Version Control

What is a version control? Version control basically is a system that allow the user to records all the changes to a file or set of files over time so that you can easily recall back the specific version when you needed. Version control also allow you to revert a certain file to previous version or state as well as comparing the latest version with previous version. You can also see who has been modified something to that file and maybe that person did some mistake to that file, so you can easily retrieve the issues and when it's happened. Other than that, when you accidently screw things up or lose the files, you can easily recover it from the system.

Sometimes, for a same files we have to keep save several latest copies for that file, and it's take a large storage to store those files as well as it is messy. By using a version control system such as Git Hub, you can easily save all the changes of a file, track changes and avoid general chaos. By adding collaborators to your file, many person can work on the same file, and the changes history is recorded and can be track in the future.

Branching

Branching is something that need to create when you want to experiment or commit changes to the repo that could break things elsewhere in your code especially when you want to working on a new feature. Instead of committing this new code directly to the main set of files, you can create something called a branch. A branch allow you to create a copy of the set of files, and you can continue to commit new changes to the branch as you work, while others commit to the main files without the changes affecting each other.

Merging

After you are done your experimental code and you are satisfied with it, then you will need to make it part of your main files or master file again. So that's when the merging comes in. Since the version control system has recorded every change so far, it knows how each file has been altered. By merging the branch with the main files, your version control tool will attempt to seamlessly merge each file and line of code automatically. Once a branch is merged it then updates the trunk or master with the latest files.

Conflicts

In some special cases, the version control system might not able to figure out which change to apply to the main file while two revisions doing a merge. When your changes are so similar to the changes that did by another team member, so that the version control system can't determine which version of changes should take and replace to the main file. That's is how the conflict is happen. In most of this cases, the version control system will provide a way to view the difference between the conflicting versions and allow you to manual intervention to decide which files or lines of code should remain.

Check-in, Edit & Check-out

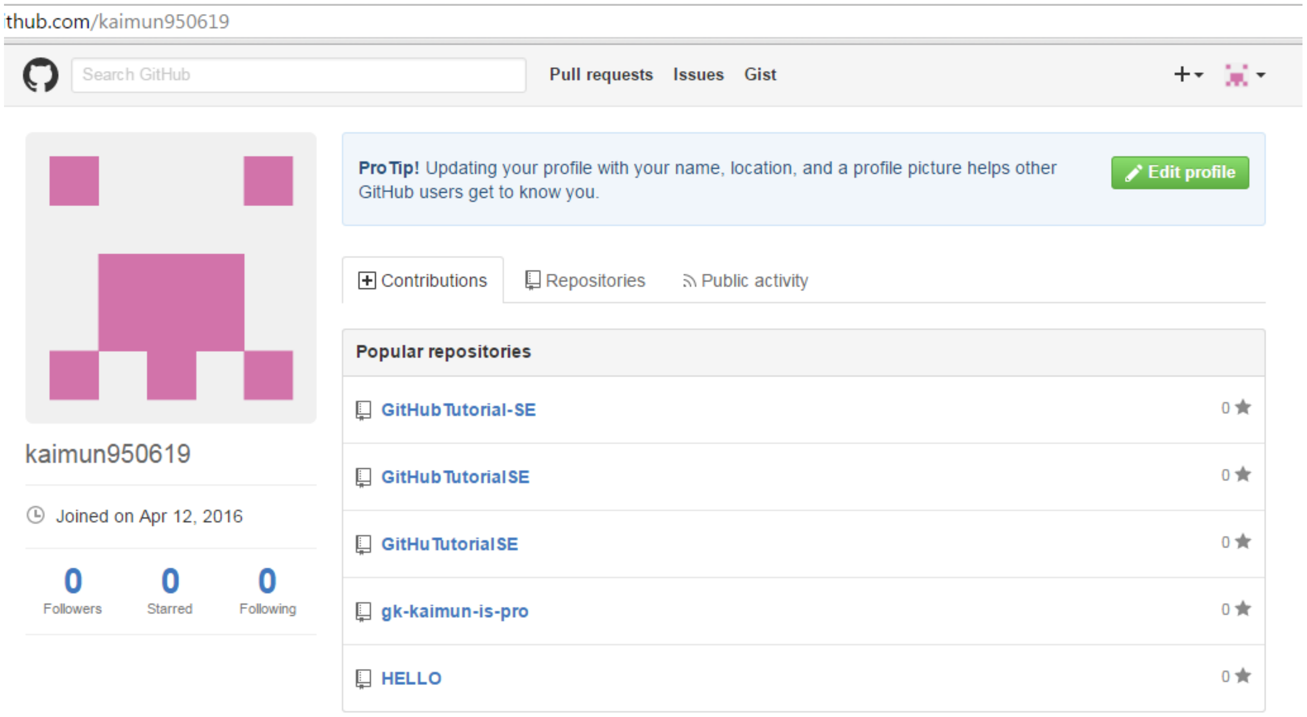
Check in is a process when you upload a file to the repository after you did some changes to a file. The latest file that's uploaded will gets a new revision number so that the other members can easily check out or download the latest version of file. Check out is download or cloning a repository from a host, or by telling the software which of your files you wish to have under version control. Editing is the process between checking-in and checking-out.

Revisions and Changesets

When a commit is made, the changes will recorded as a changesets and a unique revision will be given to the changesets. This revision could be in the form of an incremented number such as v1, v2, v3 or a unique hash. By knowing the revision number of a changesets, you can easilt vew and reference it later. A changesets will include a reference to the person who made the commit, when the change was made, the files or directories affected, ad comment and even the changes that happened within the files.

