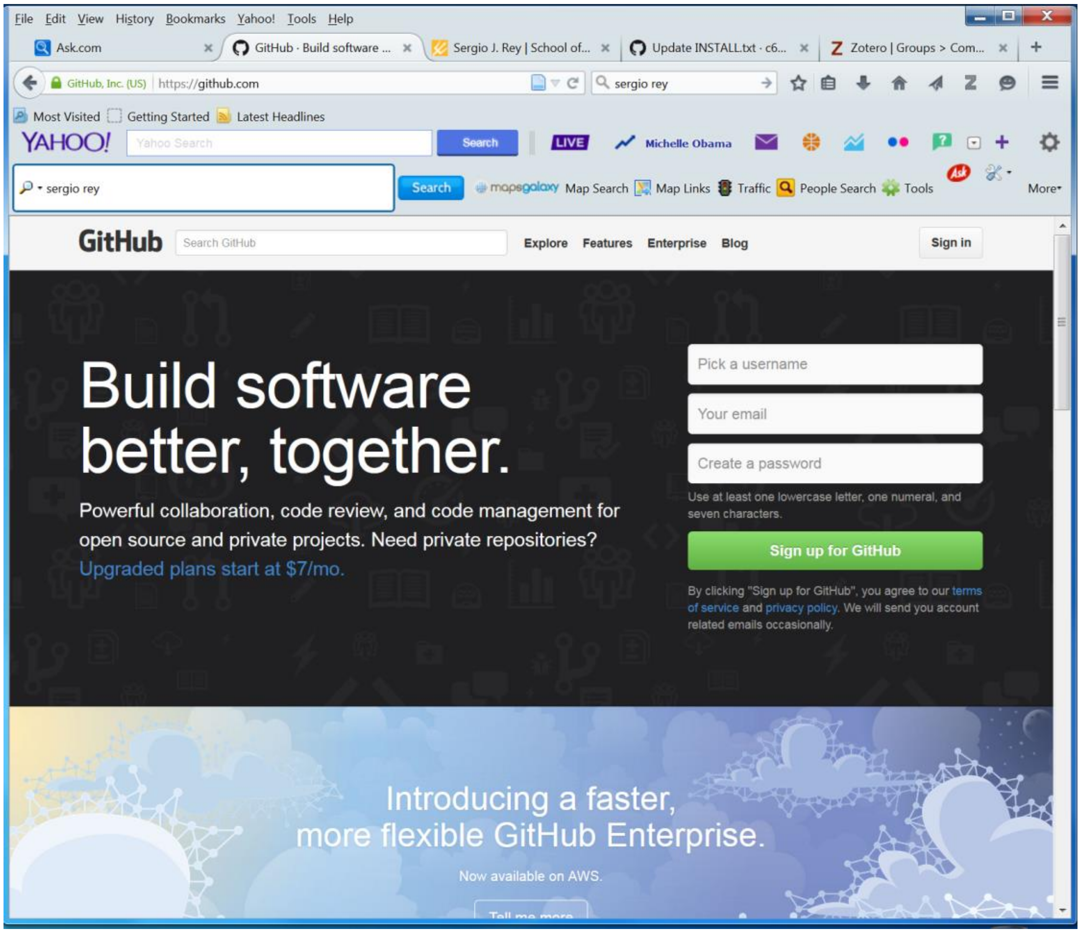
Tips on how to set up a GitHub account: **Note: First we introduce web- & command line-based GitHub (Pages 1~8). If you are interested in GitHub Windows, go to Page 9.**

1. Go to the website https://github.com/, you will see the following page:



Build software better, together.

Powerful collaboration, code review, and code management for open source and private projects. Need private repositories? Upgraded plans start at $7/mo.

Use at least one lowercase letter, one numeral, and seven characters.

By clicking "Sign up for GitHub", you agree to our terms of service and privacy policy. We will send you account related emails occasionally.

Introducing a faster, more flexible GitHub Enterprise.

Now available on AWS.

Figure 1: The GitHub main webpage (before you create an account and sign in)

Then choose your username, enter your email address, and create a password. Then click the green button Sign up for GitHub.

2. Choose your GitHub plan.

   Once you complete Step 1, you will be prompted to choose a plan. Below is an extract from the GitHub website that may help you make the decision:

   "GitHub provides two types of plans: free plans and paid plans.

Both plans have the exact same features. They can have any number of public repositories, with unlimited collaborators.

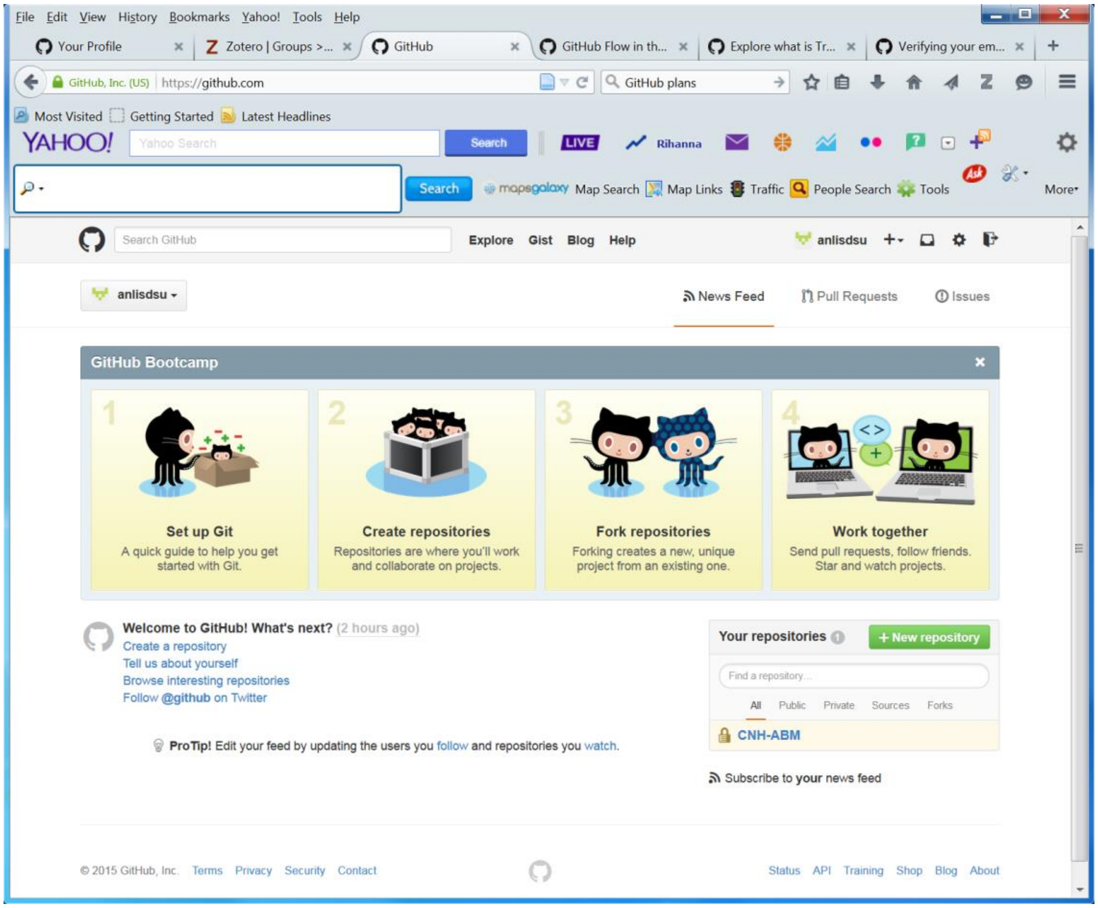
However, paid accounts can create private repositories. Public repositories are viewable by anyone, while private repositories have their visibility limited to just you and your collaborators.

The number of private repositories available is determined by specific paid plans. You can see all of our plans and pricing at github.com/plans. You can upgrade or downgrade your plan at any time."

Therefore beginners may choose a Free plan. Later you can upgrade to any other plan(s).

3. Start use of GitHub.

You can go back to the GitHub website (note to use GitHub, all you need is a web browser) at https://github.com/. Click the Sign in Button on the upper-right corner of the page (when prompted, enter your email and password). Then you will be able to access the GitHub main page (Figure 2).



Set up Git
A quick guide to help you get started with Git.

Create repositories
Repositories are where you'll work and collaborate on projects.

Fork repositories
Forking creates a new, unique project from an existing one.

Work together
Send pull requests, follow friends. Star and watch projects.

Welcome to GitHub! What's next? (2 hours ago)
Create a repository
Tell us about yourself
Browse interesting repositories
Follow **@github** on Twitter

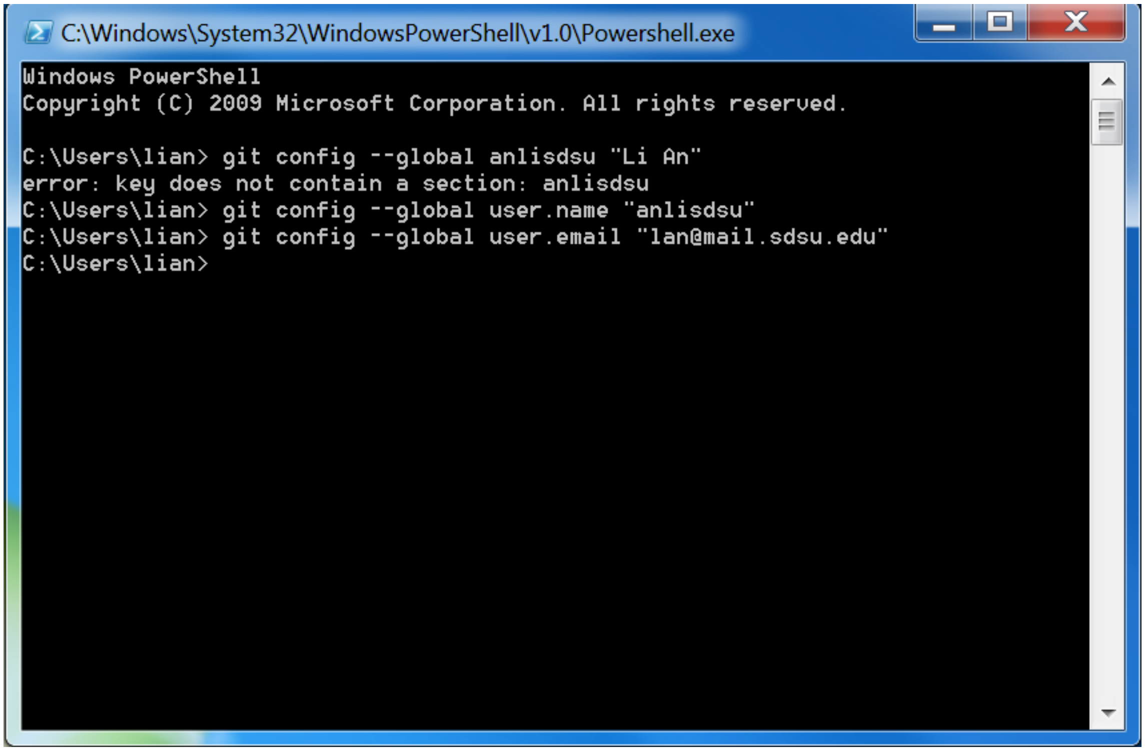
ProTip! Edit your feed by updating the users you follow and repositories you watch.

