Algorithms

Some history and advice as we begin our adventure...
Advice

- Attend every class. Don’t miss even one.
- Put your devices away and pay attention in class.
- Take notes in class (in pencil) on paper.
- Rewrite your class notes into a new notebook as a form of studying.
- Do every lab. Sometimes twice. Commit to GitHub.
- Work on your projects every day.
ADVICE from Dr. Helen Rothberg

- **Action** — Do more, say less. Pursue your interests. Ask for help when you need it.
- **Determination** — Stick to it and get things done.
- **Vision** — What are you trying to become? What do you want to do with your life? How will you get there?
- **Integrity** — Tell the truth all the time. Don't create or participate in drama.
- **Communication** — Be attentive and dig in, even if it's hard.
- **Empathy** — Dare to care about yourself and others.
Do Not Make Excuses

- I love Chris Algozzine, but I don’t give a damn about Capping.
- This person failed the class.

----- Original message ----- 
To: Alan Labouseur/FAC/Marist@Marist 
Subject: Projects 
Date: Sun, Dec 9, 2018 8:33 PM 

Also, I wanted to say sorry for the subpar work. I've just been incredibly overwhelmed by capping. I enjoy having you as a professor and I don't want you to think I'm just blowing your class off, I've just been trying to keep my head above water.

- Don’t even mention Capping to me, or you’ll fail too.
- Work on your projects and assignments every day.
Do Not Make Excuses

This is not acceptable:

----- Original message -----  
To: Alan Labouseur/FAC/Marist@Marist  
Subject: RE: Projects

Hi Professor Labouseur,

I just looked at my email this morning, I'm surprised you didn't get my work. I thought I pushed it Sunday, But I now realize I didn't set upstream origin for the branch, so it didn't actually get pushed. I've just re-pushed this morning so you can review it.

- I did not “review it”. The grade remained the same.
- If you cannot figure out GitHub, you do not deserve a CS / ITS / Cyber / Data science degree.
Academic Honesty

- These are individual projects. All work must be your own.

- Any violation of this will result in your **immediate** and **automatic** failure of this class.

- This is your only warning. The next time we talk about this it will be in the context of me telling you that you have failed this class.

- I am serious. Ask prior students.
Academic Honesty

- I will be checking your work against...
  - your class
  - other classes
  - past projects
  - and...

Assignments

- Embrace Computer Science scholarship and write your labs using LaTeX. ShareLaTeX / Overleaf is probably the easiest way to do this. I’ve written a lab example you can use as a template. There are more LaTeX resources below.

- Assignment Zero - Limericks in LaTeX
- Assignment One - Data Structures and magic items.
- Assignment Two - Sorting, Searching, and Hashing
- Assignment Three - Graphs and Trees
- Assignment Four - Dynamic Programming (graphs) and Greedy Algorithms (spice)
Academic Honesty

I will be checking your work against...

- your class
- other classes
- past projects
- and...
- GitHub
Academic Honesty

- I will be using MOSS to help detect cheaters. See theory.stanford.edu/~aiken/moss/

**Moss**

A System for Detecting Software Similarity

**UPDATES**

- Feb 1, 2018 And even more community contributions have been added!
- Nov 9, 2017 More community contributions have been added below ...
- Aug 31, 2017 Thanks to Christophe Troestler for an OCaml client for Moss.
- May 18, 2014 Community contributions (including a Windows submission GUI from Shane May, thanks!) are now in their own section on this page.
- May 14, 2014 And here is a Java version of the submission script. Thanks to Bjoern Zielke!
- May 2, 2014 Here is a PHP version of the submission script. Many thanks to Phillip Rehs!
- June 9, 2011 There were two outages over the last couple of days that lasted no more than a hour each (I think). I’ve made some changes to the disk management software that should prevent these problems from recurring.
- April 29, 2011 There was an outage lasting a few hours today, the first since last summer, but everything is back up.
- August 1, 2010 Everything is back to normal.
- July 27, 2010 The Moss server is back on line. There may be some more tuning and possibly downtime in the coming weeks, but any outages should be brief. New registrations are not yet working, but people with existing accounts can submit jobs.
- July 25, 2010 As many (many!) people have noticed, the Moss server has been down for all of July. Unfortunately the hardware failed while I was away on a trip. I am hopeful it will be back up within a few days.