How to use GitHub

1. First of all, you need to have a GitHub account to allow you to create repository.



thub.com/kaimun950619

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Pro Tip! Updating your profile with your name, location, and a profile picture helps other GitHub users get to know you.   Edit profile

kaimun950619

Joined on Apr 12, 2016

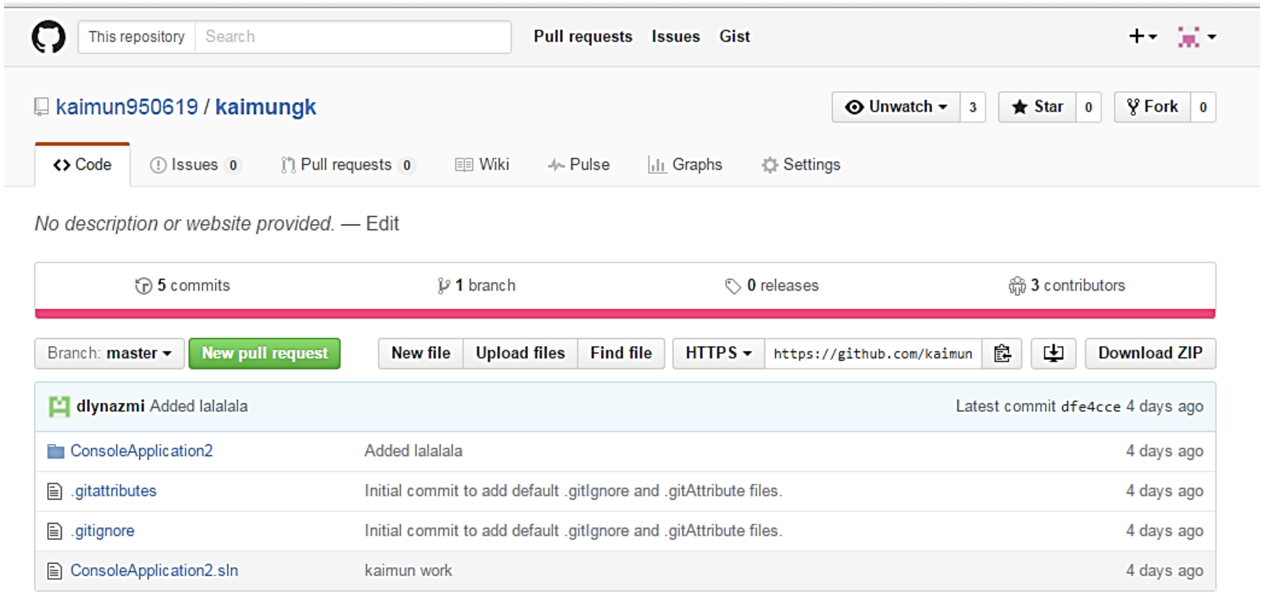
0 Followers   0 Starred   0 Following

Contributions   Repositories   Public activity

Popular repositories

GitHubTutorial-SE	0 ★
GitHubTutorialSE	0 ★
GitHuTutorialSE	0 ★
gk-kaimun-is-pro	0 ★
HELLO	0 ★

2. After that you need to create a new repository.



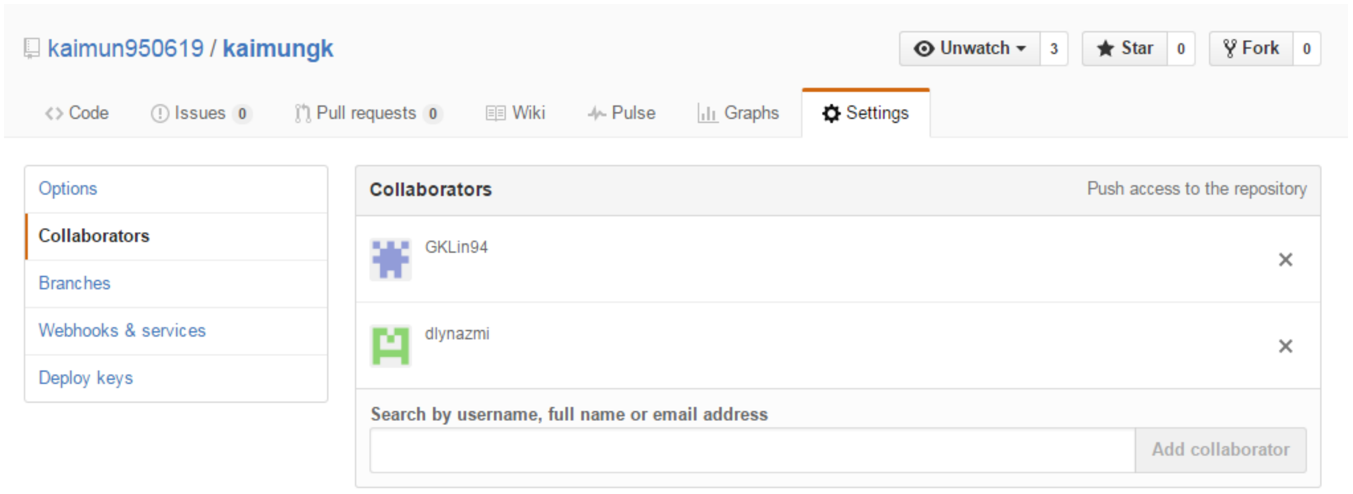
No description or website provided. — Edit

5 commits | 1 branch | 0 releases | 3 contributors

dlynazmi Added lalalala — Latest commit dfe4cce 4 days ago

ConsoleApplication2	Added lalalala	4 days ago
.gitattributes	Initial commit to add default .gitIgnore and .gitAttribute files.	4 days ago
.gitignore	Initial commit to add default .gitIgnore and .gitAttribute files.	4 days ago
ConsoleApplication2.sln	kaimun work	4 days ago