Figure 2: The GitHub webpage (after sign-in)

Before we start using GitHub, I recommend you click on the four steps on the above page, i.e., 1. Set up Git, 2. Create repositories, 3. Fork repositories, and 4. Work together. Then read these instructions and understand basic concepts such as repository (a place to store, save, edit, and retrieve your code and work with other people) and fork repositories (a fork is a copy of a repository for proposing changes to someone else's project).

3.1. Sign up Git.

Click the Set up Git page (see Figure 2), you will get to a page with four steps. Simply follow the instructions for installing Git, open Git Shell, and telling the system your information.



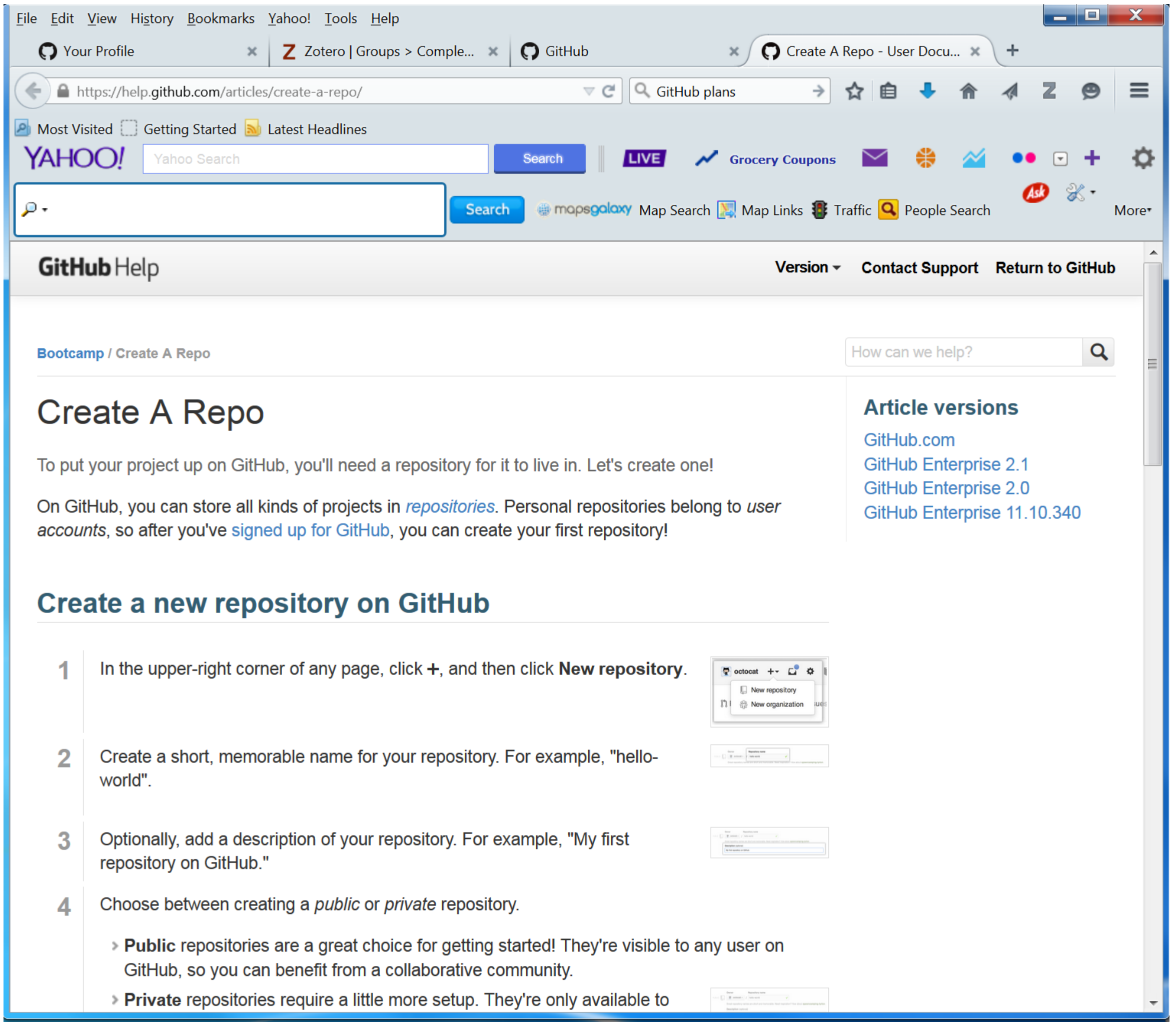
```
Windows PowerShell
Copyright (C) 2009 Microsoft Corporation. All rights reserved.

C:\Users\lian> git config --global anlisdsu "Li An"
error: key does not contain a section: anlisdsu
C:\Users\lian> git config --global user.name "anlisdsu"
C:\Users\lian> git config --global user.email "lan@mail.sdsu.edu"
C:\Users\lian>
```

Figure 3: The Git Shell window after installation of GitHub for Windows.

Once the installation is done, two icons (one for Git Shell and one for GutHub) will be placed on your desktop (also a log file icon is placed, but I moved it to a folder inside). The above graph (Figure 3) shows Steps 3 and 4 after installation of GitHub for Windows. Note the GitHub username and email address should be in quotation marks.

3.2. Create repositories.

Click the button for 2. Create repositories (Figure 2), and you will see a page for instructions like the page below (Figure 4):



Bootcamp / Create A Repo

Create A Repo

To put your project up on GitHub, you'll need a repository for it to live in. Let's create one!

On GitHub, you can store all kinds of projects in *repositories*. Personal repositories belong to *user accounts*, so after you've signed up for GitHub, you can create your first repository!

Article versions

GitHub.com
GitHub Enterprise 2.1
GitHub Enterprise 2.0
GitHub Enterprise 11.10.340

Create a new repository on GitHub

1 In the upper-right corner of any page, click **+**, and then click **New repository**.

2 Create a short, memorable name for your repository. For example, "hello-world".

3 Optionally, add a description of your repository. For example, "My first repository on GitHub."

4 Choose between creating a *public* or *private* repository.

› **Public** repositories are a great choice for getting started! They're visible to any user on GitHub, so you can benefit from a collaborative community.

› **Private** repositories require a little more setup. They're only available to

Figure 4: Webpage for instructions on how to create a repository.

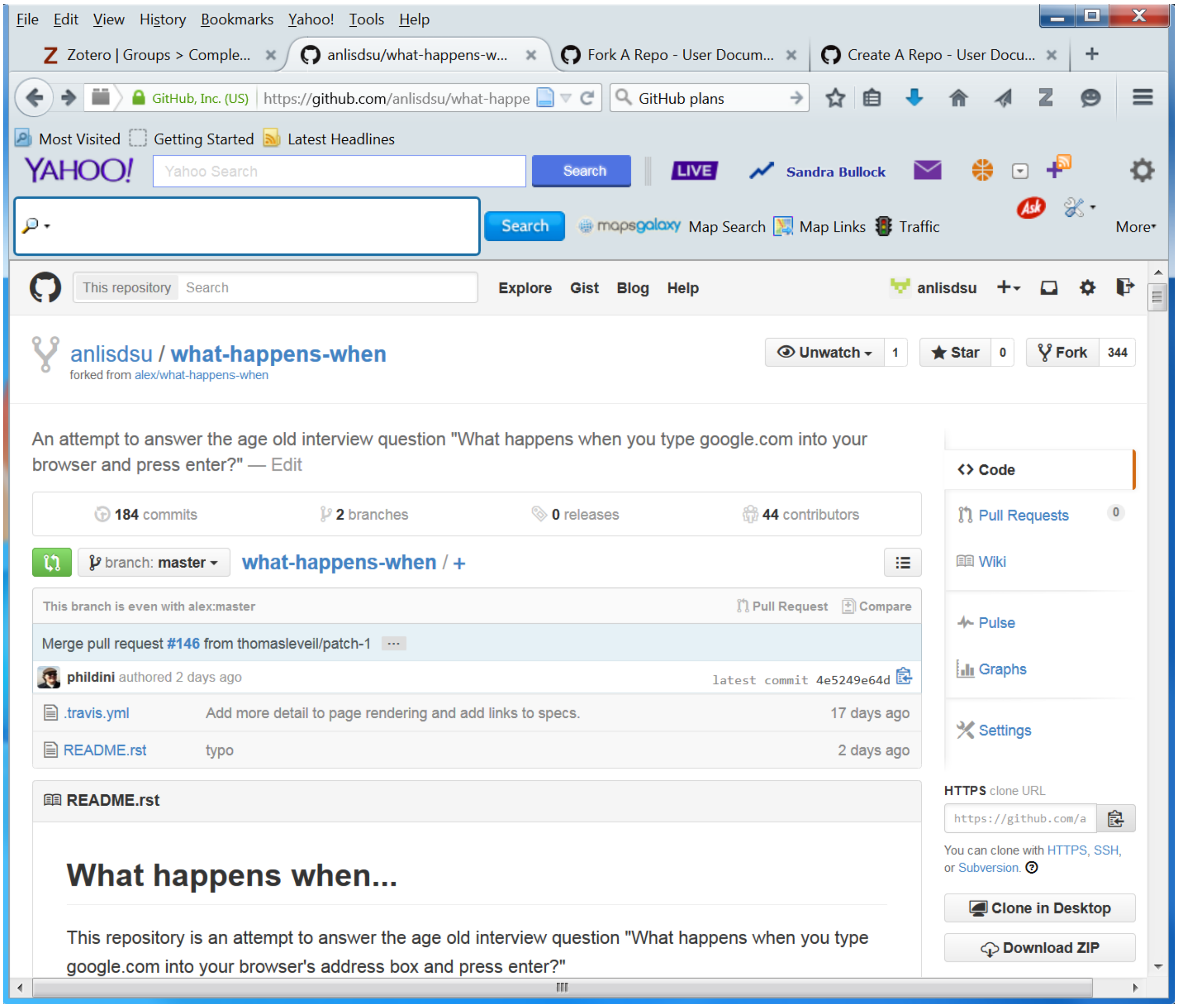
But be aware that the instructions are given on the basis on the main webpage https://github.com/ (the same as Figure 2). Follow the instructions on this page. Here I created a repository named **CNH-ABM**, which you can see from near the lower-right bottom of Figure 2. This was created to be private (only shared with people within the group); let us create one that is public, which is named **ABM-Modules**.

The next thing to do during this step is to commit a change. Automatically, GitHub creates a README.md file. Click on this file, and write something on the box. Then scroll down to the end of the page, click the green button “Commit changes”. Then all we have written will be saved to the file README.md. There are other types of files you can change and commit.

3.3. Fork repositories.

The idea of fork repositories is to either propose changes to someone else's project or to use someone else's project as a starting point for your own idea. Therefore for practice purpose, let us go to the main page and click on Browse interesting repositories (near the lower-left corner). Among the many repositories, let us hit alex/what-happens-when as an example.

