g(n) = o(f(n))$ .

- (a)  $f(n) = n \ln(n)$ ,  $g(n) = n \lg(n)$ . ["ln" is base-e, "lg" is base-2]
- (b)  $f(n) = n^2 / \log(n)$ ,  $g(n) = n^{\lg(3)}$ . ["^" is "to the power"]
- (c)  $f(n) = 2^n$ ,  $g(n) = 2^{2n}$ .

(You do not have to prove your answers.)

Problem 2. In class, we discussed a deterministic linear-time algorithm for finding the median (or  $k$ th smallest element) of an unsorted array.

Our analysis of this algorithm gave the recurrence:

$$T(n) \leq T(n/5) + T(7n/10) + cn.$$

Suppose we changed the algorithm so that rather than breaking up the array into groups of size 5, we used groups of size 7 instead.

- (a) Write down the recurrence that results from this change of 5 to 7.  
(Explain your reasoning)
- (b) What does this recurrence solve to?

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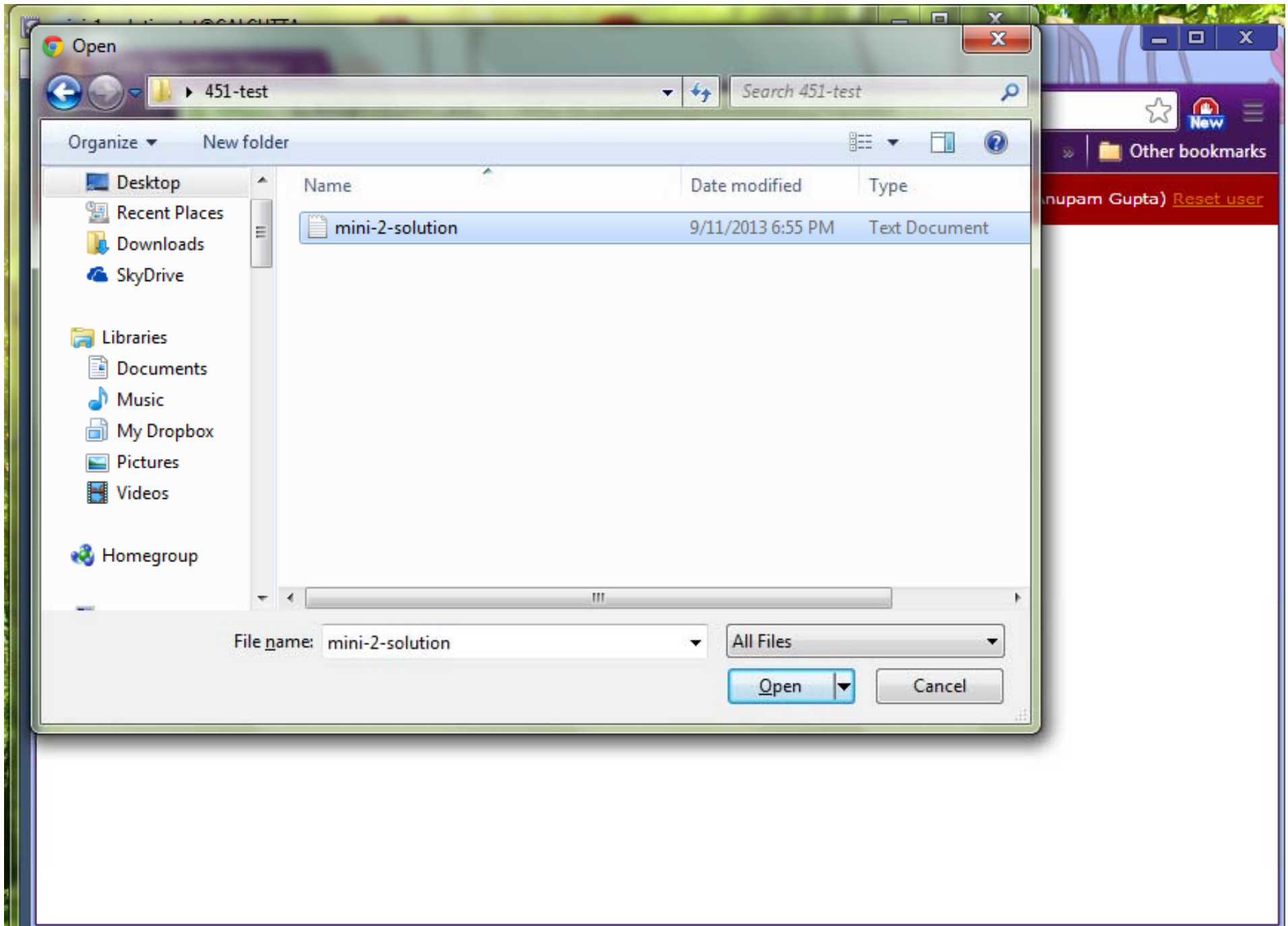
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You have 0 submissions left.

VER	FILE	SUBMISSION DATE	TOTAL (100%)	LATE PENALTY (PENALTY LATE DAYS)	TOTAL SCORE
1	<a href="#">testtest_1_handin.txt</a> ↓	Wednesday, September 11 2013 at 10:56:37	--	00 (0.0 days)	--

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Not graded yet..  
(Duh -- it's just been submitted!)



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You have 0 submissions left.