3. Add your team member as collaborators so that they can check-in, edit and check-out for a repository.



Collaborators — Push access to the repository

GKLin94

dlynazmi

Search by username, full name or email address

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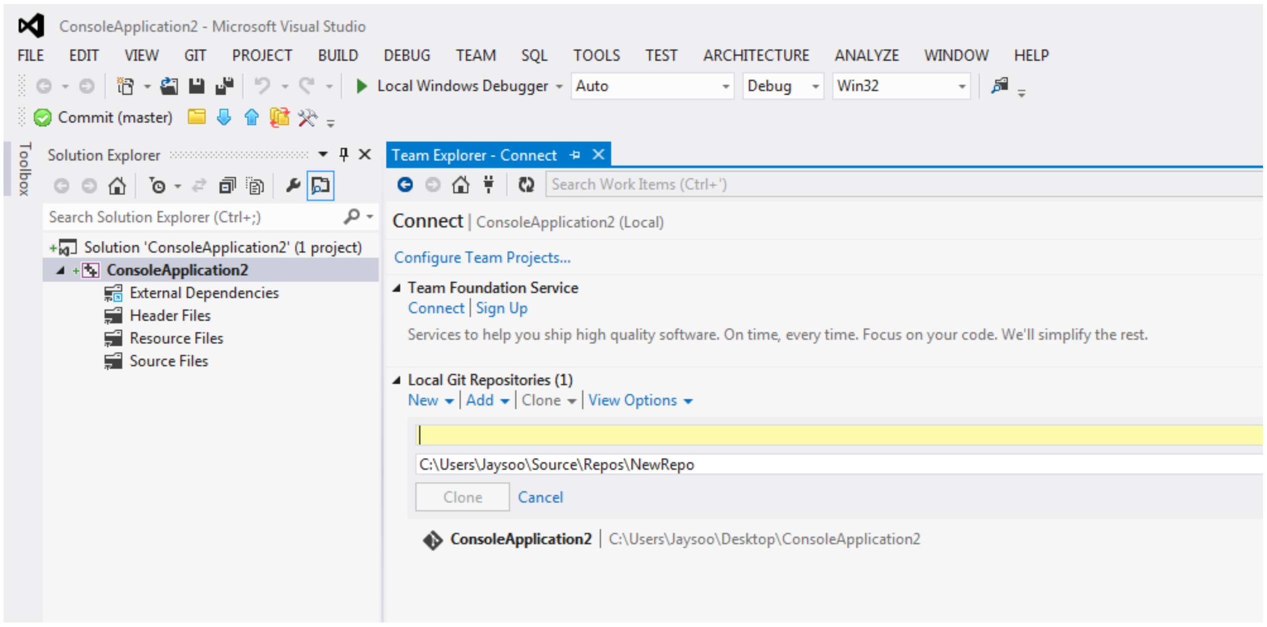
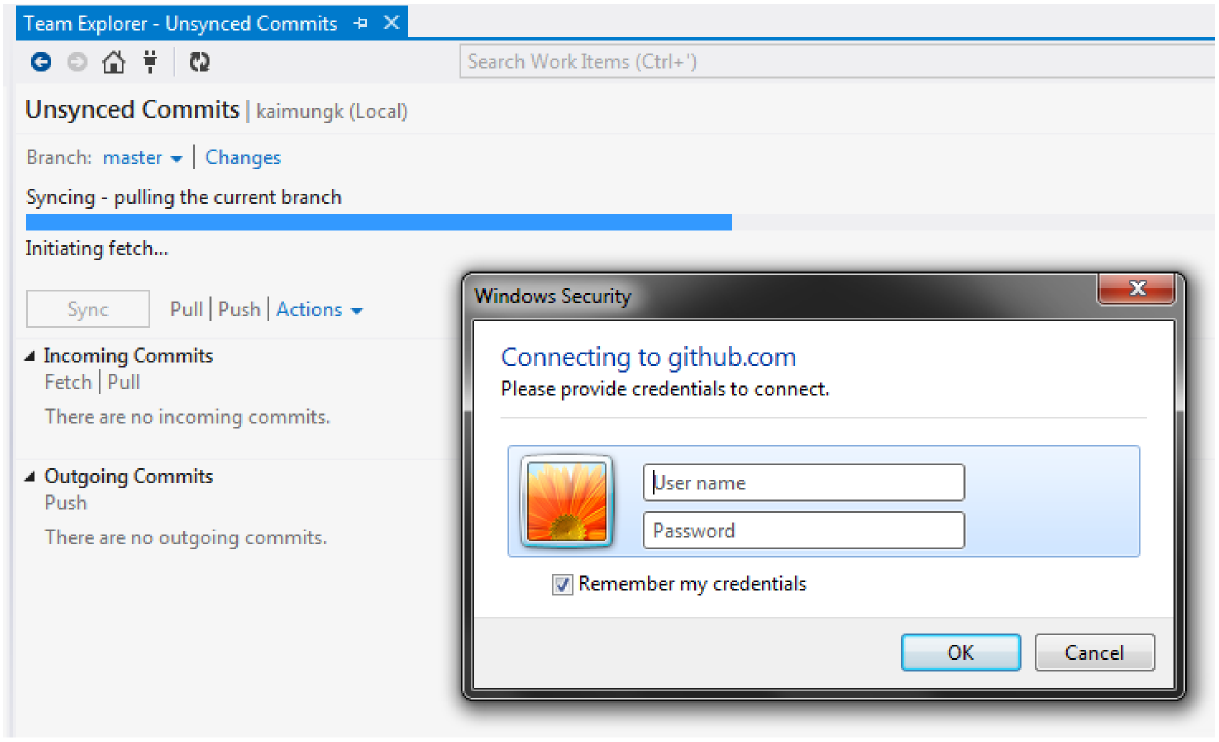
4. Clone your repository to Visual Studio.


ConsoleApplication2 - Microsoft Visual Studio
FILE EDIT VIEW GIT PROJECT BUILD DEBUG TEAM SQL TOOLS TEST ARCHITECTURE ANALYZE WINDOW HELP
Local Windows Debugger
Auto
Debug
Win32
Commit (master)
Toolbox
Solution Explorer
Search Solution Explorer (Ctrl+;)
Solution 'ConsoleApplication2' (1 project)
ConsoleApplication2
External Dependencies
Header Files
Resource Files
Source Files
Team Explorer - Connect
Search Work Items (Ctrl+')
Connect | ConsoleApplication2 (Local)
Configure Team Projects...
Team Foundation Service
Connect | Sign Up
Services to help you ship high quality software. On time, every time. Focus on your code. We'll simplify the rest.
Local Git Repositories (1)
New | Add | Clone | View Options
C:\Users\Jaysoo\Source\Repos\NewRepo

ConsoleApplication2 | C:\Users\Jaysoo\Desktop\ConsoleApplication2

5. Pull and sync to your current project solution. (Login GitHub Account)


Team Explorer - Unsynced Commits
Search Work Items (Ctrl+')
Unsynced Commits | kaimungk (Local)
Branch: master | Changes
Syncing - pulling the current branch
Initiating fetch...