In the top-right corner of the page under alex/what-happens-when, click Fork. Then a pop-up window shows the progress of downloading the repo and everything inside it. When this process is done, you will see a page like below (Figure 5):


File Edit View History Bookmarks Yahoo! Tools Help
Zotero | Groups > Comple...
anlisdsu/what-happens-w...
Fork A Repo - User Docum...
Create A Repo - User Docu...
GitHub, Inc. (US) https://github.com/anlisdsu/what-happe
GitHub plans
Most Visited Getting Started Latest Headlines
YAHOO! Yahoo Search Search LIVE Sandra Bullock
Search mapsgalaxy Map Search Map Links Traffic More
This repository Search Explore Gist Blog Help anlisdsu
anlisdsu / what-happens-when
forked from alex/what-happens-when
Unwatch 1 Star 0 Fork 344
Code
Pull Requests 0
Wiki
Pulse
Graphs
Settings
184 commits 2 branches 0 releases 44 contributors
branch: master what-happens-when / +
Pull Request Compare
HTTPS clone URL
https://github.com/a
Clone in Desktop
Download ZIP

An attempt to answer the age old interview question "What happens when you type google.com into your browser and press enter?" — Edit

This branch is even with alex:master

Merge pull request #146 from thomasleveil/patch-1 …

phildini authored 2 days ago latest commit 4e5249e64d

.travis.yml	Add more detail to page rendering and add links to specs.	17 days ago
README.rst	typo	2 days ago

README.rst

What happens when...

This repository is an attempt to answer the age old interview question "What happens when you type google.com into your browser's address box and press enter?"

You can clone with HTTPS, SSH, or Subversion.

Figure 5: Outcome of a fork opertation: Another person's repository downloaded to my repository

From here we can open a file (such as README.md file), click the pen icon (for editing purpose), add a few words, and then hit the green button “Commit changes”.
So far we have a fork of the alex/what-happens-when repository, but we do not have the files in that repository on our local computer. Below we clone a version to our local computer following the steps below:

a. On GitHub, navigate to your fork of the alex/what-happens-when repository.

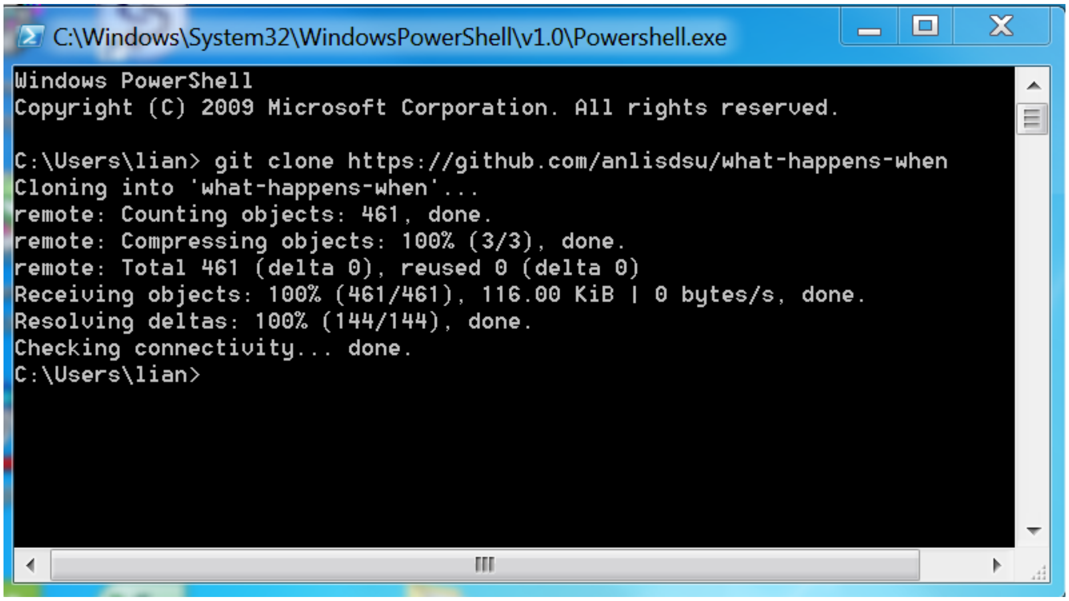
b. In the right sidebar of your fork's repository page, click 📋 to copy the clone URL for your fork.

c. Open the command line (i.e., double click the icon >_ Git Shell that is often on your Desktop for Windows users).

d. Type the following command to clone:

```
git clone https://github.com/anlisdsu/what-happens-when
```

Then you will see the following progress (Figure 6):



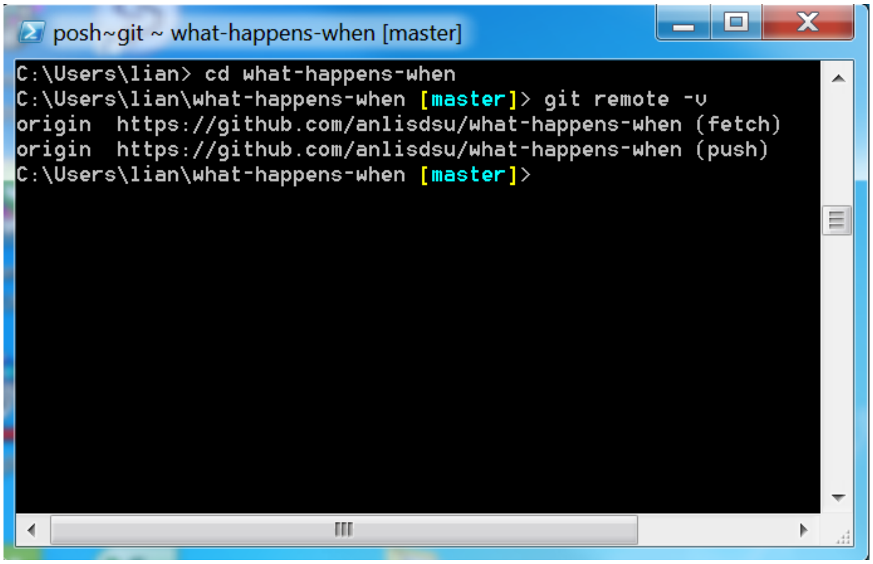
```
Windows PowerShell
Copyright (C) 2009 Microsoft Corporation. All rights reserved.

C:\Users\lian> git clone https://github.com/anlisdsu/what-happens-when
Cloning into 'what-happens-when'...
remote: Counting objects: 461, done.
remote: Compressing objects: 100% (3/3), done.
remote: Total 461 (delta 0), reused 0 (delta 0)
Receiving objects: 100% (461/461), 116.00 KiB | 0 bytes/s, done.
Resolving deltas: 100% (144/144), done.
Checking connectivity... done.
C:\Users\lian>
```

Figure 6: The clone process (downloading a repository to a local computer)

After doing this, let us verify it by going to C:\Users\lian at my computer: Yes, there is a folder what-happens-when there, which contains two files: one is .travis.yml, and the other is the readme file.

e. Next sync our fork with the original what-happens-when repository:

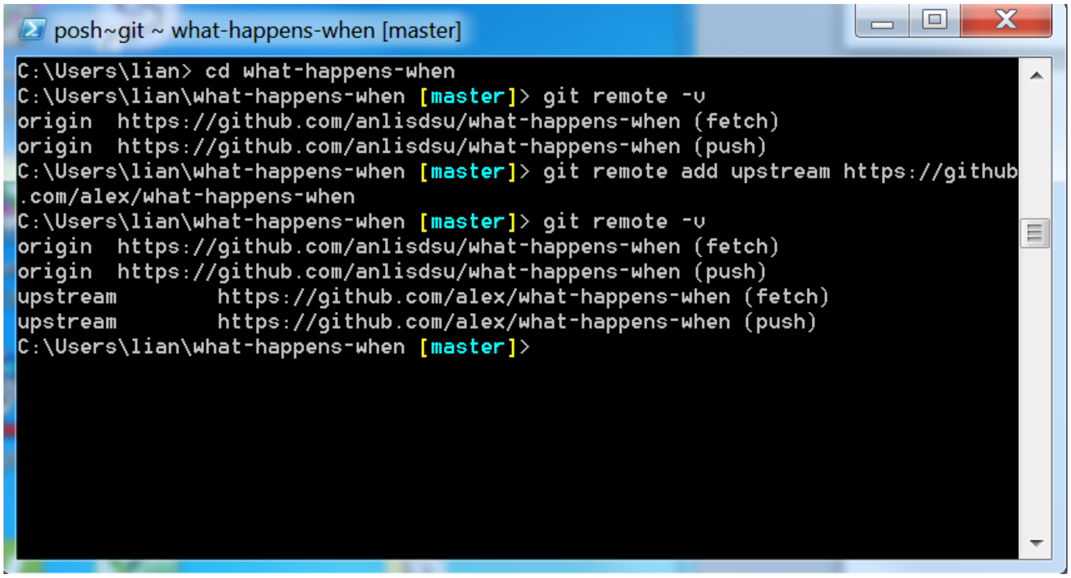
[Same as Steps a-c above: On GitHub, navigate to our fork of what-happens-when repository. Then on the right sidebar of this fork's repository page, click 📋 to copy the clone URL for your fork. Open the the command line]. Go to the directory for what-happens-when (now C:\Users\lian\what-happens-when), and type the command: git remove –v, you will see the following:



```
C:\Users\lian> cd what-happens-when
C:\Users\lian\what-happens-when [master]> git remote -v
origin  https://github.com/anlisdsu/what-happens-when (fetch)
origin  https://github.com/anlisdsu/what-happens-when (push)
C:\Users\lian\what-happens-when [master]>
```

Figure 7: The current configured remote repository for our fork

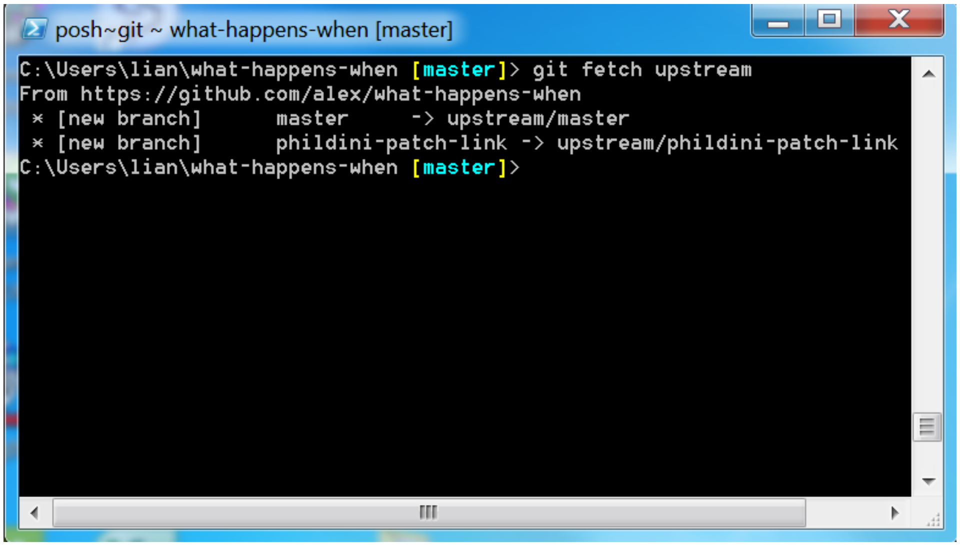
Then type git remote add upstream/ https://github.com/alex/ what-happens-when, then all should be done to set up the upstream source. To make sure this, type again git remote –v, you will see the changes made thus far (Figure 8):



```
C:\Users\lian> cd what-happens-when
C:\Users\lian\what-happens-when [master]> git remote -v
origin  https://github.com/anlisdsu/what-happens-when (fetch)
origin  https://github.com/anlisdsu/what-happens-when (push)
C:\Users\lian\what-happens-when [master]> git remote add upstream https://github
.com/alex/what-happens-when
C:\Users\lian\what-happens-when [master]> git remote -v
origin  https://github.com/anlisdsu/what-happens-when (fetch)
origin  https://github.com/anlisdsu/what-happens-when (push)
upstream        https://github.com/alex/what-happens-when (fetch)
upstream        https://github.com/alex/what-happens-when (push)
C:\Users\lian\what-happens-when [master]>
```

