



HackHighSchool First Day

Learn to 42

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Summary: Welcome to HackHighSchool! Let's get oriented. Today you'll learn about the available topics to study, our Intra website, our chatrooms, and how to write and run a basic program on the iMacs.

Contents

| | | |
|-------------|---|-----------|
| I | Preamble | 2 |
| I.1 | What Question Will You Ask? | 2 |
| II | Choose a Topic to Study | 3 |
| II.1 | Python | 3 |
| II.1.1 | Intro to Python | 3 |
| II.1.2 | Pygame and Object-Oriented Python | 3 |
| II.1.3 | Data Science and Machine Learning | 3 |
| II.1.4 | Preparing for the AP Computer Science Principles Exam | 3 |
| II.2 | Javascript | 4 |
| II.2.1 | Intro to Web Development | 4 |
| II.2.2 | p5JS | 4 |
| II.2.3 | NodeJS | 4 |
| II.3 | Java | 4 |
| III | About 42 | 5 |
| IV | Goals for Today | 6 |
| V | Slack | 7 |
| VI | Intra | 8 |
| VII | Coding Tools | 10 |
| VIII | Terminal | 12 |
| IX | Vogsphere | 14 |
| X | Warmup before coding | 15 |
| XI | Turning in your code | 16 |
| XII | Corrections | 17 |

Chapter I

Preamble

I.1 What Question Will You Ask?

[Video Clip: The Ultimate Question](#)
[Hitchhiker's Fandom: Deep Thought](#)

42 is named after a joke in the science fiction series, *The HitchHiker's Guide to the Galaxy*. In the story, a supercomputer named "Deep Thought" is asked to find "the ultimate answer to life, the universe, and everything."

Deep Thought processes this question for 7.5 million years, and then states that the answer is...

(Drumroll please...!)
You know. 42!

But what questions is that the answer to? If we are going to find out any useful information, it sure helps to define precisely what we are looking for. ;)

Chapter II

Choose a Topic to Study

This semester, HackHighSchool offers the following class sections. You will need to fill out a form to indicate which one you want to start with, if you have not already.

II.1 Python

II.1.1 Intro to Python

This is our most popular beginning programming course. If you already have some experience, it's still a good idea to try it out to see if you're able to work through it quickly. The final project for this section is to build a text-based game that runs in the computer terminal, like [these ones](#).

[Video: What is Python and Why you must learn it](#)

II.1.2 Pygame and Object-Oriented Python

After Intro to Python, one direction you can go is to study object-oriented programming and build a game with the Pygame library. Check out the Pygame website at pygame.org!

II.1.3 Data Science and Machine Learning

Another option for after Intro to Python: You can learn about the essential tools and concepts used in the study of data. Topics include web scraping, API queries, graphing libraries, numpy, pandas, matplotlib, reinforcement learning, linear regression and classification.

II.1.4 Preparing for the AP Computer Science Principles Exam

If you are interested in taking the AP CSP exam at your school, start with Intro to Python and we will help you study for the exam topics afterwards. You will be required to work on a research project and a programming project for your AP portfolio. We cannot guarantee you a place to take the AP exam; you should talk with your own school about that, or find independent learning centers which offer the test to homeschool students.

II.2 Javascript

II.2.1 Intro to Web Development

If you want to study Javascript instead of Python, try our Intro to Web Development. We will study the essentials of HTML, CSS, and programming with Javascript. The final project for this section is to build a website of your own.

II.2.2 p5JS

Just like Pygame, there are several awesome game libraries which let you build graphical games in JS! We have a tutorial for my favorite, p5JS. Enroll in this section to build a Javascript game for your portfolio.

II.2.3 NodeJS

Interested in building complex web applications with a database behind them? We'll get you started with an introduction to NodeJS.

II.3 Java

If your goal is to study for the AP Computer Science A exam at your school, we have a group for you to study programming in Java using the Runestone Academy curriculum.

Chapter III

About 42

42 is a community space for self-directed, peer-to-peer learning.

1. **Community:** The people we know in-person, who interact with us in daily and ordinary ways, are important in ways that online friends can never fill. We provide a community space where coders can come together to work together with other independent, hardworking and clever people at no cost. I hope you will find some people you "click with" here. :)
2. **Self-directed:** you will meet some older mentors here, who are 42 cadets that have volunteered to help you learn. They are not really teachers though. In fact a lot of them have only studied a little bit of python and will be learning along with you. What they do know is how to use a project-based inquiry method to teach themselves a new programming language. :) We learn by reading official documentation, tutorials, blog posts, books, and Q&A sites like StackOverFlow, but most of all by trying and debugging until we succeed, and explaining what we learned to friends.
3. **Peer-to-peer:** The more we share information and knowledge with each other, the stronger community we have to build useful applications. Sharing answers is encouraged! The one thing you need to do, to make sure you're not cheating, is: Make you you understand the answer well enough that you could write it yourself. Fill the message board up with tips and programming jokes, and message people working on the same project if you have a question about it. At the end of every project, you will grade each others' work face to face. Be courteous and rigorous. You must ask them to explain their code, and then you must give them any suggestions you have to improve it, so that your friends will learn from you and you from them.