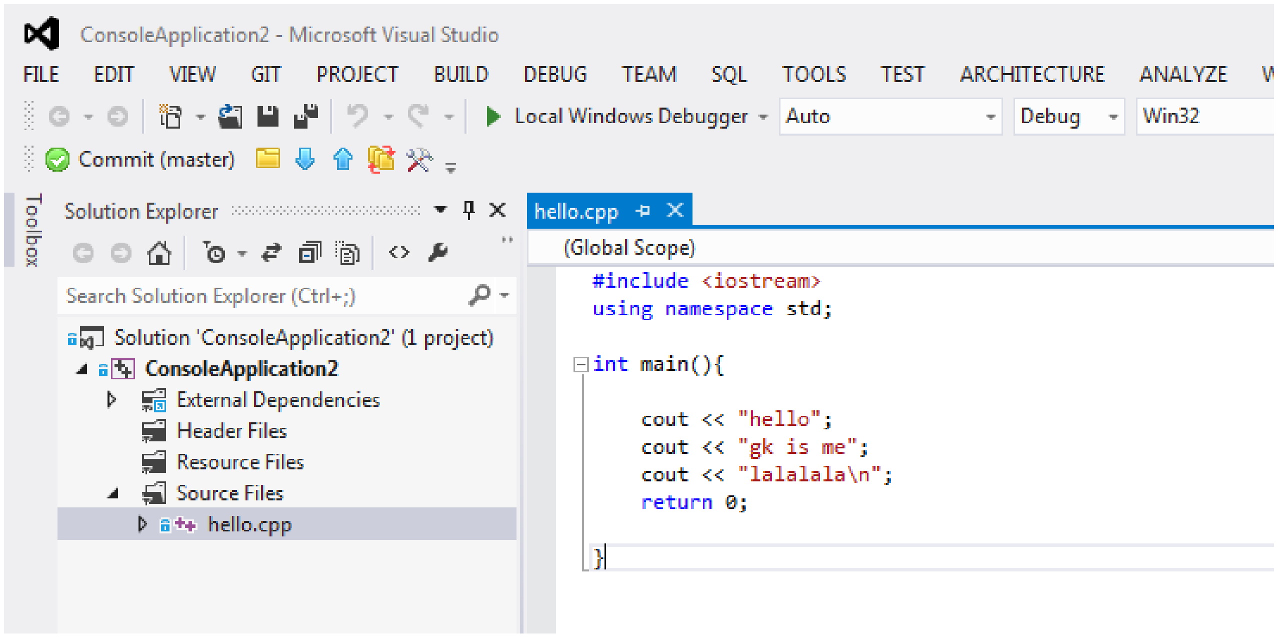
There are no incoming commits.

There are no outgoing commits.

Connecting to github.com
Please provide credentials to connect.

[✓] Remember my credentials

6. You should able to open the file that pull form GitHub.


ConsoleApplication2 - Microsoft Visual Studio
FILE EDIT VIEW GIT PROJECT BUILD DEBUG TEAM SQL TOOLS TEST ARCHITECTURE ANALYZE
Local Windows Debugger
Auto
Debug
Win32
Commit (master)
Toolbox
Solution Explorer
Search Solution Explorer (Ctrl+;)
Solution 'ConsoleApplication2' (1 project)
ConsoleApplication2
External Dependencies
Header Files
Resource Files
Source Files
hello.cpp
(Global Scope)

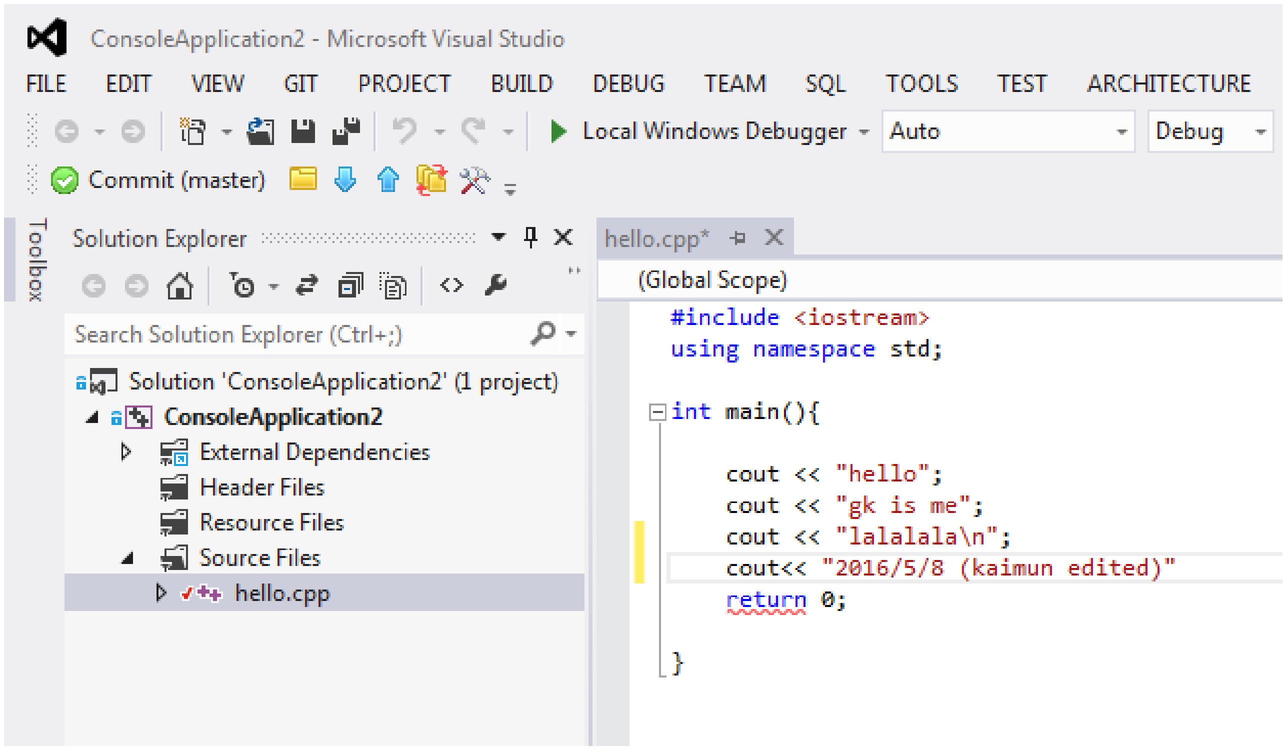
```
#include <iostream>
using namespace std;

int main(){

    cout << "hello";
    cout << "gk is me";
    cout << "lalalala\n";
    return 0;

}
```

7. You can started editing the file.


ConsoleApplication2 - Microsoft Visual Studio
FILE EDIT VIEW GIT PROJECT BUILD DEBUG TEAM SQL TOOLS TEST ARCHITECTURE
Local Windows Debugger
Auto
Debug
Commit (master)
Toolbox
Solution Explorer
Search Solution Explorer (Ctrl+;)
Solution 'ConsoleApplication2' (1 project)
ConsoleApplication2
External Dependencies
Header Files
Resource Files
Source Files
hello.cpp
hello.cpp*
(Global Scope)

```
#include <iostream>
using namespace std;

int main(){

    cout << "hello";
    cout << "gk is me";
    cout << "lalalala\n";
    cout<< "2016/5/8 (kaimun edited)"
    return 0;

}
```