Figure 8: The outcome of setting up the new upstream repository

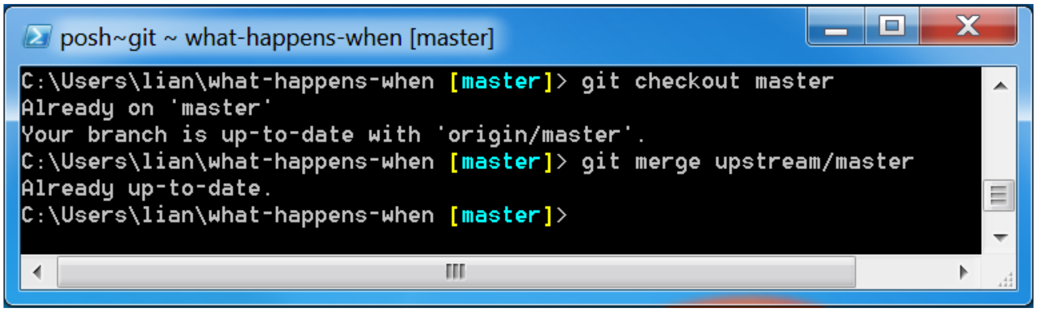
f. Then we can do the sync work
Still go to the terminal (for Windows users), stay at the same local directory (here C:\Users\lian\what-happens-when), and type git fetch upstream to fetch the branches and their respective commits from the upstream repository. We will see the following outcome after some time (Figure 9):



```
C:\Users\lian\what-happens-when [master]> git fetch upstream
From https://github.com/alex/what-happens-when
 * [new branch]      master     -> upstream/master
 * [new branch]      phildini-patch-link -> upstream/phildini-patch-link
C:\Users\lian\what-happens-when [master]>
```

Figure 9: The command and outcome for sync.

Then we should type git checkout master to check out our fork's local master branch and git merge upstream/master to merge the changes from upstream/master into your local master branch:



```
C:\Users\lian\what-happens-when [master]> git checkout master
Already on 'master'
Your branch is up-to-date with 'origin/master'.
C:\Users\lian\what-happens-when [master]> git merge upstream/master
Already up-to-date.
C:\Users\lian\what-happens-when [master]>
```

Figure 10: The outcome for merging upstream changes to local branch.

3.4. Work with other people

Click 4. Work together (see Figure 2), there are a bunch of things we can do, such as Follow People on GitHub (thus get notification about what s/he does), Watch a Project (say up-to-date with a project), Pull Requests (letting the original authors know the changes we add or make), and Issues (often telling the HitHub community some problems that need to be fixed).

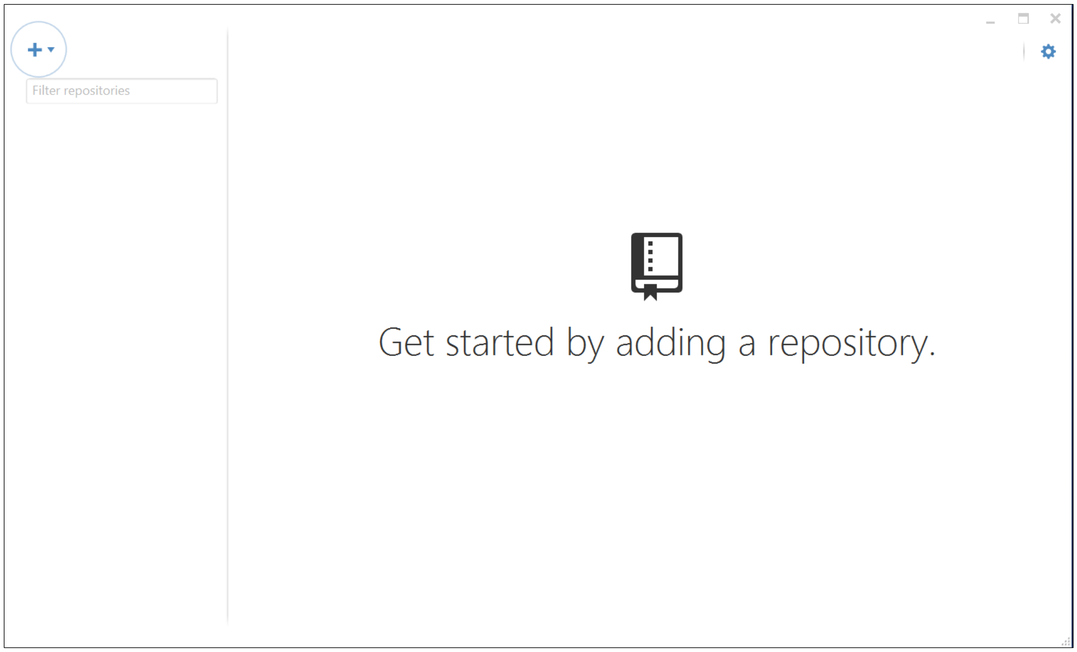
Below we introduce installation and use of GitHub for Windows.

1. Download software

Go to https://windows.github.com/, click the button Download GitHub for Windows. When prompted, hit Save File. If you are a Windows user, the GitHubSetup.exe file is often saved under your Downloads folder (for me it is C:\Users\lian\Downloads). Double click this exe file and follow instructions to install the software.

2. Use of GitHub (for Windows).

Once the download and installation is done, you should see an icon GitHub on your computer's desktop. Double click it, you will see a window pop-up like this (Figure 11):



Get started by adding a repository.

Figure 11: The window of GitHub for Windows.

Click on the top-left corner (the + sign within a circle), you will see two options there: Create or Clone. Because we have created a few repositories earlier, let us choose Clone first. Once the Clone button is clicked, you will see all the repositories that have been created in the past

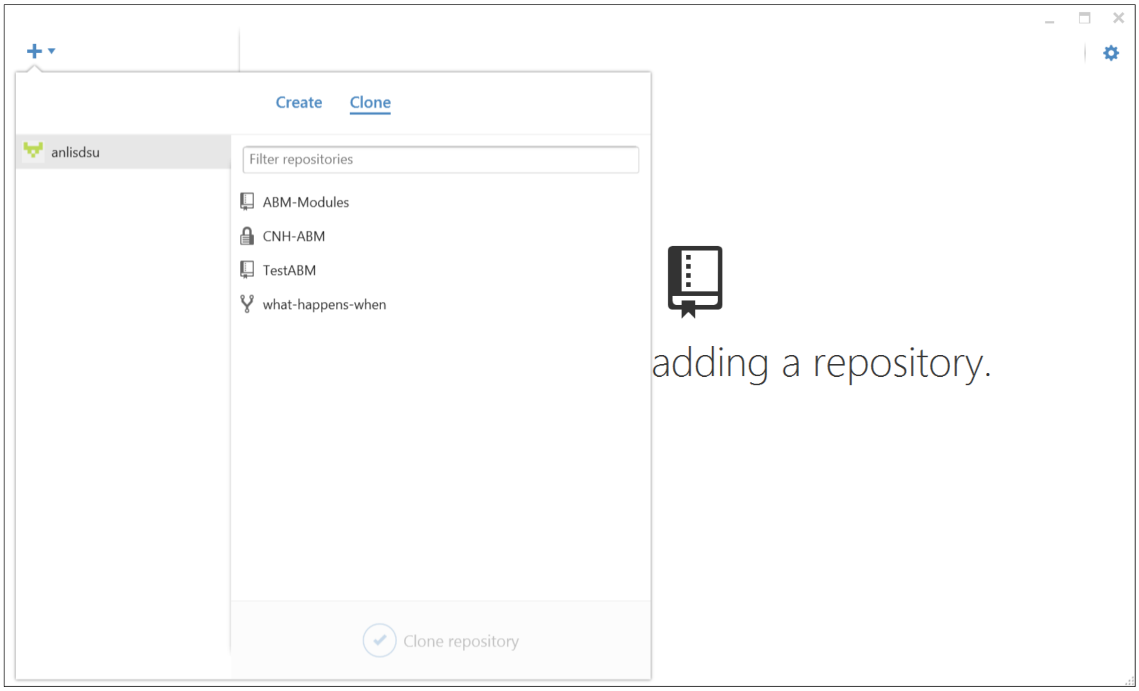
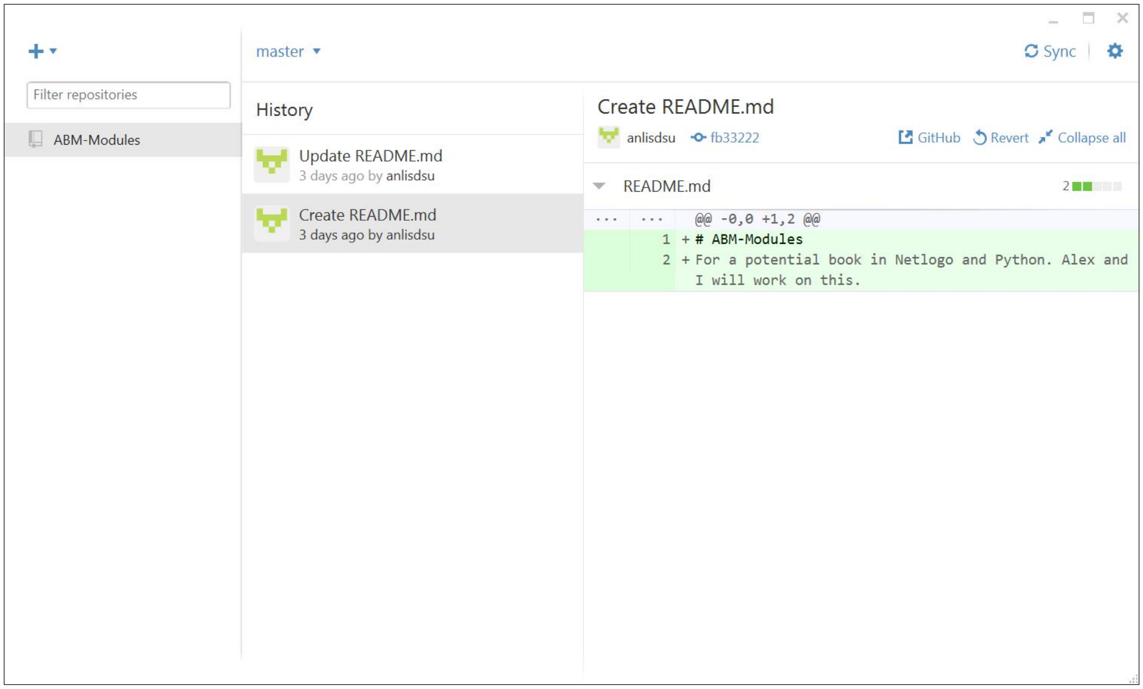


Figure 12: Clone an earlier produced repository.