Chapter IV

Goals for Today

- Think about which class you want to be in.
- Sign up for Slack to communicate with mentors and other students.
- Log into intra.42.fr and explore the site.
- Get your programming environment set up with an installation of Python3, a text editor, and a terminal.
- Write your first Python program!
- Use the peer grading system to check that you finished this day.

Chapter V

Slack

Slack is messaging platform designed for companies and communities. It's useful because we can:

- Direct message people
- Add Slack to smartphones so messages show up like text messages
- Choose times of day when you are "offline" and messages are muted
- Create public and private groups for projects and teams
- Search the directory for someone you met
- Write code for chatbots if you want

Create an account on h2s42.slack.com using the @student.42.us.org email address that displays on your Intra page. It is an email alias that will forward to the email you signed up with. It's helpful to add Slack to your phone too and enable notifications.



Make sure your display name has your first name and last initial so that others can identify who you are.

Chapter VI

Intra

- Go to intra.42.fr. Sign in with the username and password that came to your email, the one you logged into the computer with.
- The first page is your profile page. A few things to notice:
 - Your level meter, starting at 0.0%. As you turn in projects and have them approved by your peers you will level up! If you reach a high level you will be eligible to take our month-long C programming curriculum in the summer.
 - Your "Correction Points" in the top left. At 42, there is a correction point economy. You must spend a correction point when a peer grades your work and you earn a correction point when you grade someone else's.
 - The "Evaluations" section. It is empty right now, but if you have an appointment to grade someone's project or vice versa that will appear here.
 - The "Projects" section. You will find links to the projects you are currently working on right here.
- In the Evaluations section, click on the "Manage Slots" button. It will show you a calendar of the current week. Find the current date and time. Then, click and drag to open an availability slot for the last hour that you plan to be here. (If you will be here until 4, click and drag from 3-4 pm). You should open a slot like this each day that you come to 42.
- Now, notice grey icons on the left side of the page.
 - Profile: The top, 42, and the head-and-shoulders icon will both take you to your profile home page.
 - Projects: The graph icon. Click here and see the views in "All Projects" and "List projects". In the "All projects" map, you will start at the bottom with the First Day project, progress through a series of learn-to-code challenges, and then pick any branch of the tree that you would like to explore. If you already know how to code, you can use "List projects" to see which projects are recommended. You can register to any of these instead of the intro sequence.

- E-Learning: The movie strip icon links to a few videos and PDFs that are produced by 42 and available for reference. There are many more in the C curriculum (invisible to you), but most of them are not yet translated from French.
- Forum: The speech bubble icon links to a forum. It is currently mostly used by French students and not the Americans, but you are welcome to create your own special land there.
- The last three, Companies, Meta, and Shop will not be very relevant for you at this time.

Chapter VII

Coding Tools

Set up your programming environment by picking a program for each of three essential functions. Our favorites are listed below. If you want to install one which is not already on your computer, simply download the program and then drag its icon to your desktop or to a folder of your choice (just not Applications).

1. Web browser

- Built-in: Safari
- Free: Firefox
- Free: Google Chrome

2. Terminal

- Built-in: Terminal
- Free: iTerm2

3. Text Editor

- Built-in in the terminal: Emacs or Vim
- Built-in: Xcode
- Free: Atom
- Free: Sublime
- Free: Visual Studio Code

4. Python3!

From the project page, download the file called "setup.sh". Then, open your Terminal and type the following command:

```
chmod 744 ~/Downloads/setup.sh && sh ~/Downloads/setup.sh
```

 (and press enter). Let this script run for a long time. It will install Python3 and set that as the default on your computer. It also installs some tools which allow you to switch Python versions easily and install Python libraries when you need to.

5. A Trusty Reference Book

- For Python 3, I recommend that you bookmark the freely distributed book [A Byte of Python](#) by Swaroop to use as your guide. It will help to explain many things to you along the way!

Chapter VIII

Terminal

Let's start learning how to navigate through our terminal with command lines! Follow these steps and remember it because you'll need it for today's assignments!