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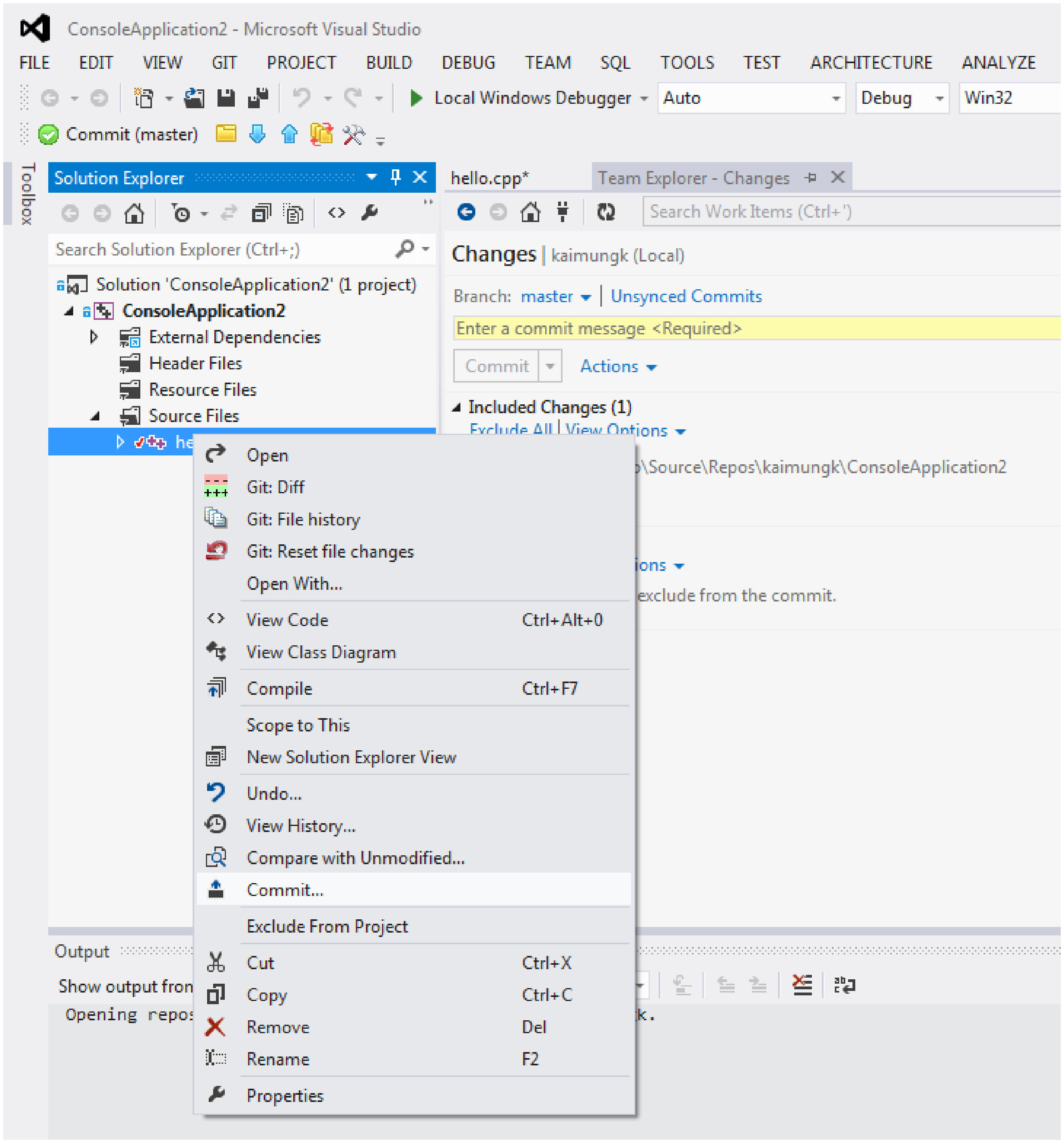
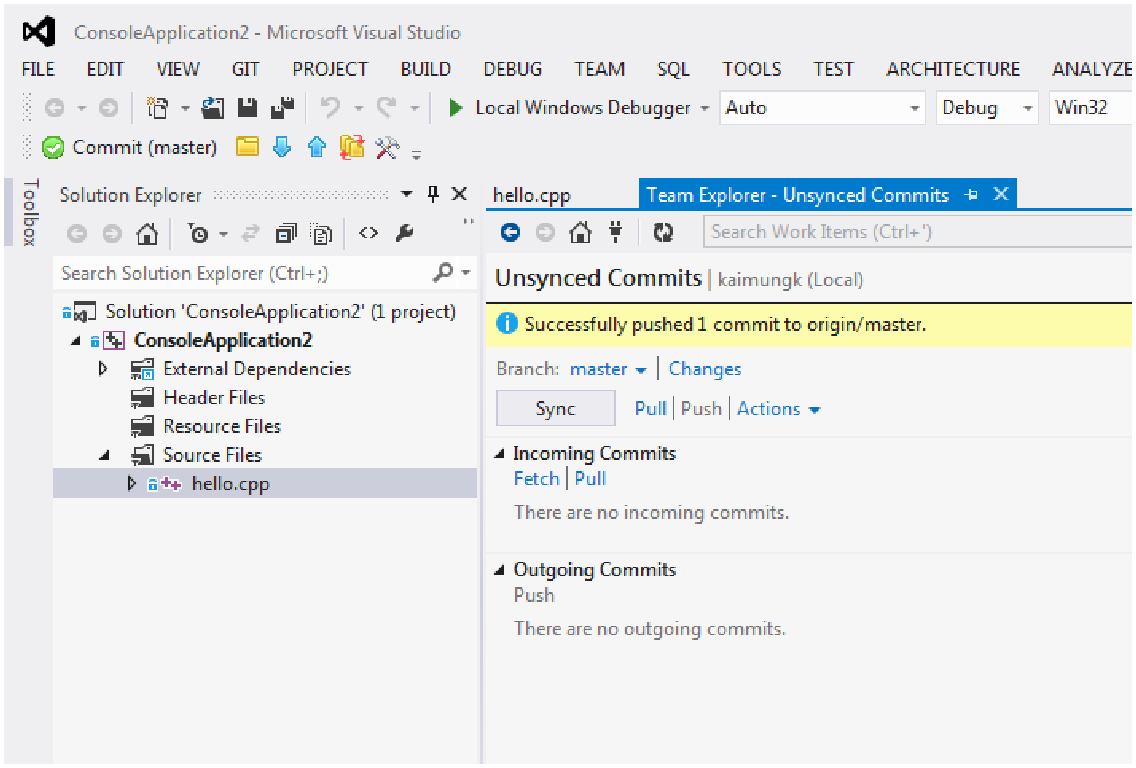
8. You can commit the latest changes.