Choose ABM-Modules, for instance, from the list, and then click the check sign (within a circle) near the bottom of the window. Then you will be asked to pick up a directory to clone the repository into. Then you will see what is inside the repository (Figure 13):



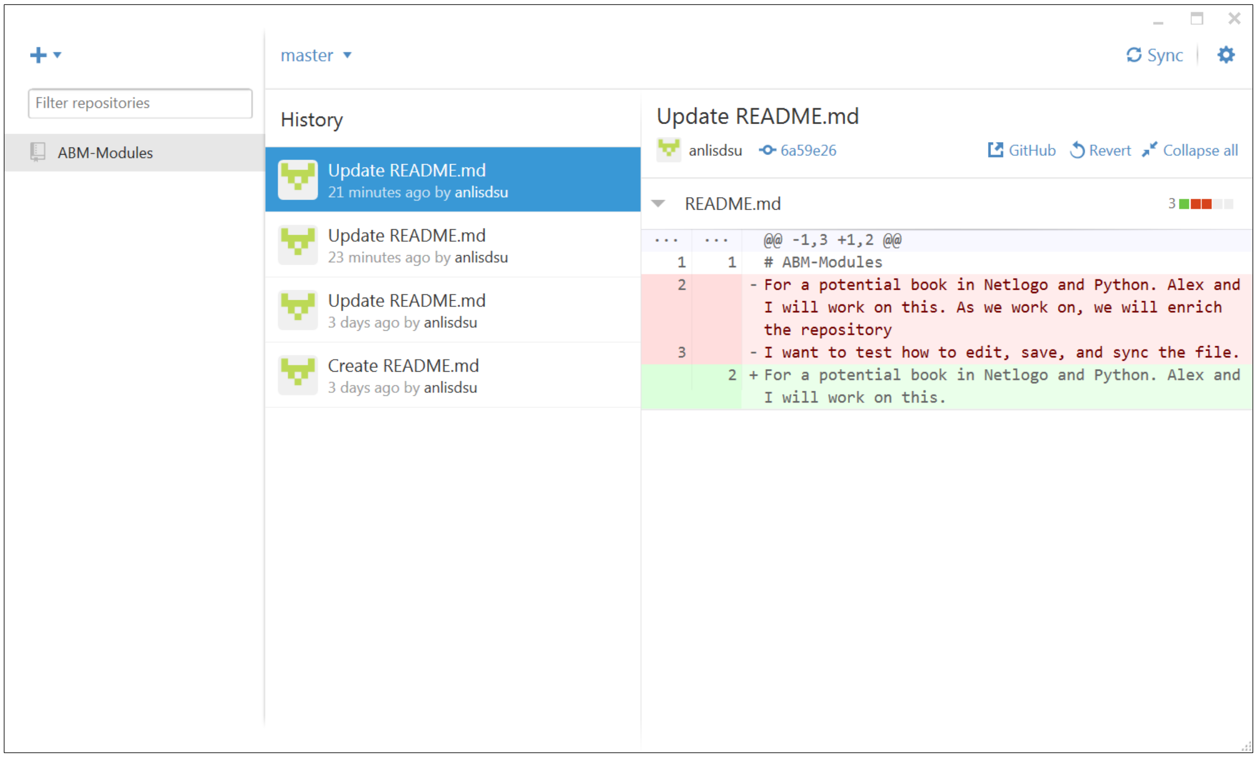
```
...   ...   @@ -0,0 +1,2 @@
        1 + # ABM-Modules
        2 + For a potential book in Netlogo and Python. Alex and
            I will work on this.
```

Figure 13: The cloned repository and its content

From here we can see the history of the README.md file on the right of the panel with different colors representing changes over time, where times of changes are recorded. If we want to edit the md (or whatever) file, simply go to the top-right button (the one to the left of the Sync button), you will see to drop-down menu. Check the View on GitHub, then a GitHub webpage about the repository (anlisdsu/ABM-Modules) will come out.

To make changes on README.md, click on the file name, and then hit the pen. Then in the editing panel, add a sentence "I want to test how to edit, save, and sync the file", scroll down the page, and hit the green button named Commit changes. This way the change will be saved. Then delete it and commit the change again.

To see these changes from your desktop GitHub, hit the Sync button, and you will see all the changes made (Figure 14):



Update README.md
21 minutes ago by anlisdsu

Update README.md
23 minutes ago by anlisdsu

Update README.md
3 days ago by anlisdsu

Create README.md
3 days ago by anlisdsu

Update README.md
anlisdsu 6a59e26

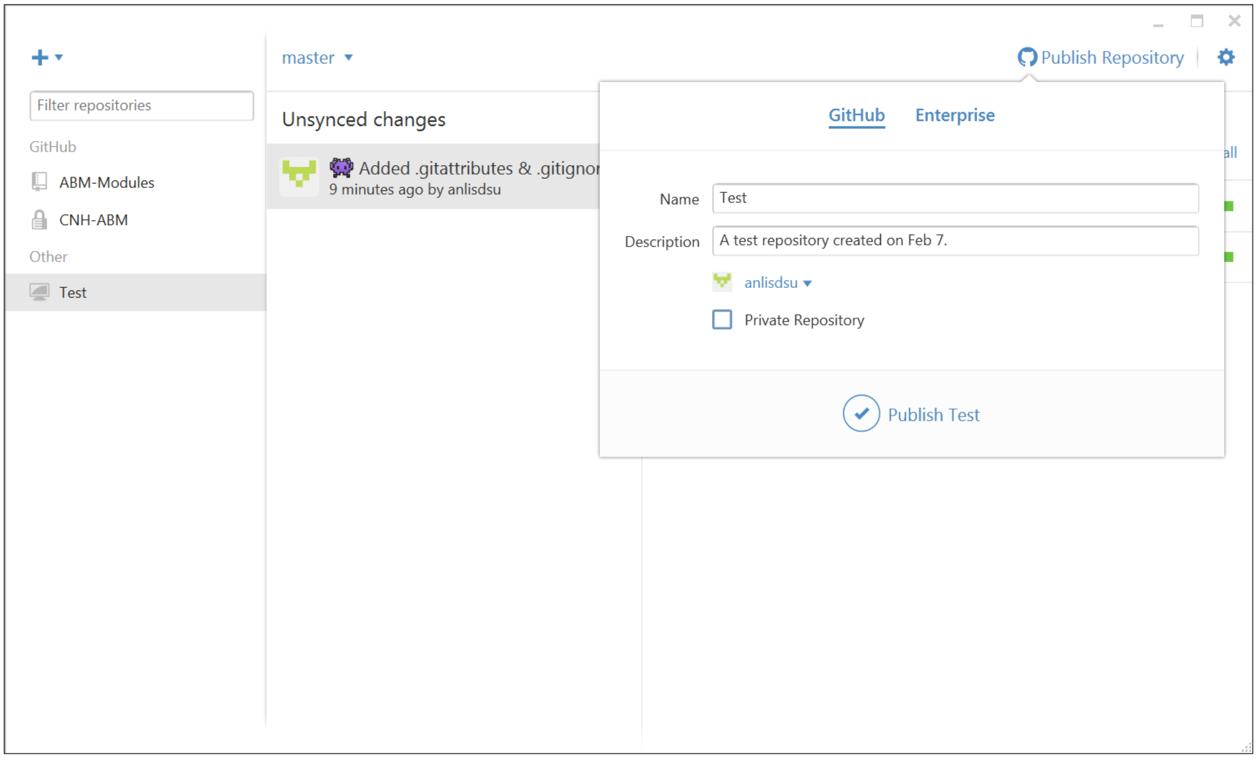
README.md 3

```
...  ...  @@ -1,3 +1,2 @@
1    1    # ABM-Modules
2        - For a potential book in Netlogo and Python. Alex and
            I will work on this. As we work on, we will enrich
            the repository
3        - I want to test how to edit, save, and sync the file.
     2   + For a potential book in Netlogo and Python. Alex and
            I will work on this.
```

Figure 13: The outcome of Sync with the online GitHub contents.

Similarly we can clone other repositories from the GitHub page, for instance CNH-ABM (a private one we created last time) that was created earlier.

Alternatively you can choose the Create option (next to Clone). Give a name for the repository (say Test), and you can choose the local path unless you want to use the default (C:\Users\lian\Documents\GitHub) path. Hit the button Publish Repository, and from the drop-down men choose, put a description, specify the GitHub username (here anlisdsu next to the green icon), you will see the following panel (Figure 14). Then click Publish Test.



Added .gitattributes & .gitignor
9 minutes ago by anlisdsu

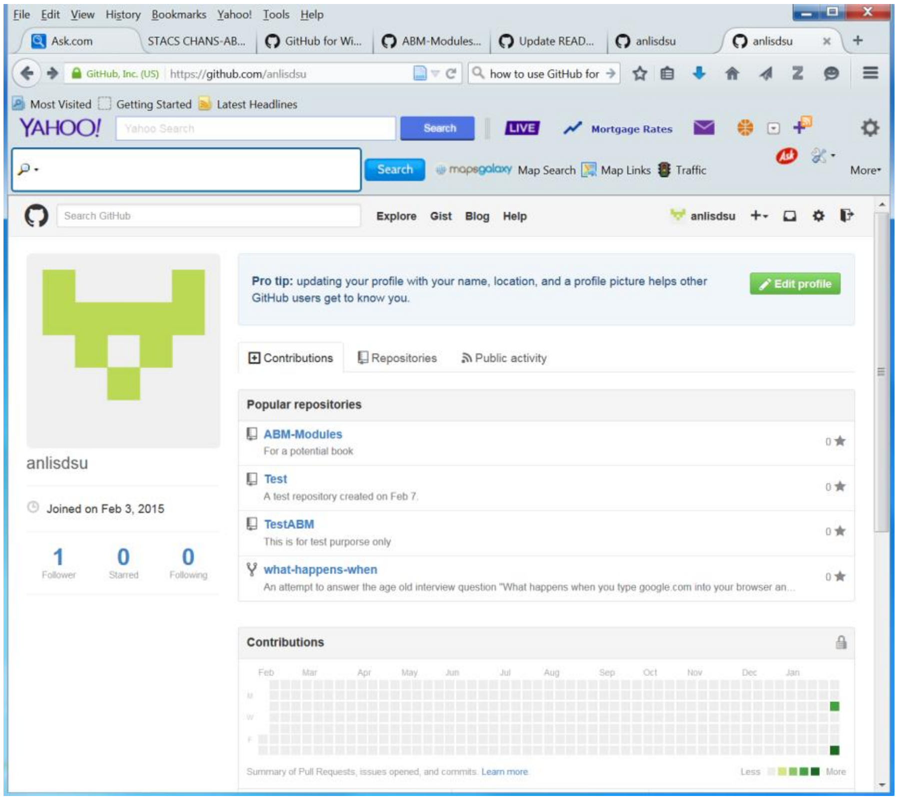
Name: Test

Description: A test repository created on Feb 7.