First things first: Press "command + space" to bring up a search bar. Type "iterm2" and press "enter" to open the terminal. This is the window we use to communicate directly with the brains of the machine.

pwd: "Present Working Directory" For all the "Where am I?" moments. When you first open a terminal, you start in your Home directory, which is labelled with your username.

```
$ pwd
```

cd: aka "Change Directory". "cd .." means go back a directory. "cd" by itself means go back to Home directory. Below we are moving into a directory called Desktop.

```
$ cd Desktop/
```

mkdir: Short for "Make Directory". Creates a new empty directory.

```
$ mkdir ex00
```

ls or ls -a: "list", list all the folders and files inside the current directory you are in.

```
$ ls
```

touch: create files (files will usually end with the language you are using for example ruby is 42.rb, python is 42.py, text files are 42.txt)

```
$ cd ex00  
$ touch 42.txt
```

vim: to use an in terminal text editor to edit your files. Once inside vim, press "i" to edit and press ":wq" to save and exit the file. Try writing "Hello World" on the top and then exiting.

```
$ vim 42.txt
```

cat: to preview the contents of the file in Terminal. It should show "Hello World".

```
$ cat 42.txt
```

cp: "copy", copies files or directories. Here, we copy the file 42.txt and place it in the HackHighSchool/ directory. Don't forget to make the HackHighSchool directory first.

```
$ cp 42.txt HackHighSchool/
```

mv: "move", move a file into a directory, use mv with the source file as the first argument and the destination directory as the second argument. Here we move 42.txt into HackHighSchool/

```
$ mv 42.txt HackHighSchool/
```

rm or rm -rf: "rm" to delete files and "rm -rf" to delete directories.

```
$ rm -rf HackHighSchool
```

ascii banner: create an ascii art banner on your terminal

```
$ banner -w 35 COOL
```

say: Make your mac say whatever you want it to say.

```
$ say "HackHighSchool is super fun"
```



Be careful with rm and rm -rf, you might accidentally delete something you need!



use your tab button to autofill your commands! Trust me, it's super useful once you get the hang of it.

Chapter IX

Vogsphere

Reference material: Michael Hartl's ["Learn Enough Git to be Dangerous"](#).

1. From your [First Day project page](#) on intra, copy the "Git Repository" link. (The one that looks like `vogsphere@vgs.42.us.org:intra/2017...`). If you do not have a link yet, make sure you are registered to the project, and wait about 5 minutes while refreshing the page.
2. Now, in the terminal type `"git clone <copied link> (space) <newfoldername>"`. Replace `<link>` with your pasted link and `<newfoldername>` with `first_day`, as a name for the project folder.
3. `cd` into the newly created folder. Everything inside here can be uploaded to Vogsphere.
4. Complete the project requirements (see next page). All files for the project should go in the folder we just created.



If you have an error during the `git clone` type `"kinit <username>"` and press enter. Then, type your intra password.

Chapter X

Warmup before coding

| | |
|---|--|
|  | |
| Topics to study : | |
| Files to turn in : 42.txt | |
| Notes : n/a | |

Here is the assignment for today - it is very simple. Look for a beginner's guide on command line navigation to help you find out how to do these things. Recommended: Michael Hartl's ["Learn Enough Command Line to be Dangerous"](#).

- Create an empty directory called "ex00" inside your git directory.
- Create a hidden text file (.hidden.txt) in that directory.
- Inside the hidden text file, write yourself a compliment.
- Create a text file named 42.txt.
- Inside your text file, write the terminal commands you learned and what they do.
- Create a new directory inside "ex00" called HackHighSchool.
- Copy your text file (42.txt) into the new directory.
- Remove the old text file that is outside of the HackHighSchool directory.
- Go back to your home directory.
- Find your way back to your "ex00" directory.
- Make a copy of your text file onto your Desktop.

Chapter XI

Turning in your code

Open the Vogsphere PDF and reference the instructions there to turn in your work.

Chapter XII

Corrections

- On your project page, click the button "Subscribe to Defense." Choose a time slot from the screen that shows next.
- When the appointment time comes, look up your assigned corrector on Slack and send them a message. Find each other.
- Corrector, sit at the correctee's station and open a new web browser in Incognito mode. Log into your intra.
- Access the corrections page. Clone their Git repository into a new folder.
- Click "Begin correction" and follow the instructions on the correction page.
- Use this time to chat about the project and the rest of your life.
- Once the correction is finished, your corrector should remember to log out of Intra.
- After both the correction is complete, in order to finalize your score you must then provide feedback for the corrector on your project page. Go to your project page and click the "feedback" button for each completed correction.