

CS 458 - Homework 10

Deadline

Due by 11:59 pm on Friday, November 17, 2017

Purpose

To practice getting an older version of a Git repository in a relatively safe way, and to read about, think about, and experiment a bit with UML.

How to submit

Submit your files using `~st10/458submit` on nrs-projects, with a homework number of 10.

Important notes

- Note that some of your submissions for this assignment *may* be posted to the course Canvas site.

Problem 1

More git fun!

DID YOU KNOW:

- When you run the command

```
git log
```

...each commit is identified by a 40-character SHA-1 hash? (...if I am understanding "Pro Git", Chapter 7, Section 7.1 correctly).

- And, again according to "Pro Git", Chapter 7, Section 7.1 again:

"Git is smart enough to figure out what commit you're referring to if you provide the first few characters of the SHA-1 hash, as long as that partial hash is at least four characters long and unambiguous; that is, no other object in the object database can have a hash that begins with the same prefix."

- SO, for `git log` output such as:

```
commit 03fb8d7ef938dc3c038b38f2781d6b3a18ce1505
Author: Sharon Tuttle <sharon.tuttle@humboldt.edu>
Date:   Sun Oct 29 21:37:52 2017 -0700
```

```
    Adds looky.txt
```

...I could refer to this commit as `03fb8d7` if I wanted to.

- Now -- there are many, let's say, potentially hazardous/destructive ways to revert to a previous version of a repository. BUT to be less destructive/hazardous, one CAN grab an older version and place it in a NEW branch, as a way to grab an older version but not affect your current master branch:

(adapted from: <https://www.git-tower.com/learn/git/faq/restore-repo-to-previous-revision>)

```
git branch <new-branch-to-contain-old-version> <older-commit-nickname>
```

– for example, if I typed:

```
git branch oct-29-version 03fb8d7
```

then, `git branch` could then show:

```
* master
  oct-29-version
```

and if I then typed:

```
git checkout oct-29-version
```

...I would be in this new branch named `oct-29-version` containing the commit `03fb8d7ef938dc3c038b38f2781d6b3a18ce1505` from October 29.

SO: to get a LITTLE practice with this, *carefully* perform the following steps.

- On nrs-projects, create, protect, and go to a directory `458hw10-try`:

```
mkdir 458hw10-try
chmod 700 458hw10-try
cd 458hw10-try
```

- Clone a copy of repository `458hw10` in the organization `hsu-cs458-f17` on GitHub into this directory:

```
git clone https://github.com/hsu-cs458-f17/458hw10.git
```

- `cd` to your new cloned `458hw10` repository.

```
cd 458hw10
```

...how many files are in this repository at this point? Show me you have checked using the following commands:

```
ls
echo "====PART 1-1: master branch contents====" >> ../458hw10-1.txt
ls >> ../458hw10-1.txt
```

- now, run the command:

```
git log
```

...so you can look over the commits done thus far to this repository.

- One of these commits has the SHA-1 hash value:

```
d83d1a5c8a1e7c44e54e02c74dd5d33f229a57c4
```

The following command will create a new branch named `older-version` with this commit's file contents:

```
git branch older-version d83d1a
```

Run this command.

- If you now type:

```
git branch
```

...what branches do you see? Show me you have checked using the following commands:

```
git branch
```

```
echo "====PART 1-2====" >> ../458hw10-1.txt
```

```
git branch >> ../458hw10-1.txt
```

- Now type:

```
git checkout older-version
```

...and you should switch to your newly-created branch `older-version` that contains the repository's files as they were at the time of that commit.

Show that you are now in this branch:

```
git branch
```

```
echo "====PART 1-3====" >> ../458hw10-1.txt
```

```
git branch >> ../458hw10-1.txt
```

- What files are here in this branch `older-version`? Show me you have checked using the following commands:

```
ls
```

```
echo "====PART 1-4: older-version contents:====" >> ../458hw10-1.txt
```

```
ls >> ../458hw10-1.txt
```

- And of course you can go back to you master branch as desired using:

```
git checkout master
```

- Now go back into parent directory `458hw10-try`:

```
cd ..
```

...and submit the resulting file `458hw10-1.txt` within this `458hw10-try` directory.

Now create a file named `458hw10-2.txt` that starts with your name, and then give the problem number and your answers for the following problems.

Problem 2

In Jalote Chapter 6, a number of the types of UML diagrams are described; more are described in the posted UML references on the public course web site, in the References section, following the link "Additional UML References".

Simply to encourage you to review them and consider them a bit, read these descriptions, and answer the following questions:

- which type of UML diagram, at this point, is your "favorite" type of UML diagram? (Note that "favorite" is a pretty broad term -- maybe you might take it to mean which you think would be most useful in a project,

or maybe you might take it to mean which is clearest to you, or maybe you might take it to mean which is most intriguing to you at this point. For this question, I'm leaving the possibilities deliberately broad.)

- why is that choice your favorite at this time?

Problem 3

Go the HSU Library's link to the ACM Digital Library, and find an article of your choice on UML.

- (Searching for "Unified Modeling Language" does indeed lead to an interesting variety of options. You are also welcome to add additional search terms to focus this search further if you would like.)
- Browse as you would like -- but once you have found an article you'd like to read at least some of, BEFORE you follow the link, take a screen shot of your ACM Digital Library window at this point.
 - (This can be a screen-shot of that window, or a cell-phone photo of that window, etc. Make sure it can be saved as a .jpg, .gif, or .png, whichever screen-shot means you use -- and name it **acm-dl-img** followed by the appropriate suffix.)
 - Paste your selected article's title, author, date, and publication as part of your Problem 3 response, and then download your selected article's PDF.
 - State why you selected this particular article on UML.
 - Read at least enough of that selected article to give at least 3 things from that article -- related to UML! -- that interested you, and also include these in your Problem 3 response.

Problem 4

In addition to commercial products, there are a number of free, freely-available UML drawing tools. Here are a few examples:

- Violet - available from <http://www.horstmann.com/violet/index.html>
- UMLet - available from <http://www.umlet.com/>
- UMLetino - a browser-based version of UMLet, available at <http://www.umlet.com/umletino/umletino.html>

Select one of these, **or** search and find another free, freely available UML drawing tool. The goal here is to find one that you can experiment with sufficiently to create an example UML diagram.

4 part a

State which tool you decided to try out. If it is one of the above, just state its name. If it is a different tool, then both give its name and include the URL from which it can be obtained.

Then state **why** you selected this tool from amongst the possibilities.

4 part b

Try out your selected free UML drawing tool, and create a UML diagram of your choice. Somehow take a screen shot or save a copy of your resulting diagram.

(Just can't think of what to do? You could always make a lovely class diagram of class `GameDie`, with its

public constructor GameDie (int desiredNumSides) and methods getNumSides, getTop, and roll...)

- (This can be a screen-shot of the application's window, or a cell-phone photo of that window, etc., if the application does not provide a reasonable way to save the diagram.)
- Make sure it can be saved as a .pdf, .jpg, .gif, or .png, whichever means you use.
- Name your resulting diagram **uml-ex-4b** followed by the appropriate suffix.

4 part c

Finally, answer the following:

- Describe how easy or hard it was to learn enough about the tool to create your diagram.
- Did you find this tool reasonable to use in creating a UML diagram? Why or why not?
- Would you recommend this tool to another CS 458 student? Why or why not?

Submit your resulting file 458hw10-2.txt along with Problem 3's acm-dl-img.* screenshot image file and Problem 4 part b's uml-ex-4b.* diagram file.