

EZ Grader - Milestone III



Rolandas Burbulis
Advisor: Prof. James Heliotis

Navigation Bar Changes

- Using icons for free-hand annotation, text annotation, add grade, save buttons
- Displaying current activity in the navigation bar (i.e. Annotating, Adding Grades)
- Done button to take back to default navigation bar state
- Bolding selected PDF view mode (per student vs. per page)

Navigation Bar Changes - Demo



Free-Hand Annotation Changes

- Previously you needed to touch the entire height and width of screen for annotations to be added to right place - you can just naturally draw now
- Ability to draw periods
 - On touch start - treat as period
 - On touch moved - no longer period
 - On touch ended - if period, draw something that looks like a circle
- Adjusted pen stroke width to look closer to true pen width and changed color to red

Free-Hand Annotation Changes - Demo

Done Annotating

CS34402: Computer Science 427 Tutorial Mid Exam 2017

The multiple questions are each worth 2 point. Indicate whether each of the following statements is True or False

1. ☒ True ☐ False For a Python list `l`, the expression `l[0][1][0]` returns the first item in the list.

2. ☐ True ☒ False A recursive function always runs more than one time.

3. ☒ True ☐ False If a binary search tree is poorly balanced, then the run-time complexity of searching is $O(N)$.

4. ☐ True ☒ False On a weighted graph, a breadth-first search is guaranteed to find the minimum cost path between two vertices.

5. (2 points) On each line, choose the time complexity value that best represents the algorithm and answers. Make no assumptions about the input data unless it is explicitly stated. Unless otherwise stated, assume the tree type is worst case.

Options: 1 $\log_2 N$ N $N \log_2 N$ N^2 2^N $N!$

6. ☒ $O(N \log N)$ Insert using a heap

7. ☐ $O(N)$ Insert into a list

8. ☐ N Insert into a sorted list

9. ☐ $O(N \log N)$ Merge Sort

10. ☐ $O(N \log N)$ Merge Sort of a sorted list

11. ☐ N^2 Quick Sort of a sorted list using first value as the pivot

12. ☐ $O(N \log N)$ Expresses complexity for Quick Sort of a randomly ordered list using the first value as pivot

13. ☐ $O(N \log N)$ Searching for a value in a sorted list using binary search

14. ☐ $O(N)$ Finding the largest element in an unsorted list

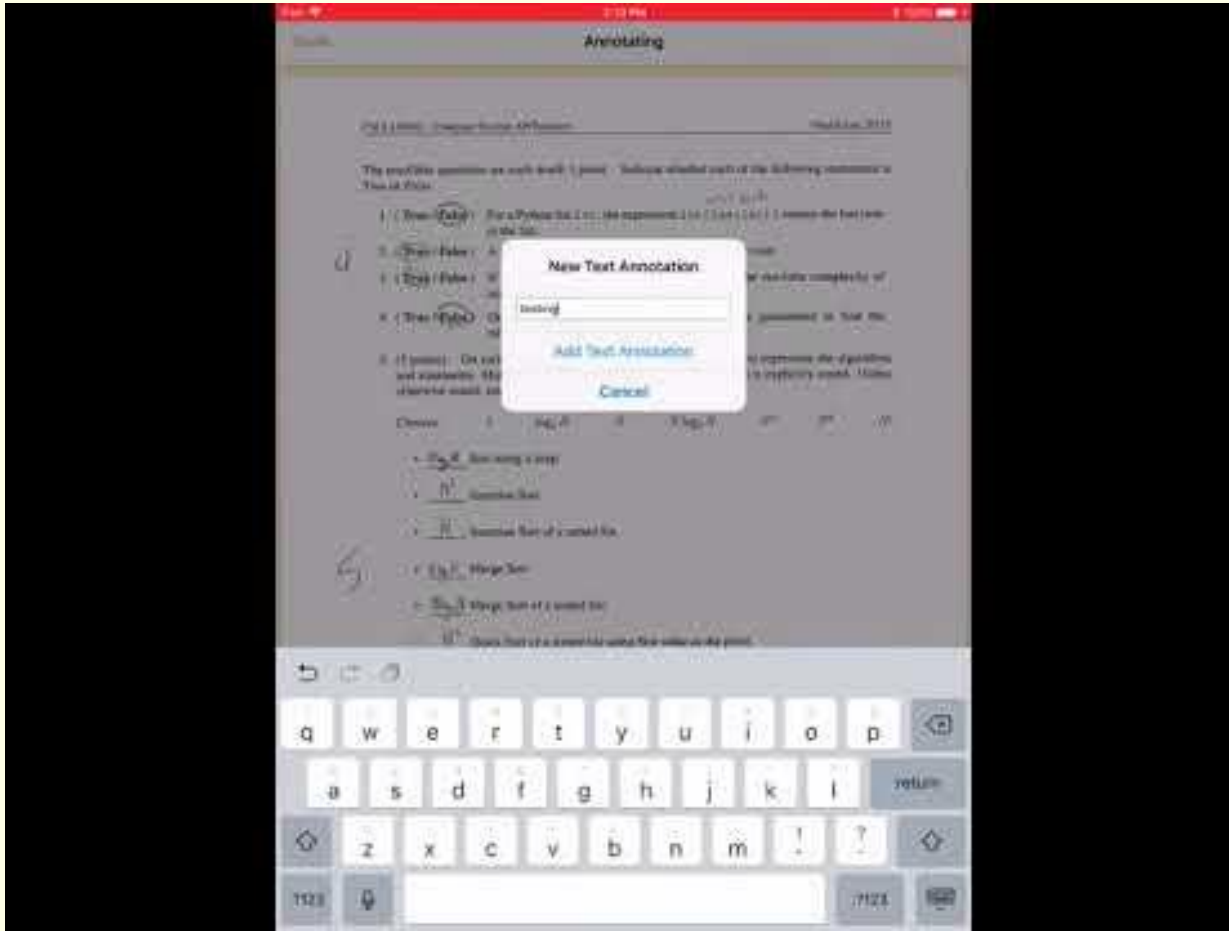
15. ☐ 1 Accessing the third element in an array