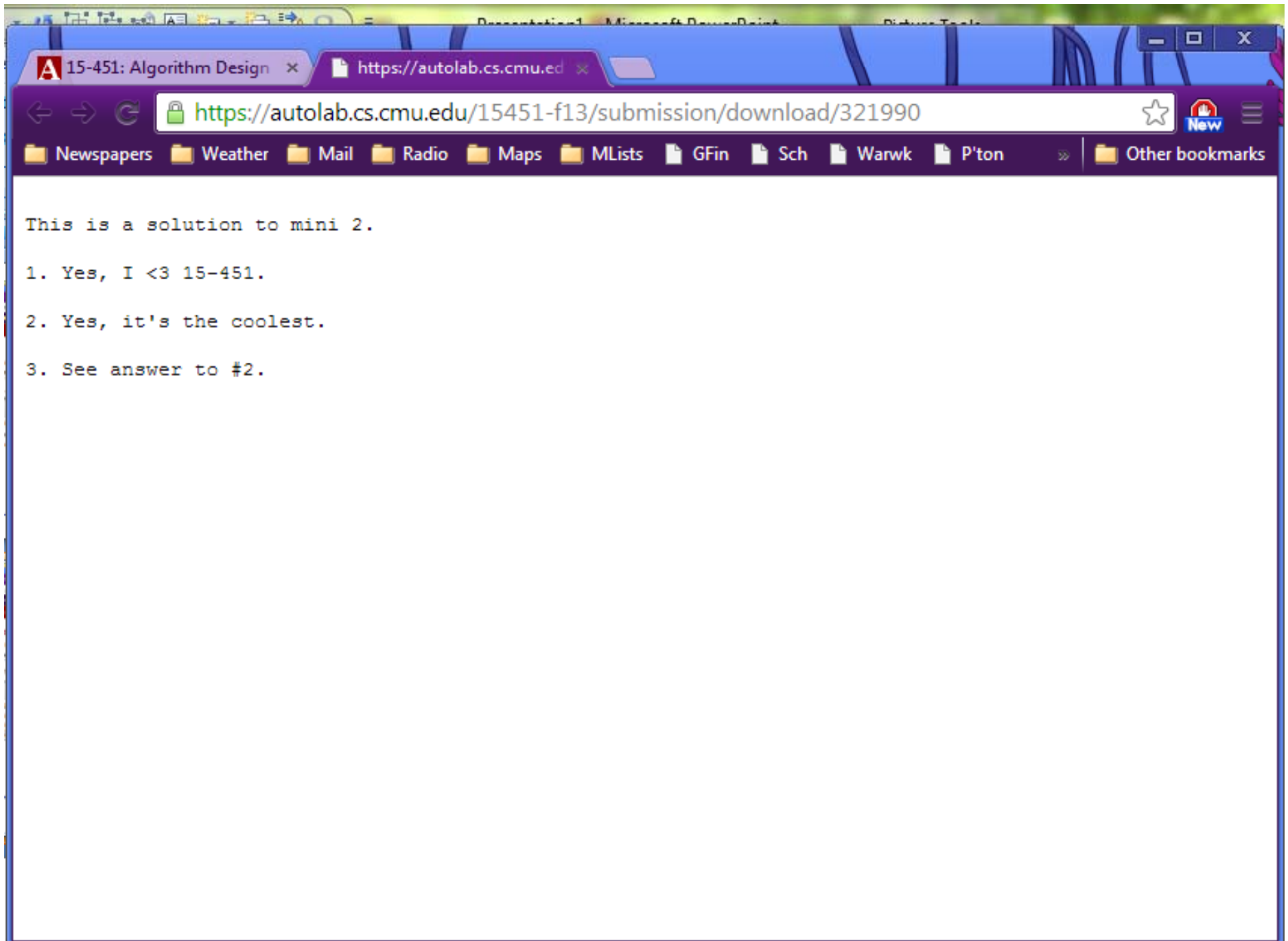
VER	FILE	SUBMISSION DATE	TOTAL (10.0)	LATE PENALTY (PENALTY LATE DAYS)	TOTAL SCORE
1	<a href="#">testtest_1_handin.txt</a> ↑	Wednesday, September 11 2013 at 18:56:37	--	0.0 (0.0 days)	--

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You have 0 submissions left.

VER	FILE	SUBMISSION DATE	TOTAL (10.0)	LATE PENALTY (PENALTY LATE DAYS)	TOTAL SCORE
1	<a href="#">testtest_1_handin.txt</a> ↑	Wednesday, September 11 2013 at 18:56:37	--	0.0 (0.0 days)	--

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## Grades for testtest

MINIS	PLD	FINAL SCORE
Mini #1	7	10.0/10.0
Mini #2	0	0.0/10.0
CATEGORY AVERAGE		5.0

**not graded yet. you just submitted!**

COURSE AVERAGE	0.0
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after grading is done...

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## Grades for testtest

MINIS	PLD	FINAL SCORE
Mini #1	7	10.0/10.0
Mini #2	0	9.0/10.0
CATEGORY AVERAGE		9.5

COURSE AVERAGE 0.0

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### Handin History for [Mini #2](#)

You have 0 submissions left.

VER	FILE	SUBMISSION DATE	TOTAL (10.0)	LATE PENALTY (PENALTY LATE DAYS)	TOTAL SCORE
1	<a href="#">testtest_1_handin.txt</a> ↓	Wednesday, September 11 2013 18:56:37	9.0	0.0 (0.0 days)	9.0

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### Feedback for Mini #2 - Total (testtest)

Good work, missed blah.  
Score for this problem: 9.0

Graded by: ag

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