CSE 115 / 503
INTRODUCTION TO COMPUTER SCIENCE I

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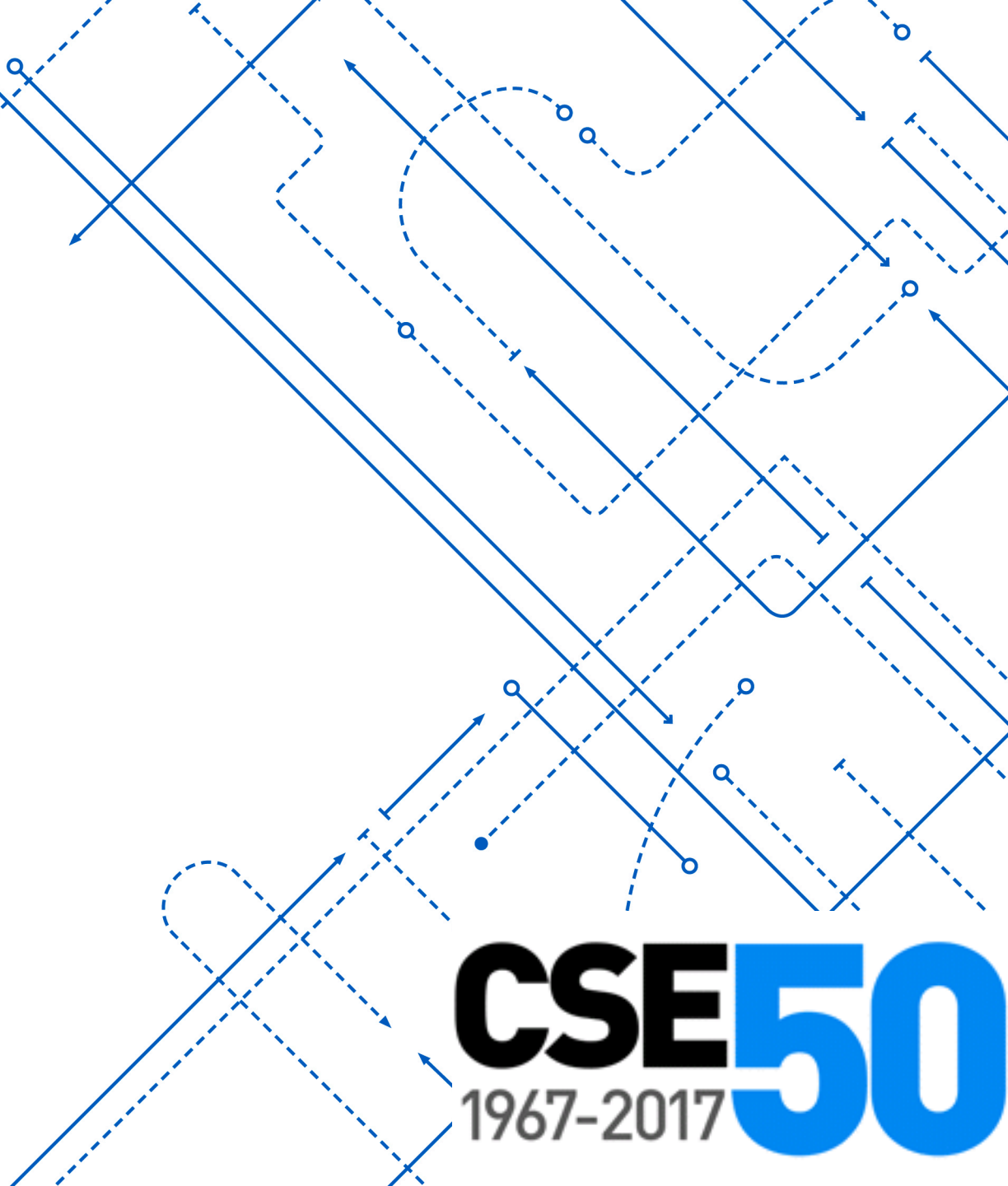


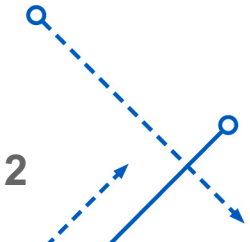
CSE 50
1967-2017

Announcements

Lab 12 is due on Friday at 8:00 PM for everyone.

Baldy 21 is staffed as usual M-F this week, but there is no instruction. Treat these times as additional office hours.