Looks good

New Feature - Text Annotation

- Added ability to add keyboard input annotations

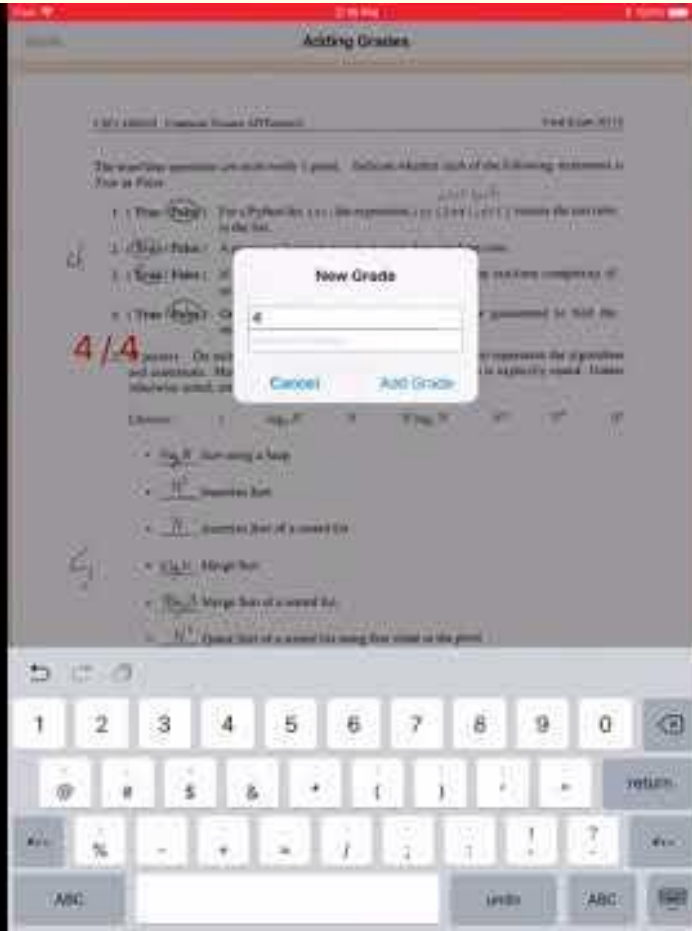
Text Annotations - Demo



New Feature - Adding Grades

- Added ability to add grades to pages
- Grade annotation is duplicated to the same location of the same page of other students

Adding Grades - Demo



Switching Between 'Student' and 'Page' Modes

- Initially each mode was a separate document - changes made in one mode did not reflect in another mode
- Now there is only one document
 - Switching between modes rearranges pages
 - Which means free-hand/text annotation, grades are preserved

Switching Between 'Student' and 'Page' Modes - Demo

Adding Grades

2022-2023 Computer Science AP/IB Exam Total Exam 2022

The question numbers are each worth 1 point. Indicate whether each of the following statements is True or False.

1. ☒ True / ☐ False For a Python list `l`, the expression `l[-1] < l[-2] < l[-3]` returns the last item in the list.
2. ☐ True / ☒ False A recursive function may have more than one base case.
3. ☐ True / ☒ False If a binary search tree is perfectly balanced, then the maximum complexity of searching is $O(N)$.
4. ☒ True / ☐ False On a weighted graph, a breadth-first search is guaranteed to find the shortest path between two vertices.

4/4 points On each line, insert the time complexity value that best represents the algorithm and statement. Make no assumptions about the input data unless it is explicitly stated. Unless otherwise stated, assume the operation is worst case.