Figure 13: Create a repository from GitHub Windows.

To make sure this repository is uploaded, we can go to the GitHub web https://github.com/anlisdsu and check whether this is successfully uploaded. The repository named Test should be there (Figure 14). Up to this step, we should be able to make use of the power of GitHub and develop models together with other modelers.

Just one little thing: If you want to **delete a repository**, say the above Test repository, simply go to the repository (i.e., https://github.com/anlisdsu/Test), in the repository action bar, click Settings (see the right side of Figure 15). Under Danger Zone, click Delete this repository. Then after verifying what you want to do, you can delete it.



Pro tip: updating your profile with your name, location, and a profile picture helps other GitHub users get to know you.

anlisdsu

Joined on Feb 3, 2015

1	0	0
Follower	Starred	Following

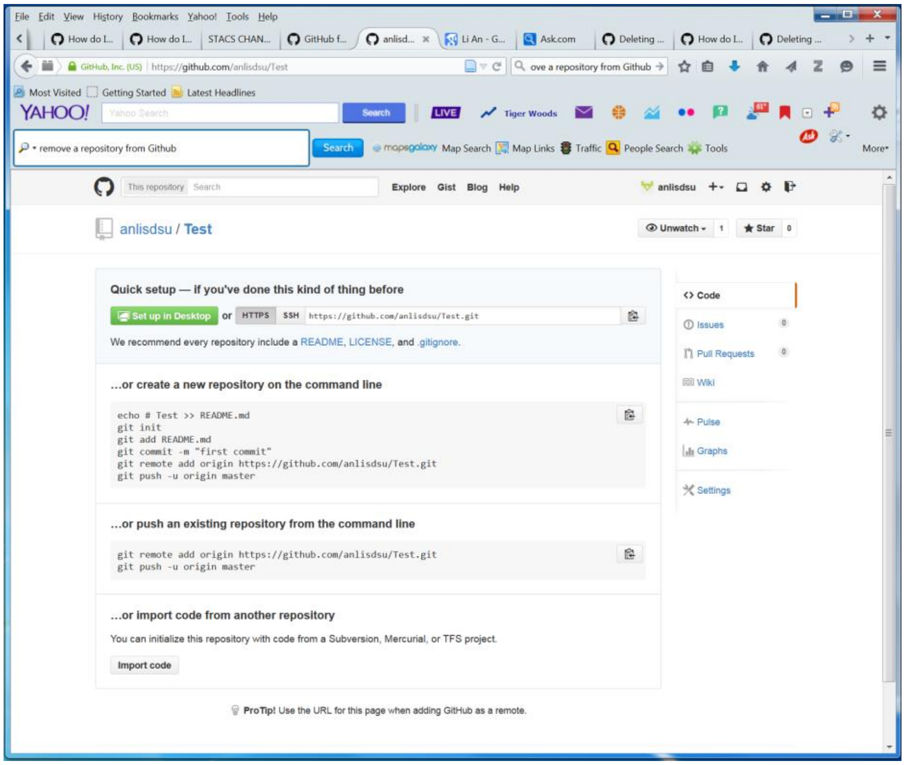
Popular repositories

ABM-Modules For a potential book	0 ★
Test A test repository created on Feb 7.	0 ★
TestABM This is for test purpose only	0 ★
what-happens-when An attempt to answer the age old interview question "What happens when you type google.com into your browser an...	0 ★

Contributions

Summary of Pull Requests, issues opened, and commits. Learn more.

Figure 14: The updated GitHub page after publishing a repository created from GitHub Windows.



Quick setup — if you've done this kind of thing before

Set up in Desktop or HTTPS SSH https://github.com/anlisdsu/Test.git

We recommend every repository include a README, LICENSE, and .gitignore.

...or create a new repository on the command line

```
echo # Test >> README.md
git init
git add README.md
git commit -m "first commit"
git remote add origin https://github.com/anlisdsu/Test.git
git push -u origin master
```

...or push an existing repository from the command line

```
git remote add origin https://github.com/anlisdsu/Test.git
git push -u origin master
```

...or import code from another repository

You can initialize this repository with code from a Subversion, Mercurial, or TFS project.

ProTip! Use the URL for this page when adding GitHub as a remote.

Figure 15: Deleting a repository

Now let us practice how to use GitHub to write and contribute to a program.

1) Write a program.

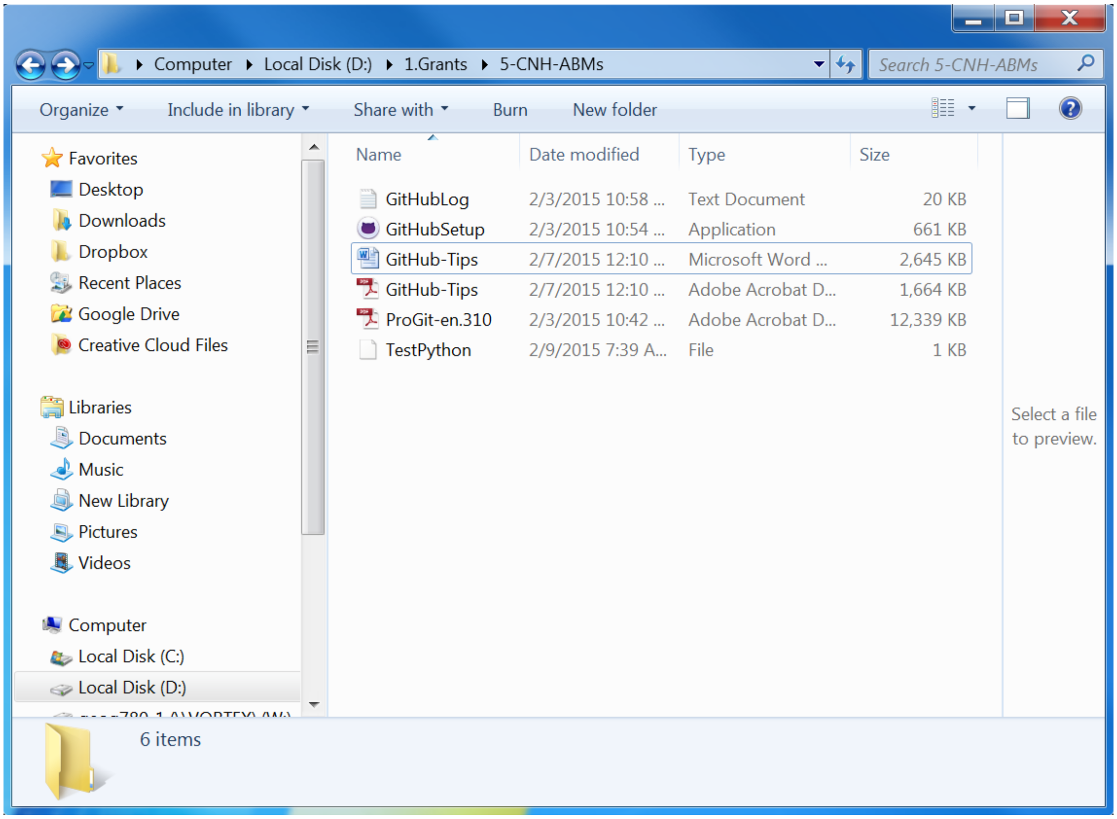
Let us write an extremely easy one is to write the following under Python IDLE or Python GUI as below:

print “Hello, world! My name is Li and I am testing Python and GitHub. Do they communicate well?”

and save it as a file (e.g., TestPython.py) under a certain directory of your computer, say, D:\1.Grants\5-CNH-ABMs\TestABM\.

2) Put this program under a repository

Open GitHub (the Windows version). Depending on where you want to place the program file TestPython.py, we can do different things. First we take a look at my local computer setting as below (Figure 16), where the above program file TestPython is saved under D:\1.Grants\5-CNH-ABMs\:

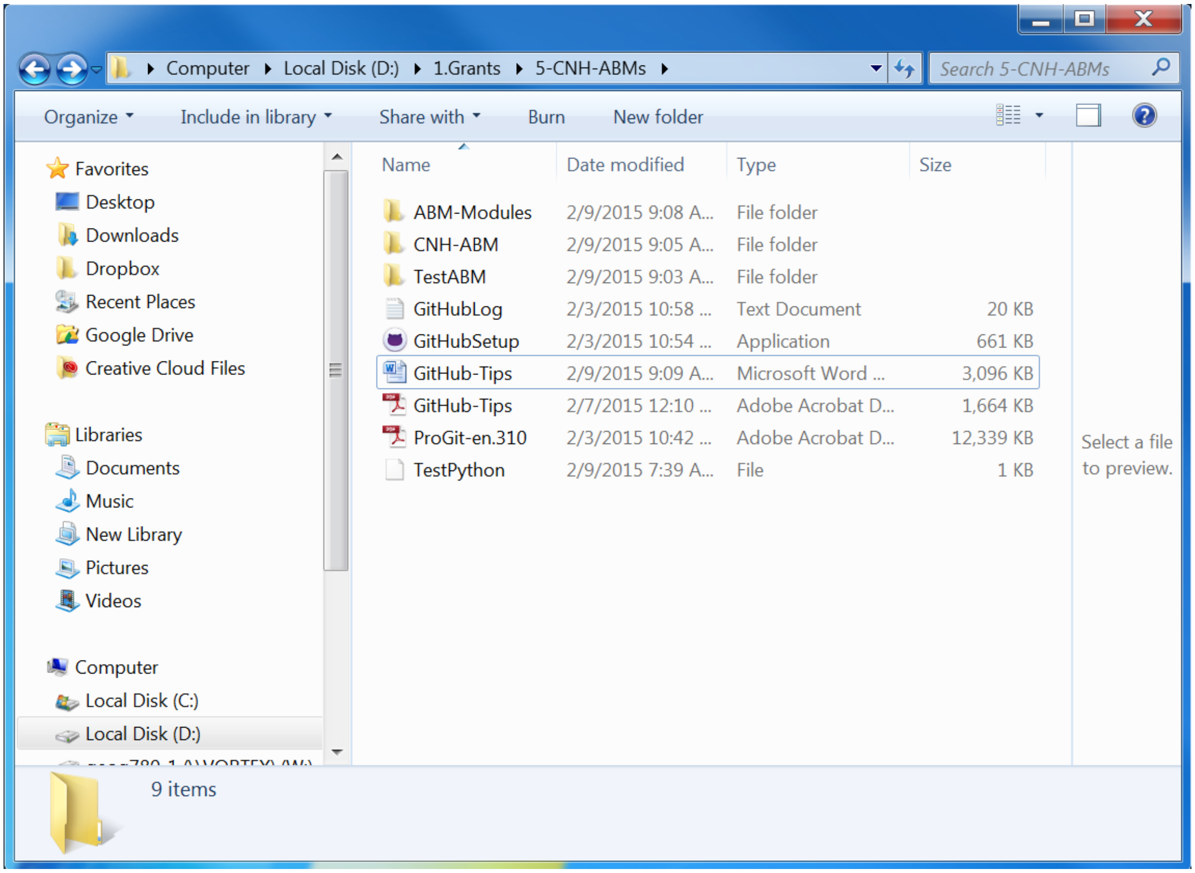


Name	Date modified	Type	Size
GitHubLog	2/3/2015 10:58 ...	Text Document	20 KB
GitHubSetup	2/3/2015 10:54 ...	Application	661 KB
GitHub-Tips	2/7/2015 12:10 ...	Microsoft Word ...	2,645 KB
GitHub-Tips	2/7/2015 12:10 ...	Adobe Acrobat D...	1,664 KB
ProGit-en.310	2/3/2015 10:42 ...	Adobe Acrobat D...	12,339 KB
TestPython	2/9/2015 7:39 A...	File	1 KB

Figure 16: The local directory in my personal computer, which is to be linked to my GitHub repositories.

