EZ Grader

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What is EZ Grader?

- iOS app
- Allows professors to grade structured student content (i.e. exams, quizzes)

Motivation

- Exposure to iOS development
  - Mobile class taken covered Android only
- Utility of application to professors and students

Background

How many professors grade exams

Problem Statement

- Allow professors to grade exams/quizzes digitally on an iPad
- Allow grading per page or per student
- Allow markup using handwriting and text
- Remember number of questions on page and question worth for subsequent students
- Generate report when all papers are graded

Approach

- Professor will provide batch of student exams in form of PDFs
- App will allow selection of batch of PDFs from Google Drive or Dropbox
- Will utilize third party library(-ies) to mark up PDFs
  - Convert PDF to image due to more image markup libraries available?

Key Challenges

- Scope creep
- First time iOS development - zero knowledge of Swift - zero experience with Xcode - zero experience working with PDFs libraries
- Dev environment (working on VM)
- Availability of free (free for academic use?) existing libraries to allow manipulation of PDFs/images
- Professor desires ability to change grades/markup once entered. User entered content needs to be modifiable.

Milestones

Week 4:

- Researched and experimented with available PDF and image markup libraries and made decision on library(-ies) to use
- App functionality - User able to page through assignment per page or per student

Week 8:

- App functionality - User able to assign grades to questions and mark up pages with overlaid keyboard text

Week 12:

- App functionality - Final app (except for some possible bug fixes in the remaining weeks) - User able to mark up pages with overlaid handwritten tests and see class results on assignment

Timeline

Week 1: Rent a Mac from https://www.macincloud.com/. Verify access to VM. Verify Xcode is installed (install if necessary). Create a shell project for EZGrader iOS app. Upload project to GitHub.

Week 2: Implement app ingestion process of student tests/exams/quizzes (as a batch of PDFs).

Week 3: Research for available iOS libraries to allow analysis of PDFs/images (number of pages in PDF; open PDF to certain page; markup PDF with overlaid handwriting; markup PDF with overlaid text).

Week 4: Implement functionality to allow the professor to view assignment by:

1. Paging through each assignment start to end

2. Paging by going through the same page of all assignments before going to next page of assignment

Timeline (continued..)

Week 5: Implement functionality to allow the professor to set the number of questions and worth of each question on the page. App remembers this when viewing the same page in assignments of other students.

Week 6: Implement functionality to allow the professor to assign grades to questions on the page.

Week 7: Implement functionality to allow the professor to add overlaid text anywhere on the page.

Week 8: Buffer to ensure week 8 deliverable is met if any unexpected challenges occur

Week 9: Implement functionality to allow the professor to add overlaid handwritten text anywhere on the page.

Week 10: Implement support for multiple assignment grading (multiple classes and also where each class has multiple assignments).

Timeline (continued..)

Week 11: Implement support for gathering metrics about an assignment:

1.   Calculate final grade for each student when all questions are graded

2.   Allow the professor to mark certain questions on the page as those for which metrics should be separately tabulated for and tabulate those metrics when all of those questions a graded

Week 12: Buffer to ensure week 12 deliverable is met if any unexpected challenges occur

Week 13: Address any remaining implementation issues and begin writing final report

Week 14: Finish final report and poster

Week 15/16: Final report and poster presentation

Q?