Help Session: Friday, November 18th, 4:30pm in Lubrano (CIT 477)

1-Page Proposals Due: Tuesday, November 22nd, 8:00pm
Individual Design Checks: Wednesday, November 30th - Thursday, December 1st

On-Time Handin: Sunday, December 18, 10:00pm
Late Handin: Tuesday, December 20, 5:00pm
You cannot use a late pass on this assignment

Demos\footnote{Note that some of these demos were done in an older Java graphics package (Swing), so elements may show up slightly differently if you try to replicate specific parts.}: cs015_runSnazzyDemo Indy
Demos may not work well over ssh! Try FastX or the Sunlab.

To install: cs015_install Indy
To hand in: cs015_handinIndy <nameOfFolderWithYourCode>

Table of Contents

Staff
Silly Premise & Intro
What qualifies as an Independent Project?
Who can do an Independent Project?
Timeline
What We Are Expecting
TA Hours
User's Guide
Final Project Handin

Staff

<table>
<thead>
<tr>
<th>TA</th>
<th>Login</th>
</tr>
</thead>
<tbody>
<tr>
<td>Divya Mahadevan (HTA)</td>
<td>dmahadev</td>
</tr>
<tr>
<td>Grant Fong</td>
<td>gfong1</td>
</tr>
<tr>
<td>Todd Ashley</td>
<td>tashley</td>
</tr>
<tr>
<td>Zach Kirschenbaum</td>
<td>zkirsche</td>
</tr>
</tbody>
</table>

1
Silly Premise & Intro

In a moment of weakness, Grant has misplaced Andy’s water bottle. Unfortunately for your friendly props TA, lecture is quickly approaching and Andy won’t be able to start lecture without the bottle. Luckily, Grant remembers that the TAs last year made a collection of AndyDocs to detail all of Andy’s functionality. After a quick Ctrl-F, Grant discovers a loophole in the bottle-dependence: Andy may also start lecture if he is given a final project. But not just any usual final project—he needs an extraordinary one. He needs a project that stretches beyond what’s expected of a typical CS15 student, that demonstrates strong independence, and that illustrates an exceptional command of object-oriented programming. Help Grant save the day by creating a project of your very own! Choose Indy for your final project!

What qualifies as an Independent Project?

To be approved, your potential project must meet the following criteria:

1. Length: LiteBrite does not qualify as a final project! Independents must be at least as long as an average final project, which, by a rough estimate, is about 2000 lines of code.

2. Data Structures: The program must contain advanced data structures, e.g. multidimensional matrix, linked lists, stacks, queues, etc. Another possibility is to explore and employ a data structure which has not been used in previous project, e.g. HashMaps or Trees.

3. Algorithms: You may not do a project which performs a very simple task even if it takes a lot of code. For example, a program which draws 63 different columns (even in each were a different color!) would not meet the algorithm standards. Thus, your project should utilize a reasonably complex algorithm (at least as difficult as that in Tetris). When designing your project, be sure to take full advantage of polymorphism. It is also important to remember that there are algorithms that are short, but are hard to implement. Make sure you choose your algorithm wisely!

4. Originality: Finally, the program must be different enough from the standard CS15 projects to warrant its independent status. If you insist on expanding one of the regular class final projects, be prepared to explain and defend the reasons that your variation cannot just be implemented as extra credit for the regular project.

We want you to realize exactly what you’re getting yourself into. You will be a limited amount of time to do a project that hasn’t been done before, so be prepared to work hard. However, you
will have a dedicated staff of 4 passionate, creative TAs who will do their best to make sure your project is a success.

**Who can do an Independent Project?**

You must have a firm grasp of the material covered in the course to do an Independent Project. In any case, you must be able to work on your own with relatively little supervision. Before you begin to even write pseudocode for any program, you obviously must first know what it is that you are trying to accomplish. The other students will have this spelled out for them in their handouts; you must devise this yourself. Remember, you will not be getting explicit program specs, design hints, or demos. You must create all this for yourself. Actually writing the program should take about the same amount of time as writing one of the standard projects. The difference is that you will be spending MUCH more time on the design and development end of things. Since an independent project provides you with greater freedom, it is necessary that you be someone who works well with that freedom and lack of structure.