3) Clone your repository to local folder

You should have practiced clone earlier (see Pages 10-11). But here we want to refresh the relationships between my local computer directories and my Github repositories. Simply go to Windows GitHub (click the GitHub icon and get a page like Figure 12). Click the plus sign (+), you should see all the four repositories I have on GitHub (note I already deleted the Test repository; see Pages 12-13). When prompted for a local directory, use D:\1.Grants\5-CNH-ABMs\. You will see that a local folder named TestABM will also be created under D:\1.Grants\5-CNH-ABMs\. [Here you may also clone your other repositories, here ABM-Modules and CNH-ABM, into your local folder].



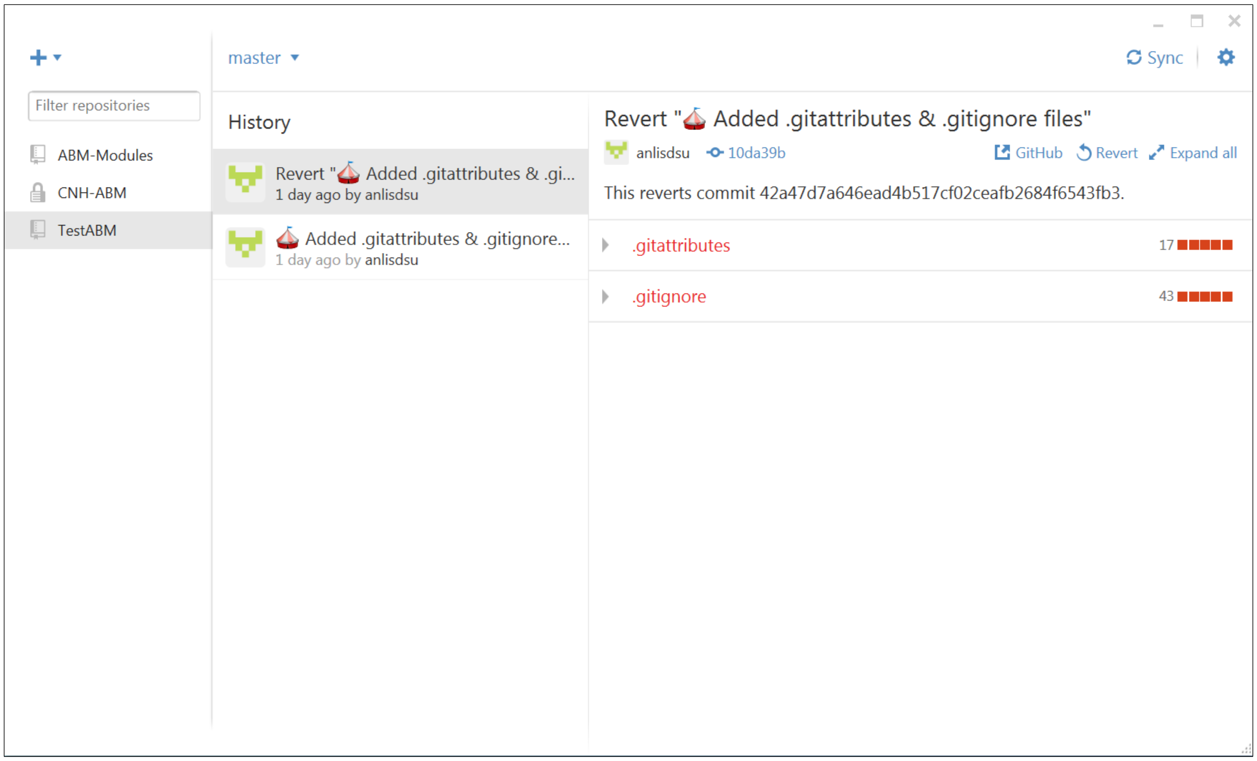
Name	Date modified	Type	Size
ABM-Modules	2/9/2015 9:08 A...	File folder	
CNH-ABM	2/9/2015 9:05 A...	File folder	
TestABM	2/9/2015 9:03 A...	File folder	
GitHubLog	2/3/2015 10:58 ...	Text Document	20 KB
GitHubSetup	2/3/2015 10:54 ...	Application	661 KB
GitHub-Tips	2/9/2015 9:09 A...	Microsoft Word ...	3,096 KB
GitHub-Tips	2/7/2015 12:10 ...	Adobe Acrobat D...	1,664 KB
ProGit-en.310	2/3/2015 10:42 ...	Adobe Acrobat D...	12,339 KB
TestPython	2/9/2015 7:39 A...	File	1 KB

Figure 17: The local directory in my personal computer, after linking to my GitHub repositories (compare the difference between this one and Figure 16).

But up to this point, if you click TestABM repository on GitHub, you will not see the program file TestPython.py yet. See next step for why.

4) Save your file into a repository

Move (or save) your program file TestPython.py into any of the three subdirectories, i.e., ABM-Modules, CNH-ABM, and TestABM. Here we choose to save it into TestABM. Now if you go to GitHub, click TestABM, you will see a line for Uncommitted changes (Figure 18; compare it to Figure 17).



Revert "Added .gitattributes & .gi...
1 day ago by anlisdsu

Added .gitattributes & .gitignore...
1 day ago by anlisdsu

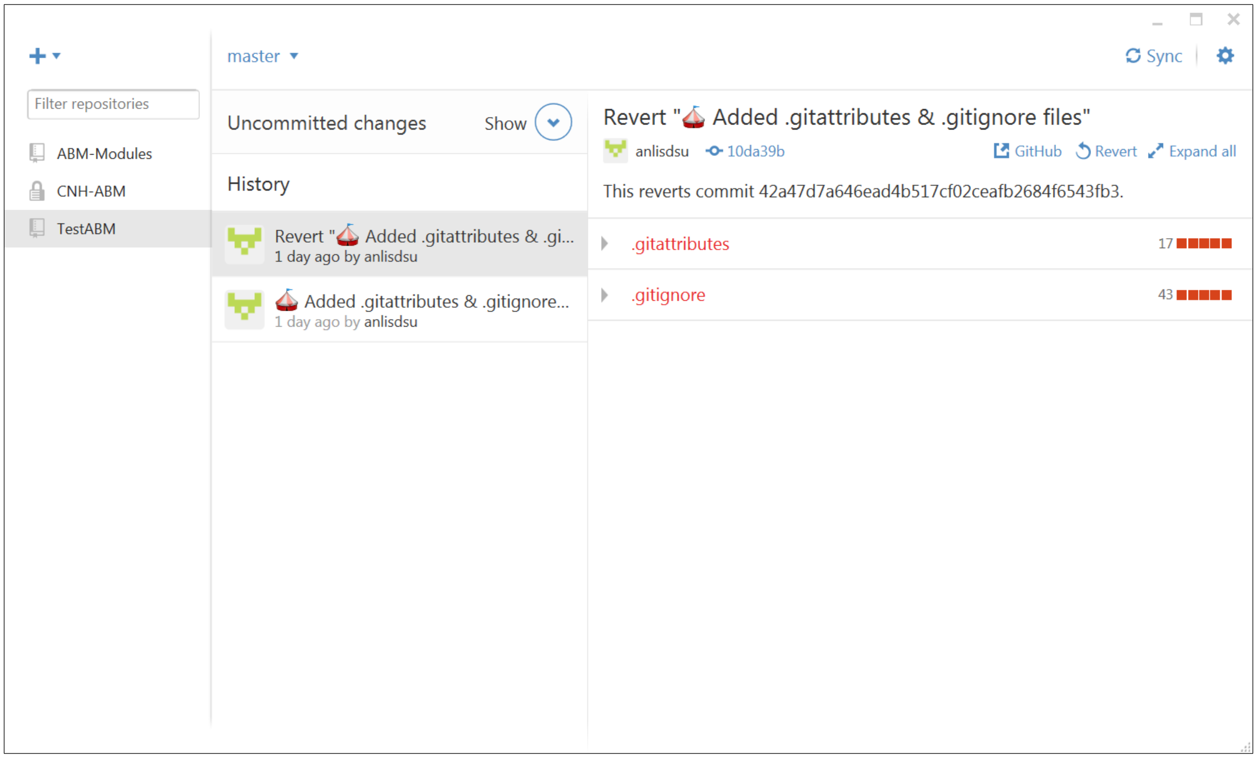
Revert "Added .gitattributes & .gitignore files"

anlisdsu 10da39b

This reverts commit 42a47d7a646ead4b517cf02ceafb2684f6543fb3.

.gitattributes	17
.gitignore	43

Figure 17: What the TestABM repository page looks like before saving a program file in.



Revert "Added .gitattributes & .gi...
1 day ago by anlisdsu

Added .gitattributes & .gitignore...
1 day ago by anlisdsu

Revert "Added .gitattributes & .gitignore files"

anlisdsu 10da39b

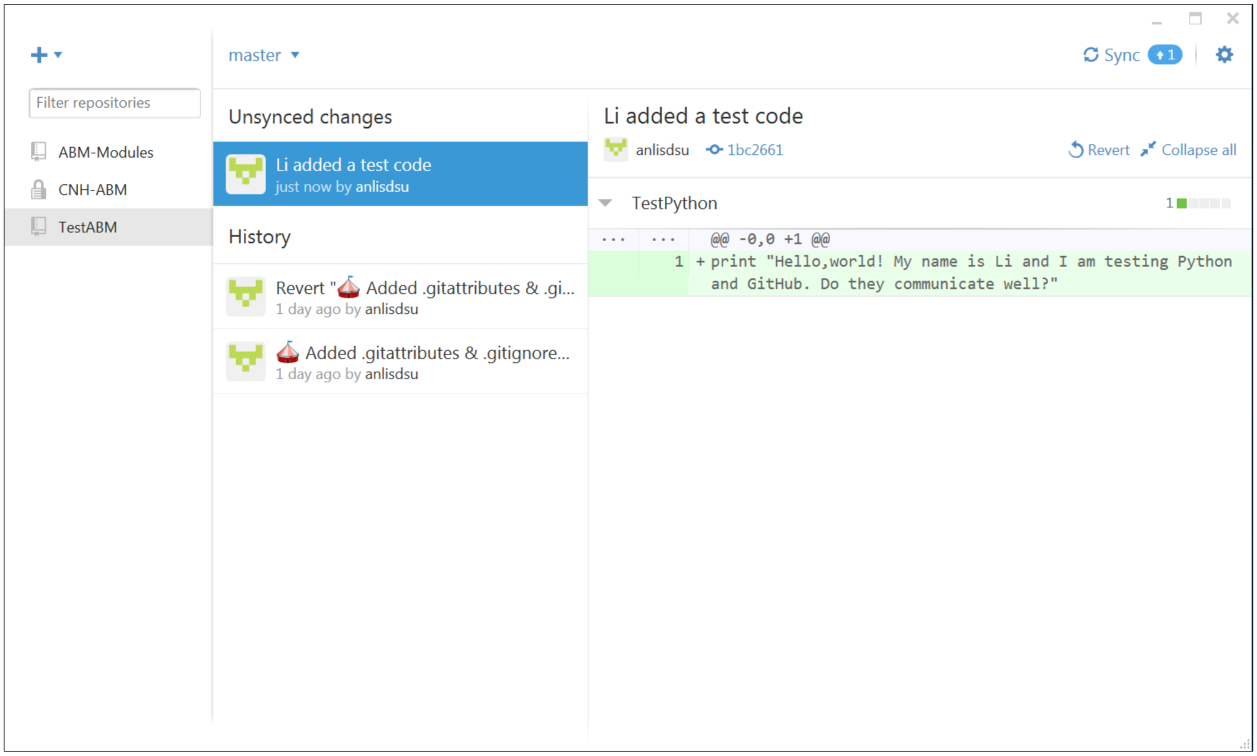
This reverts commit 42a47d7a646ead4b517cf02ceafb2684f6543fb3.