9. You need to push back to GitHub.


ConsoleApplication2 - Microsoft Visual Studio
FILE EDIT VIEW GIT PROJECT BUILD DEBUG TEAM SQL TOOLS TEST ARCHITECTURE ANALYZE
Local Windows Debugger
Auto
Debug
Win32
Commit (master)
Solution Explorer
Search Solution Explorer (Ctrl+;)
Solution 'ConsoleApplication2' (1 project)
ConsoleApplication2
External Dependencies
Header Files
Resource Files
Source Files
hello.cpp
Team Explorer - Unsynced Commits
Search Work Items (Ctrl+')

Unsynced Commits | kaimungk (Local)

Successfully pushed 1 commit to origin/master.

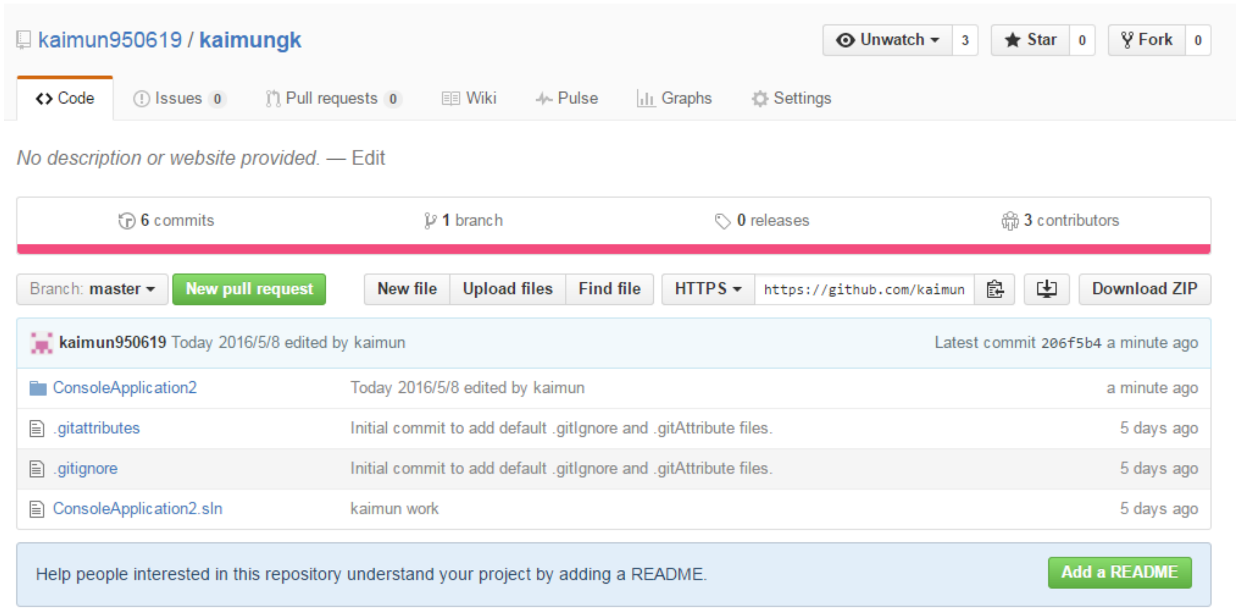
Branch: master | Changes

Sync   Pull | Push | Actions

Incoming Commits
Fetch | Pull
There are no incoming commits.

Outgoing Commits
Push
There are no outgoing commits.

10. Then every team member should able to see the latest changes that made by you.



No description or website provided. — Edit

6 commits | 1 branch | 0 releases | 3 contributors

kaimun950619 Today 2016/5/8 edited by kaimun — Latest commit 206f5b4 a minute ago

ConsoleApplication2	Today 2016/5/8 edited by kaimun	a minute ago
.gitattributes	Initial commit to add default .gitIgnore and .gitAttribute files.	5 days ago
.gitignore	Initial commit to add default .gitIgnore and .gitAttribute files.	5 days ago
ConsoleApplication2.sln	kaimun work	5 days ago

Help people interested in this repository understand your project by adding a README.