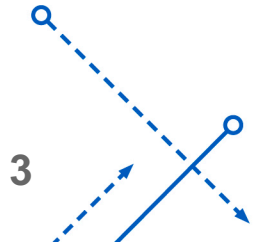
LAST: Review/Extra Help session – 7:00 PM to 9:00 PM: Monday 12/11 in Davis 113A



End-of-semester plan

12/06 Exam Review, part 2 (Q&A)

12/08 Activity to replace lowest lab score.

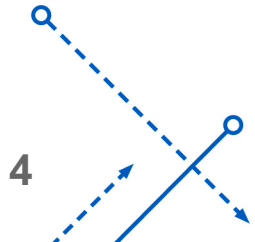


Today

HW3 hints

Lab 12 hints

General exam Q&A



HW3 hints

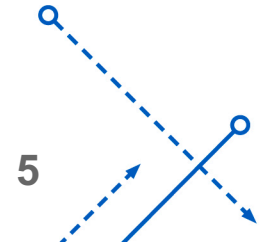
getTile

setCity

tiles

moving the map

zooming the map

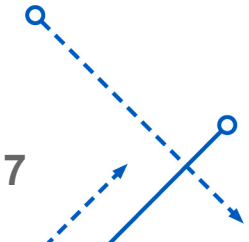


getTile

Maps from a City (with latitude and longitude) and a zoom level to a Tile in the grid for that zoom level.

setCity

Sets the _primaryTile for the visualization. The _primaryTile is the one in the center of the 3x3 grid of 9 tiles.



tiles

Generates the 9 tiles to be display. Must NOT change the _primaryTile.

(x-1,y-1)	(x,y-1)	(x+1,y-1)
(x-1,y)	(x,y)	(x+1,y)
(x-1,y+1)	(x,y+1)	(x+1,y+1)

Moving the map

Given a **_primaryTile**,
if we move North…

(x-1,y-2)	(x,y-2)	(x+1,y-2)
(x-1,y-1)	(x,y-1)	(x+1,y-1)
(x-1,y)	(x,y)	(x+1,y)
(x-1,y+1)	(x,y+1)	(x+1,y+1)

Moving the map

…we set a new value for _primaryTile and recompute the 3x3 grid about that new center tile.

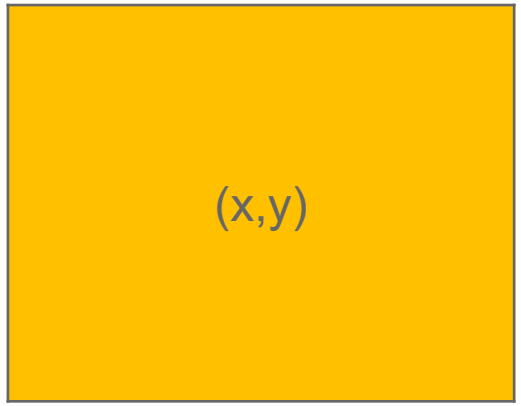
Re-setting the _primaryTile in tiles(), e.g. by calling setCity(…), re-centers the map on (x,y) rather than (x,y-1).

This is the cause of many “off by one” errors in the ArrayList returned by tiles().

(x-1,y-2)	(x,y-2)	(x+1,y-2)
(x-1,y-1)	(x,y-1)	(x+1,y-1)
(x-1,y)	(x,y)	(x+1,y)
(x-1,y+1)	(x,y+1)	(x+1,y+1)