.gitattributes	17
.gitignore	43

Figure 18: What the TestABM repository page looks like after saving a program file in

5) Commit the change

Click the Show button (a circle), and in the drop-down boxes, write down some words (e.g., “Li added a test code” or in general who did what at what time), and click the button Commit to master. All the changes will be uploaded and shown as (Figure 19). Note the top item under the Unsynced changes.

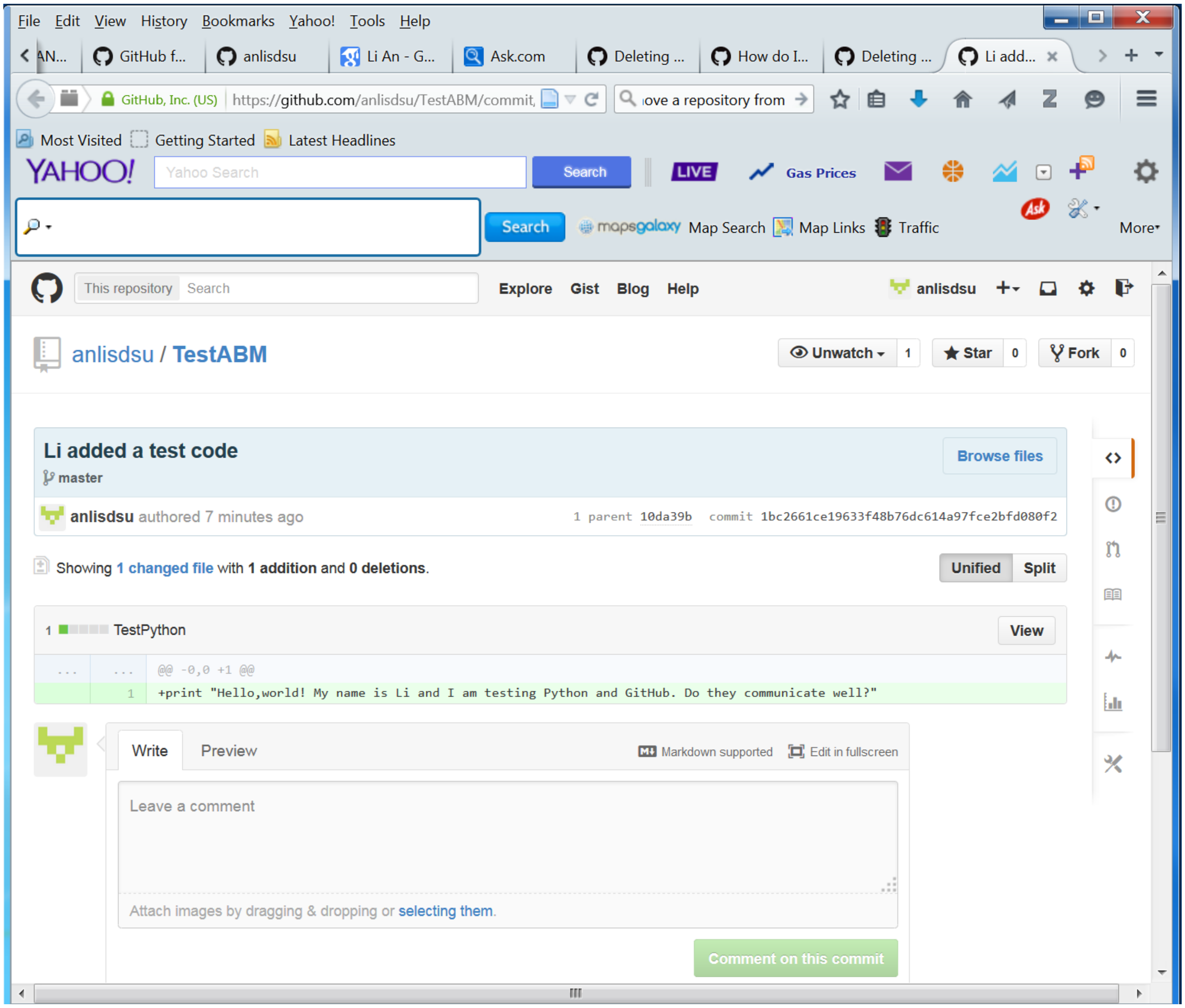


Li added a test code

```
...  ...   @@ -0,0 +1 @@
        1 + print "Hello,world! My name is Li and I am testing Python
            and GitHub. Do they communicate well?"
```

Figure 19: What the TestABM repository page looks like after committing a change.

Then you might want to click the sync button near the top right of the panel (e.g., Figure 19) to synchronize the changes to your GitHub page. To verify if this is successful, go to the GitHub under the same repository (here TestABM), you will see the same program there (Figure 20).


File Edit View History Bookmarks Yahoo! Tools Help
https://github.com/anlisdsu/TestABM/commit
Most Visited Getting Started Latest Headlines
YAHOO! Search
Explore Gist Blog Help
anlisdsu / TestABM
Unwatch 1 Star 0 Fork 0
Browse files
Unified Split
View
Write Preview
Markdown supported Edit in fullscreen
Leave a comment
Attach images by dragging & dropping or selecting them.
Comment on this commit

Li added a test code

master

anlisdsu authored 7 minutes ago 1 parent 10da39b commit 1bc2661ce19633f48b76dc614a97fce2bfd080f2

Showing 1 changed file with 1 addition and 0 deletions.

1 TestPython

```
@@ -0,0 +1 @@
+print "Hello,world! My name is Li and I am testing Python and GitHub. Do they communicate well?"
```

Figure 20: What the GitHub looks like after synchronizing our changes.

6) Continue making changes.

Assume we have closed all the programs (here TestPython.py) and now want to work on it after rest for some time. Go and open IDLE Python→File→ Open, browse to D:\1.Grants\5-CNH-ABMs\TestABM\, open TestPython.py, and add a few words "Changes are made later" as:

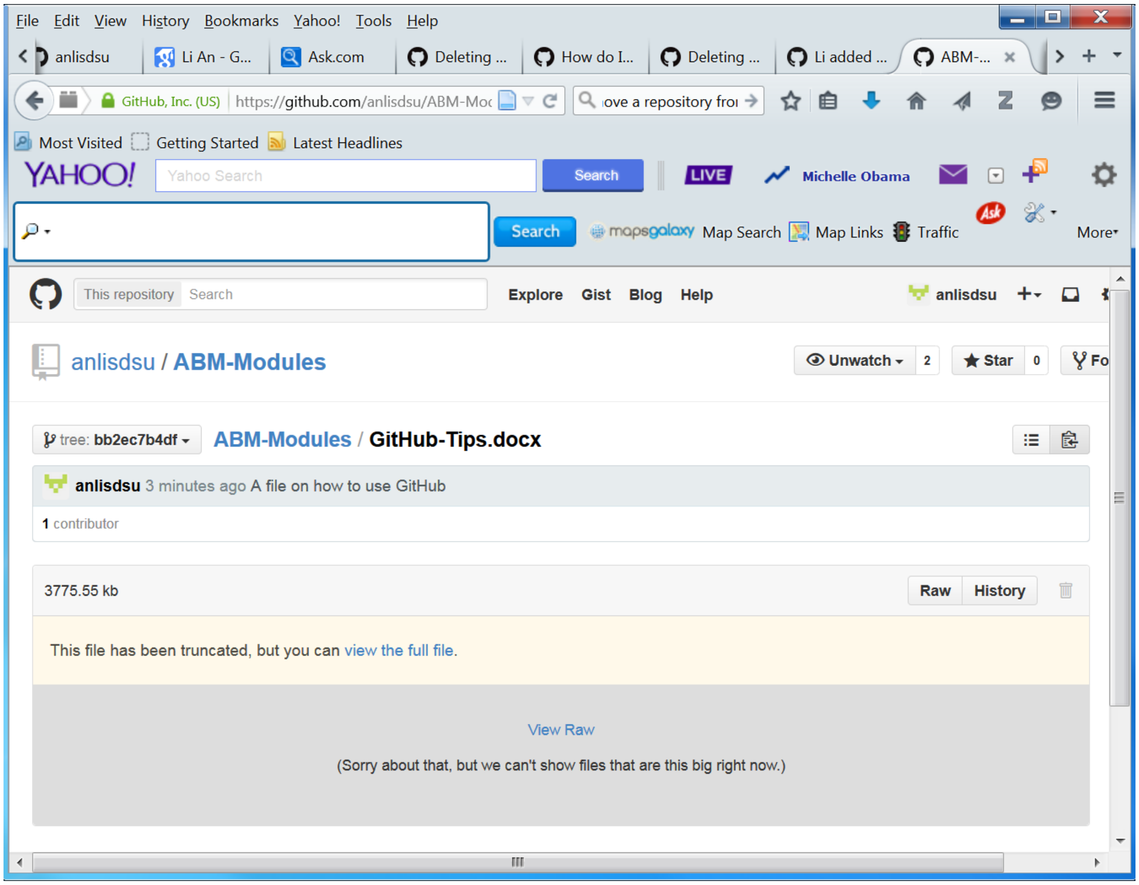
print "Hello,world! My name is Li and I am testing Python and GitHub.

Do they communicate well? Changes are made later"

Save the file. Open GitHub (for Windows), you will see Uncommitted changes near the top of the panel, and repeat Step 5) to commit the change. You will see the change. And you can go and delete some words from the file TestPython.py, save the file under IDLE. Go back to GitHub and commit the change.

So up to this point, we should be able to use GitHub to make changes and upload to GitHub for public contribution. Here I also put this documentation file (on how to use GitHub) online under the public repository ABM-Modules. Note the CNH-ABM is a private repository and only invited users can access it.

After we commit the change and sync it, the GitHub looks like this:



anlisdsu 3 minutes ago A file on how to use GitHub

1 contributor

3775.55 kb

This file has been truncated, but you can view the full file.

(Sorry about that, but we can't show files that are this big right now.)

Figure 21: The Github page under the ABM-Modules repository after the change is committed and synced.

The file is so big, it cannot be displayed on the GitHub web, but you can click view the full file or View Raw button to open the entire Word file.