Choose: $O(1)$ $O(\log_2 N)$ $O(N)$ $O(\log_2 N)$ $O(N^2)$ $O(N^3)$ $O(N!)$

- $O(N \log N)$ Sort using a heap.
- $O(N^2)$ Insertion Sort
- $O(N)$ Insertion Sort of a sorted list
- $O(N \log N)$ Merge Sort
- $O(N \log N)$ Merge Sort of a sorted list
- $O(N^2)$ Quick Sort of a sorted list using first value as the pivot
- $O(N \log N)$ Expected complexity for Quick Sort of an unsorted list using the first value as pivot
- $O(N)$ Searching for a value in a sorted list using binary search
- $O(1)$ Finding the largest element in an unsorted list
- $O(1)$ Reversing the third element in an array

5. Nice job!

5/5

hello

3

Saving

- Combined document split up into constituent student documents and each is saved as PDF with all of the annotations
 - Support from 'Student' and 'Page' modes

Saving - Demo

Adding Grades

92.5

CSC3 160340
Test 2017

Computer Science 1670/2000

Final Exam
November 14, 2017

Final Exam

Final Exam

RT User 1

Grade your test

	Exam Location
1	1000-1100
2	1000-1100
3	1000-1100
4	1000-1100

Notes

- The exam is worth 20% of the course grade.
- The exam has 40 questions.
- The exam has 30 problems.

Cancel Add Grade

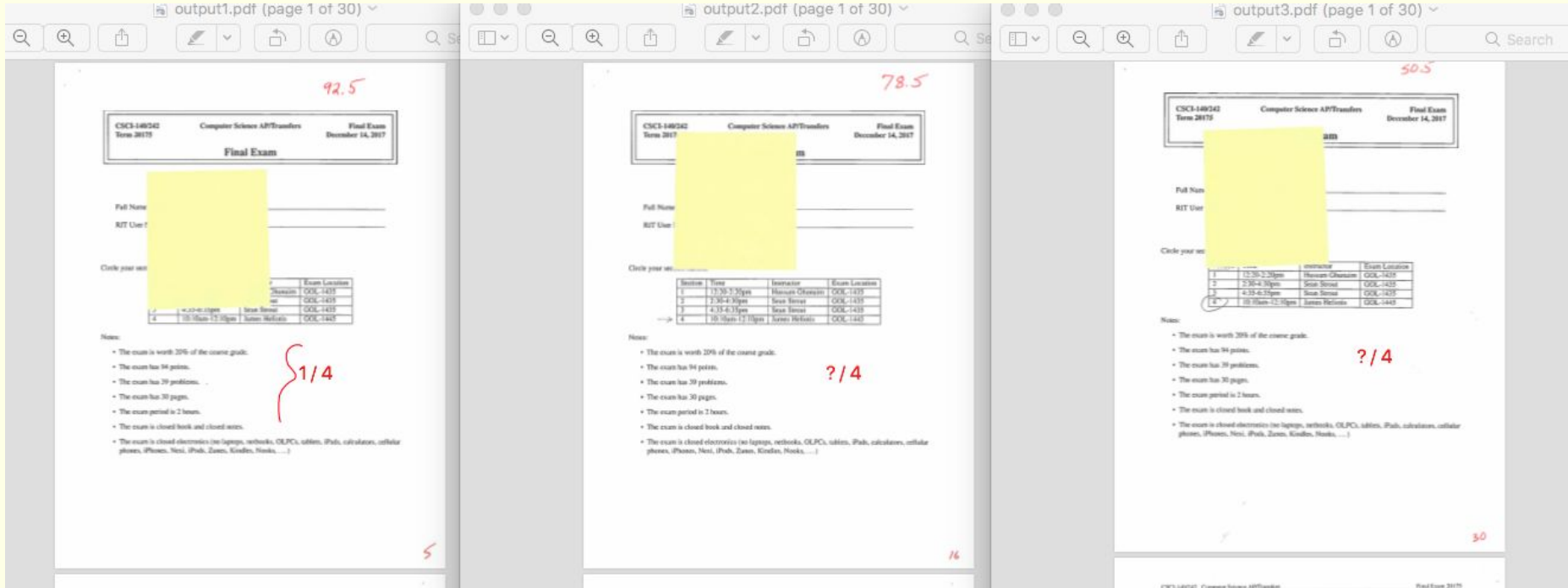
1

1 2 3 4 5 6 7 8 9 0

return

ABC

Saved PDFs



Miscellaneous

- Error message displayed if PDFs to be graded have mismatching number of pages
- Added launch screen

Miscellaneous - Demo



Remaining Work

- Code Complete date - two weeks from today
- When saving, write out a .CSV file with all student grades
- Allow reading ungraded PDFs and writing out graded PDFs to iCloud
- Allow erasing free-hand annotations
- Allow editing/removing text annotations
- Allow editing/removing grades
- Maintain user location when switching between 'Student' and 'Page' modes

Questions?