

Space Issues on the Lab Macs

As many of you already know, the Macs in the lab (GDC 1.310), have run into unprecedented space issues this semester. If you have been using one of the lab machines, you may have encountered the error:

```
The document XXX could not be autosaved. The volume "Macintosh HD"
is out of space. Remove some files from the volume, and then try
again.
```

This error likely prevented you from saving your code to the hard drive of that Mac.

In previous years, students in the iOS classes were told by their department advisors that they were expected to own or have reliable access to Macs before registering for this course. Based on some conversations I've had with students, I don't think that message is being communicated anymore. Consequently, this semester, we have significantly more students requesting access to the Macs than we've ever had before.

The department is working to find permanent solutions to the space problems, but whatever we come up with will take a while to deploy. In the meantime, we will be working to clear space, and we ask everyone to do their best to help out.

There are several things students can do now to immediately reclaim space.

1. Before you quit for the day, delete temporary files.

Xcode creates a bunch of temporary intermediate files every time you build a project. You don't need them when you're not working on your project; they'll be recreated the next time you build. You especially don't need them anymore when you're finished with your project.)

Clean your Build Folder. Click on `Product > Clean`, or use the shortcut `cmd-shift-K`.

Delete Derived Data. Run the following command in the Terminal:

```
rm -rf ~/Library/Developer/Xcode/DerivedData/*
```

2. **Clean up your personal space.**

- Don't leave copies of assignments and projects on multiple machines.
- Don't leave multiple copies on the same machine. Sometimes students restart a homework assignment but don't delete the earlier versions.
- Don't leave copies of my class demos on the machines. You can always download them again if you need them later.
- Don't keep both compressed and uncompressed copies of projects. Once you create a ZIP file to submit to Canvas, you don't need to keep the original uncompressed file since you can always unzip it again.

There are also some good practices students can do now to minimize space consumption on the lab machines.

1. Don't store assignments on the hard drives if you aren't actively working on them.
 - Move old assignments to Google Drive, iCloud, or Git.
 - Compress and move old assignments to a thumb drive or other form of portable storage.
 - Compress and move old assignments to the UTCS file system. Since you have a UTCS ID, you have dedicated space (a "home directory" under `~yourUserId`) assigned to you on the CS file system. The lab Macs should have Cyberduck installed on them, which is a file transfer program.

A big benefit of storing assignments on something other than a hard drive is that you would not be dependent on any one machine: you could go to any available machine with space, download your project from wherever you stored it, work on it, and then upload it back to offline storage so you can access it again from any machine.

Another benefit is that you will retain copies of your work. Between semesters, the department clears out classwork to make room for the next semester.

2. Also, some machines are being used more frequently than others, so these are the ones that are filling up the fastest. It's a good idea to avoid using the same machine(s) that everyone else is using. There's usually space on one of the other machines in a corner of the lab that is less popular.

Finally, if you find this all intolerable, you can always try using the Macs elsewhere on campus, such as the PCL. They have Xcode installed and are available for anyone to use. However, the machines aren't owned by the CS department, so I have no control over their availability, the software they install, and their maintenance/update schedules. Also, they may not be as tolerant towards teams working together and talking out loud as we are in GDC.