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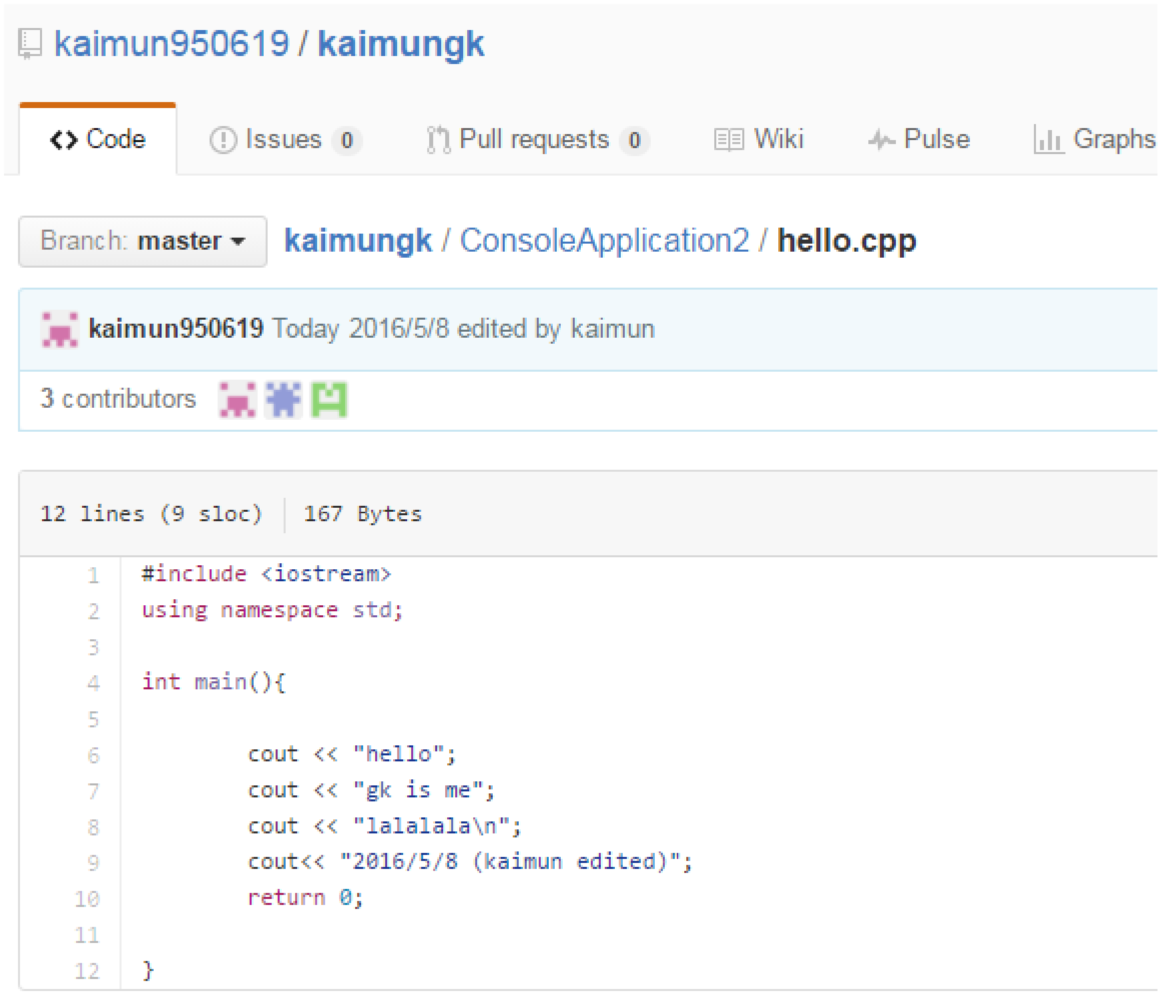


kaimungk / ConsoleApplication2 / hello.cpp

kaimun950619 Today 2016/5/8 edited by kaimun

3 contributors

12 lines (9 sloc) | 167 Bytes

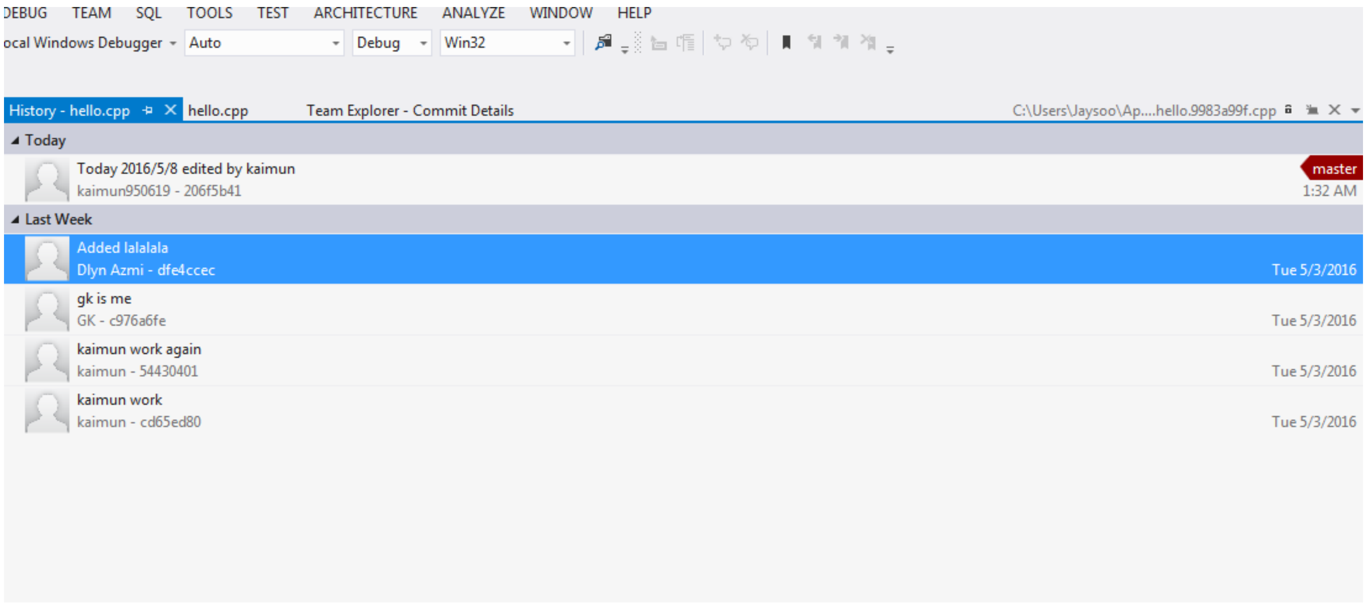
```
#include <iostream>
using namespace std;

int main(){

        cout << "hello";
        cout << "gk is me";
        cout << "lalalala\n";
        cout<< "2016/5/8 (kaimun edited)";
        return 0;

}
```

11.0 You can also view the history of who edited or made changes on those file.


DEBUG TEAM SQL TOOLS TEST ARCHITECTURE ANALYZE WINDOW HELP
ocal Windows Debugger
Auto
Debug
Win32
History - hello.cpp
hello.cpp
Team Explorer - Commit Details
C:\Users\Jaysoo\Ap....hello.9983a99f.cpp
Today
Last Week
master

