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Problem Set 1: C

tl;dr

0. Watch Week 1's lecture (https://video.cs50.net/2016/fall/lectures/1).
1. Say hello to the world with `hello.c`.
2. Calculate your water consumption with `water.c`.
3. Recreate one of Mario's pyramids, in `mario.c`.
4. Provide a user with either cash or credit in `greedy.c` or `credit.c`.
5. Submit your code.
6. Submit a form.

Help

For help with Week 1 and Problem Set 1:

- Watch Zamyla's walkthroughs herein.

- Start a discussion (https://courses.edx.org/courses/course-v1:HarvardX+CS50+X/a7ec0c0a7b6e460f877da0734811c4cd/) with classmates.

Getting Started

Recall that CS50 IDE is a web-based "integrated development environment" that allows you to program "in the cloud," without installing any software locally. Underneath the hood is a popular operating system, Ubuntu Linux, that's been "containerized" with open-source software called Docker, that allows multiple users (like you!) to share the operating system's "kernel" (its nucleus, so to speak) and files, even while having files of their own. Indeed, CS50 IDE provides you with your very own "workspace" (i.e., storage space) in which you can save your own files and folders (aka directories).

Logging In

Head to cs50.io (https://cs50.io/) and log into CS50 IDE, selecting **edX** from the drop-down menu when prompted.

> If you typically sign into edX (https://courses.edx.org/login) via Facebook, Google, or Microsoft, you'll first need to create a password for your edX account as follows:
>
> 1. Sign into your edX account at courses.edx.org/login (https://courses.edx.org/login) (via Facebook, Google, or Microsoft).
> 2. Visit courses.edx.org/account/settings (https://courses.edx.org/account/settings).
> 3. Click **Reset Your Password** (even though you don't yet have one) under **Password**.
> 4. Check your email for a message from edX. (If it hasn't arrived after a few minutes, do check your spam folder.) Click the link in that message to reset (i.e., create) your password.
> 5. Log into cs50.io (https://cs50.io/)!

Upon logging into CS50 IDE for the first time, you may be prompted (again) for your email address. If so, after providing it, click **Private** under **Hosted workspace**, then click **Create workspace**.

You should then be informed that CS50 IDE (aka Cloud9, the software that underlies CS50 IDE) is "creating your workspace" and "creating your container," which might take a moment. You should eventually see your workspace, which should resemble mine from Week 1. If not, do just email the course's heads to inquire!

Updating

Toward the bottom of CS50 IDE's UI is a "terminal window" (light blue, by default), a command-line interface (CLI) that allows you to explore your workspace's files and directories, compile code, run programs, and even install new software. You should find that its "prompt" resembles the below.

```
~/workspace/ $
```

Click inside of that terminal window and then type

```
update50
```

followed by Enter to ensure that your workspace is up-to-date. It might take a few minutes for any updates to complete. (Be sure not to close the tab or CS50 IDE itself until they do!)

Next, execute

```
mkdir ~/workspace/pset1/
```

at your prompt in order to make a directory called `pset1` in your `workspace` directory. Take care not to overlook the space between `mkdir` and `~/workspace/pset1/` or any other character for that matter! Keep in mind that `~` denotes your home directory, `~/workspace` denotes a directory called `workspace` therein, and `~/workspace/pset1/` denotes a directory called `pset1` within `~/workspace/`.

Now execute

```
cd ~/workspace/pset1/
```

to move yourself into (i.e., open) that directory. Your prompt should now resemble the below.

```
~/workspace/pset1/ $
```

If not, retrace your steps and see if you can determine where you went wrong. You can actually execute

```
history
```

at the prompt to see your last several commands in chronological order if you'd like to do some sleuthing. You can also scroll through the same one line at a time by hitting your keyboard's up and down arrows; hit Enter to re-execute any command that you'd like.

What to Do

1. Implement Hello (../../../../problems/hello/hello.html)
2. Implement Water (../../../../problems/water/water.html)
3. Implement either of:
    - Mario (../../../../problems/mario/less/mario.html), less comfortable
    - Mario (../../../../problems/mario/more/mario.html), more comfortable
4. Implement either of:
    - Greedy (../../../../problems/greedy/greedy.html), less comfortable
    - Credit (../../../../problems/credit/credit.html), more comfortable

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How to Submit

Step 1 of 4

Recall that, for Problem Set 0, you signed up for a GitHub account (https://github.com/).

Visit cs50.me (https://cs50.me/), log in with that same GitHub account, and click **Authorize application**. If you've forgotten your GitHub account's password, reset it (https://github.com/password_reset) first.

Once you've logged in and authorized, you can immediately log out. Logging in once simply ensures that you can submit code via `submit50`, per step 3 of 4!

Step 2 of 4

Recall that you were asked to create the files below:

- `hello.c`
- `water.c`
- `mario.c`

- `greedy.c` or `credit.c`

Be sure that each of your files is in `~/workspace/pset1`, as with:

```
cd ~/workspace/pset1/
ls
```

If any file is not in `~/workspace/pset1/`, move it into that directory, as via `mv` (or via CS50 IDE's lefthand file browser).

Step 3 of 4

- To submit `hello`, execute

  ```
  cd ~/workspace/pset1/
  submit50 2017/x/hello
  ```

  inputting your GitHub username and GitHub password as prompted.

- To submit `water`, execute

  ```
  cd ~/workspace/pset1/
  submit50 2017/x/water
  ```

  inputting your GitHub username and GitHub password as prompted.

- To submit the less-comfortable version of `mario` (if you implemented it), execute

  ```
  cd ~/workspace/pset1/
  submit50 2017/x/mario/less
  ```

  inputting your GitHub username and GitHub password as prompted.

- To submit the more-comfortable version of `mario` (if you implemented it), execute

  ```
  cd ~/workspace/pset1/
  submit50 2017/x/mario/more
  ```

  inputting your GitHub username and GitHub password as prompted.

- To submit `greedy` (if you implemented it), execute

  ```
  cd ~/workspace/pset1/
  submit50 2017/x/greedy
  ```

inputting your GitHub username and GitHub password as prompted.

- To submit `credit` (if you implemented it), execute

```
cd ~/workspace/pset1/
submit50 2017/x/credit
```

  inputting your GitHub username and GitHub password as prompted.

If you run into any trouble, email sysadmins@cs50.harvard.edu (mailto:sysadmins@cs50.harvard.edu)!

You may resubmit any problem as many times as you'd like.

Step 4 of 4

Submit this form (https://forms.cs50.net/2017/x/psets/1)!

Your submission should be graded within 2 weeks, at which point your score will appear at cs50.me (https://cs50.me/)!

This was Problem Set 1.