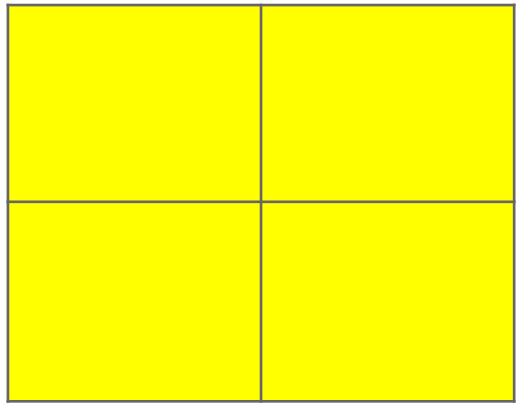
Zooming in

Given a **_primaryTile**, at zoom level N
if we zoom in…



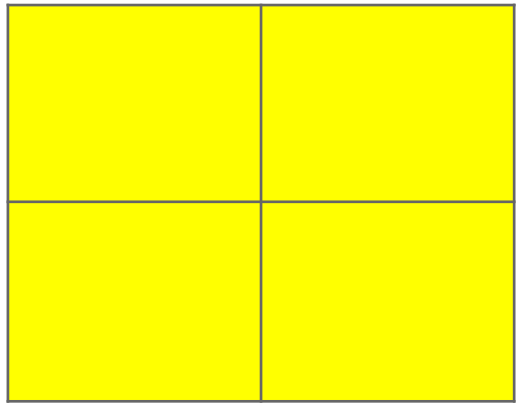
Zooming in

…at zoom level N+1 that one tile is represented by four:



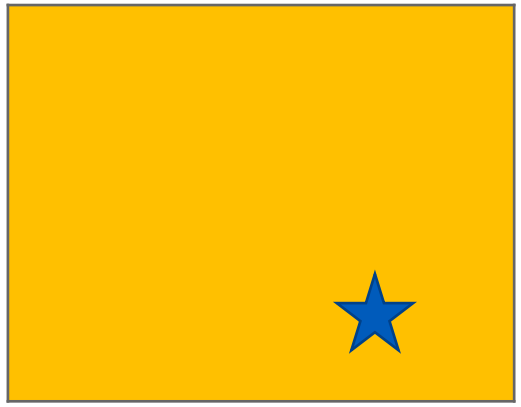
Zooming in

A new _primaryTile must be chosen, but which of the four should it be?
The one that contains the city. Use setCity(…) to determine which Tile at the current zoom level contains the city.



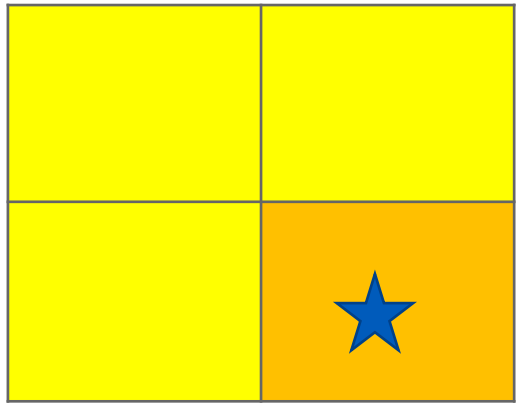
Zooming in

For example, if the city was located here on the original tile:



Zooming in

Then the new _primaryTile will be the one in the lower right corner:



Lab 12 hints

Common problem

Use an appropriate data structure

Avoid recomputation

Common problem

```
An error occurred while parsing the autoresult returned by the Autograder.

Error message: 795: unexpected token at ''

Autograder [Wed Dec 6 10:41:44 2017]: Received job xyz@buffalo.edu:806
Autograder [Wed Dec 6 10:44:57 2017]: Success: Autodriver returned normally
Autograder [Wed Dec 6 10:44:57 2017]: Here is the output from the autograder:
---
Autodriver: Job timed out after 180 seconds
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Common problem

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Use an appropriate data structure

We've discussed many data structures during the semester. One in particular is appropriate for storing pairs of values (e.g. word-count pairings or character-count pairings).

Any ideas?

Use an appropriate data structure

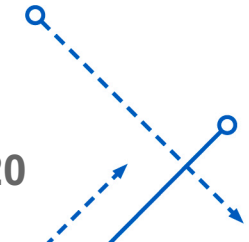
We've discussed many data structures during the semester. One in particular is appropriate for storing pairs of values (e.g. word-count pairings or character-count pairings).

Any ideas?

How about:

HashMap<String,Integer>

HashMap<Character,Integer>



Avoid recomputation

Many submissions do all the counting of words (or characters) in the wordCount (or charCount) methods.

However, there is no need to re-compute the counts each time one of these methods is called.

What else could you do?

Avoid recomputation

Many submissions do all the counting of words (or characters) in the wordCount (or charCount) methods.

However, there is no need to re-compute the counts each time one of these methods is called.

What else could you do?

You could count the words and characters as you read data from the file, and store those counts in your chosen data structures.

Avoid recomputation

For example, my wordCount method just looks up the correct value in the map:

```
@Override public int wordCount(String w) {
        if (_wordCounts.containsKey(w)) {
                return _wordCounts.get(w);
        }
        else {
                return -1;
        }
}
```