**What is Moss?**

Moss (for a Measure Of Software Similarity) is an automatic system for determining the similarity of programs. To date, the main application of Moss has been in detecting plagiarism in programming classes. Since its development in 1994, Moss has been very effective in this role. The algorithm behind moss is a significant improvement over other cheating detection algorithms (at least, over those known to us).
Write Original Code

- Comments
- Variable names
- Code conventions and style
- Structure
- Modularization
## Midterm vs. Final Grades

<table>
<thead>
<tr>
<th>Mid-term Grade vs. Final Grade</th>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Mid-term Average</strong></td>
<td><strong>Mid-term Grade</strong></td>
<td><strong>Mid-term GPA</strong></td>
<td><strong>Final Grade</strong></td>
<td><strong>Final GPA</strong></td>
<td><strong>Change</strong></td>
</tr>
<tr>
<td>95.75</td>
<td>A</td>
<td>4.0 →</td>
<td>A</td>
<td>4.0 Δ</td>
<td>0.0</td>
</tr>
<tr>
<td>95.75</td>
<td>A</td>
<td>4.0 →</td>
<td>A</td>
<td>4.0 Δ</td>
<td>0.0</td>
</tr>
<tr>
<td>89.00</td>
<td>B+</td>
<td>3.3 →</td>
<td>A-</td>
<td>3.7 Δ</td>
<td>0.4</td>
</tr>
<tr>
<td>98.00</td>
<td>A</td>
<td>4.0 →</td>
<td>B+</td>
<td>3.3 Δ</td>
<td>-0.7</td>
</tr>
<tr>
<td>93.75</td>
<td>A</td>
<td>4.0 →</td>
<td>A</td>
<td>4.0 Δ</td>
<td>0.0</td>
</tr>
<tr>
<td>83.75</td>
<td>B</td>
<td>3.0 →</td>
<td>B+</td>
<td>3.3 Δ</td>
<td>0.3</td>
</tr>
<tr>
<td>71.75</td>
<td>C-</td>
<td>1.7 →</td>
<td>B</td>
<td>3.0 Δ</td>
<td>1.3</td>
</tr>
<tr>
<td>74.25</td>
<td>C</td>
<td>2.0 →</td>
<td>C</td>
<td>2.0 Δ</td>
<td>0.0</td>
</tr>
<tr>
<td>87.50</td>
<td>B+</td>
<td>3.3 →</td>
<td>B+</td>
<td>3.3 Δ</td>
<td>0.0</td>
</tr>
<tr>
<td>80.00</td>
<td>B-</td>
<td>2.7 →</td>
<td>B-</td>
<td>2.7 Δ</td>
<td>0.0</td>
</tr>
<tr>
<td>83.75</td>
<td>B</td>
<td>3.0 →</td>
<td>B-</td>
<td>2.7 Δ</td>
<td>-0.3</td>
</tr>
<tr>
<td>58.00</td>
<td>F</td>
<td>0.0 →</td>
<td>W</td>
<td>0.0 Δ</td>
<td>0.0</td>
</tr>
<tr>
<td>92.75</td>
<td>A-</td>
<td>3.7 →</td>
<td>B</td>
<td>3.0 Δ</td>
<td>-0.7</td>
</tr>
<tr>
<td>74.25</td>
<td>C</td>
<td>2.0 →</td>
<td>B</td>
<td>3.0 Δ</td>
<td>1.0</td>
</tr>
<tr>
<td>77.50</td>
<td>C+</td>
<td>2.3 →</td>
<td>D</td>
<td>1.0 Δ</td>
<td>-1.3</td>
</tr>
<tr>
<td>97.00</td>
<td>A</td>
<td>4.0 →</td>
<td>A</td>
<td>4.0 Δ</td>
<td>0.0</td>
</tr>
<tr>
<td>78.00</td>
<td>C+</td>
<td>2.3 →</td>
<td>C+</td>
<td>2.3 Δ</td>
<td>0.0</td>
</tr>
<tr>
<td>88.25</td>
<td>B+</td>
<td>3.3 →</td>
<td>A</td>
<td>4.0 Δ</td>
<td>0.7</td>
</tr>
<tr>
<td>96.75</td>
<td>A</td>
<td>4.0 →</td>
<td>A</td>
<td>4.0 Δ</td>
<td>0.0</td>
</tr>
<tr>
<td>85.25</td>
<td>B</td>
<td>3.0 →</td>
<td>B+</td>
<td>3.3 Δ</td>
<td>0.3</td>
</tr>
<tr>
<td>81.00</td>
<td>B-</td>
<td>2.7 →</td>
<td>B+</td>
<td>3.3 Δ</td>
<td>0.6</td>
</tr>
<tr>
<td>95.00</td>
<td>A</td>
<td>4.0 →</td>
<td>A</td>
<td>4.0 Δ</td>
<td>0.0</td>
</tr>
<tr>
<td>87.50</td>
<td>B+</td>
<td>3.3 →</td>
<td>A-</td>
<td>3.7 Δ</td>
<td>0.4</td>
</tr>
<tr>
<td>44.50</td>
<td>F</td>
<td>0.0 →</td>
<td>F</td>
<td>0.0 Δ</td>
<td>0.0</td>
</tr>
<tr>
<td>89.50</td>
<td>B+</td>
<td>3.3 →</td>
<td>C-</td>
<td>1.7 Δ</td>
<td>-1.6</td>
</tr>
<tr>
<td>56.75</td>
<td>F</td>
<td>0.0 →</td>
<td>D</td>
<td>1.0 Δ</td>
<td>1.0</td>
</tr>
<tr>
<td>89.75</td>
<td>B+</td>
<td>3.3 →</td>
<td>B</td>
<td>3.0 Δ</td>
<td>-0.3</td>
</tr>
</tbody>
</table>