We are introducing a new system for screening Indy applicants this year. In order to qualify for Indy, you have to have shown a strong track record in the previous projects. This means we’re looking for students who have consistently done bells and whistles and performed pretty well on the other projects. This is not to discourage people from taking on the Indy challenge, but rather to make sure that Indy is the right choice for you. If you have any questions about this policy, send an email to the Indy TAs.

**Timeline**

Here is a roadmap of what the project looks like:

- **Friday November 18th**: We will hold an Indy info session in Lubrano (CIT 477) at 4:30pm. We will discuss more logistics and a few TAs will explain why they chose Indy. You also will have the chance to brainstorm project ideas and get immediate feedback from the Indy staff. Snacks will be provided.
- **Tuesday November 22nd at 8pm**: By this time, all students interested in doing Indy must send cs015indytas@lists.cs.brown.edu a 1 page proposal. This proposal should give a short description of your project, clearly specifying what algorithms and data structures you think you might use. No need to go too in-depth; this is meant for us to get a general sense of what you want to do.
- **Monday November 28th at 5pm**: You must sign up for a design discussion for your backup final project. Make sure to sign up for a 12/2 discussion (after Indy design checks).
- **Tuesday November 29th**: By this date, an Indy TA will reach out to you to schedule a Design Check.
- **Wednesday November 30th at 2pm**: Indy mini assignment due via the handin script.
- **Wednesday November 30th - Thursday December 1st:** We will be holding individual Design Checks, where you will have the chance to defend your answers to the design questions. We will let you know if you’ve been accepted or rejected by end of day on the day of your design check. If your project is accepted, you will receive a personal Indy TA and you must set up a progress check with them at this time.

- **Friday December 2nd:** If your proposal was rejected, you must attend a design discussion for your backup project and hand in the accompanying mini assignment by 2pm.

- **Friday December 9th - Monday December 12th:** Progress Check with your Indy TA. Note that the progress check is a mandatory meeting with a TA to demo your progress so far. This is meant to make sure that you're on track, since there's so much freedom with the assignment. In your first design check, you will outline the requirements for your progress check. This will be part of your final grade.

- **Sunday December 18th:** On time hand in

- **Tuesday December 20th:** Late handin. By this time, you will be assigned a different Indy TA who will grade your project. You must contact them and complete a Final Demo by this time.

Once again, although you shouldn't be pessimistic, your design check could be rejected, so be realistic enough to go to the help session of one of the other final projects. After the initial extra work for your project design check, your life will be pretty much the same as any other CS15 student except with more work and more fun (in other words, you are very similar to everyone else, but different).

### What We Are Expecting

Just to be clear, we want you to be successful. If you prove that you have thought hard about your design, then we will accept your project. We do not have a limit to the amount of projects we can accept.

To that end, here are a list of things you can do to show us you have thought your design through:

- Bring **thorough** pseudocode with you. This does not mean you need to have pseudocode for every single method, but you should have the core functionality planned out.

- Set aside a reasonable amount of time to plan out your project. It will be obvious if you attempt to complete your design questions in the hour before your check.

- If necessary, bring other materials that could help supplement your thoughts. For example, if you plan to make Scrabble, then perhaps bringing in a real Scrabble board would be helpful!

- Be open to change. You will probably change your design a few times before you start coding. And even when you start coding, your design can still change.
As always, please reach out to us if you need any clarification on what we are expecting.

**TA Hours**

TA Hours will be by appointment only. Please email cs015indytas@lists.cs.brown.edu to set up an appointment.

**User's Guide**

In addition to your final project, you must hand in a final User's Guide. This document should describe your user interface completely, as well as provide sample input/output and example screens. It should highlight your program's capabilities (and limitations). The User's Guide is due at the same time as the rest of your project. This should be emailed to the Indy TAs and included in the folder you hand in.

**Final Project Handin**

You must hand in your program using cs015_handinIndy <nameOfFolderWithYourCode> and find a time to do a demo with an Independent Project TA. The program itself is due by 12/18 (on-time), 12/20 (late). You must also hand in your final survey online by this time.