Today 2016/5/8 edited by kaimun
kaimun950619 - 206f5b41 — 1:32 AM

Added lalalala
Dlyn Azmi - dfe4ccec — Tue 5/3/2016

gk is me
GK - c976a6fe — Tue 5/3/2016

kaimun work again
kaimun - 54430401 — Tue 5/3/2016

kaimun work
kaimun - cd65ed80 — Tue 5/3/2016

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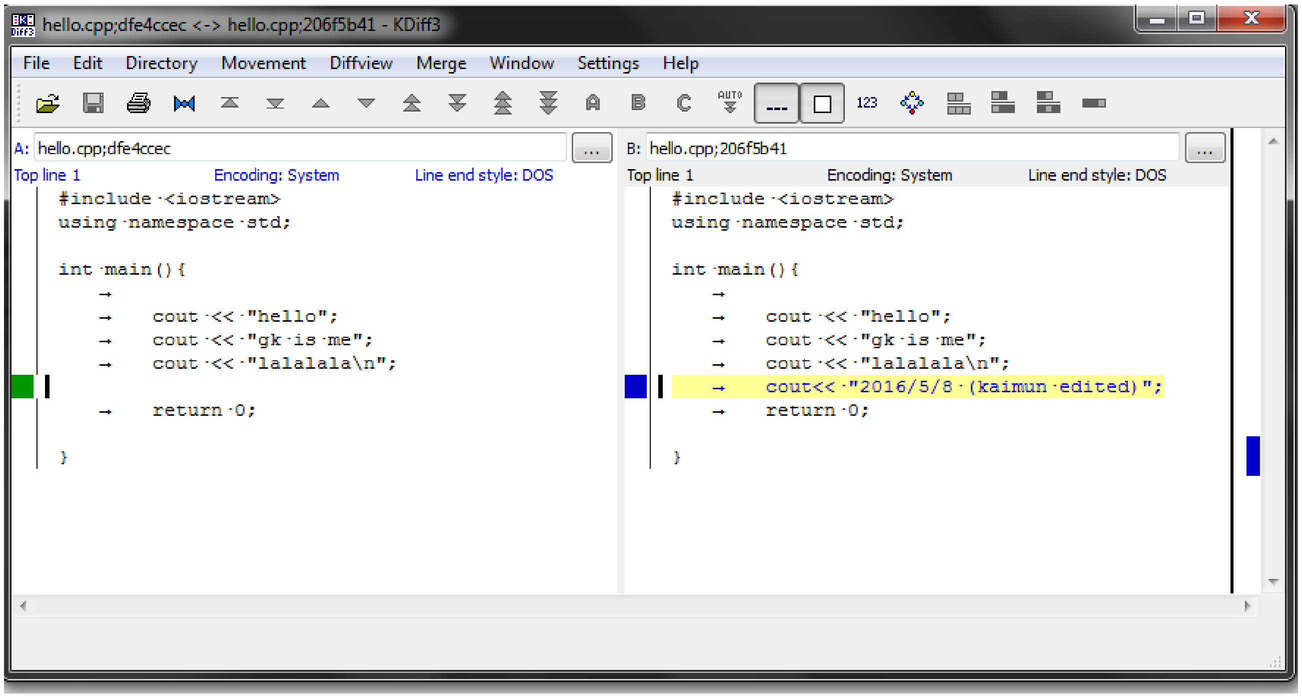
12.0 As well as view the changes line by line. (Compare with previous version)


hello.cpp;dfe4ccec <-> hello.cpp;206f5b41 - KDiff3
File Edit Directory Movement Diffview Merge Window Settings Help
A: hello.cpp;dfe4ccec
Top line 1 Encoding: System Line end style: DOS
B: hello.cpp;206f5b41
Top line 1 Encoding: System Line end style: DOS

```
#include <iostream>
using namespace std;

int main(){

	cout << "hello";
	cout << "gk is me";
	cout << "lalalala\n";

	return 0;

}
```

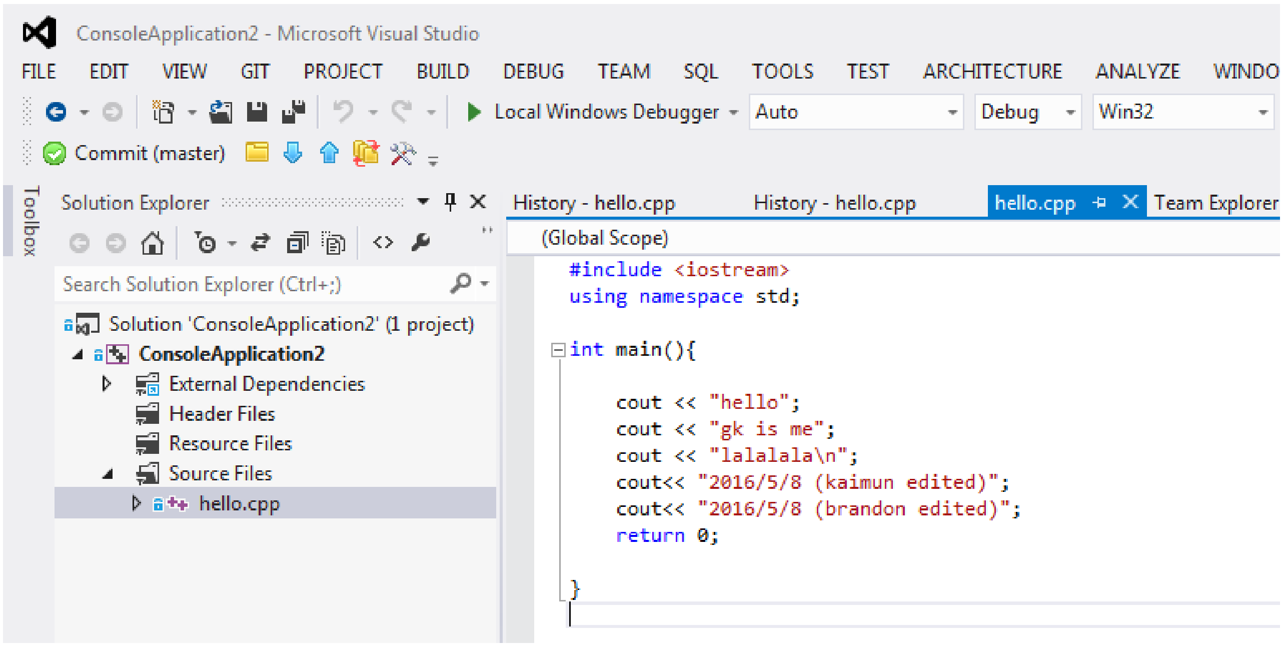
```
#include <iostream>
using namespace std;

int main(){

	cout << "hello";
	cout << "gk is me";
	cout << "lalalala\n";
	cout<< "2016/5/8 (kaimun edited)";
	return 0;

}
```

13.0 You can also pull the file from GitHub and sync to your current file which has been made changes by your team member.



```
#include <iostream>
using namespace std;

int main(){

	cout << "hello";
	cout << "gk is me";
	cout << "lalalala\n";
	cout<< "2016/5/8 (kaimun edited)";
	cout<< "2016/5/8 (brandon edited)";
	return 0;

}
```

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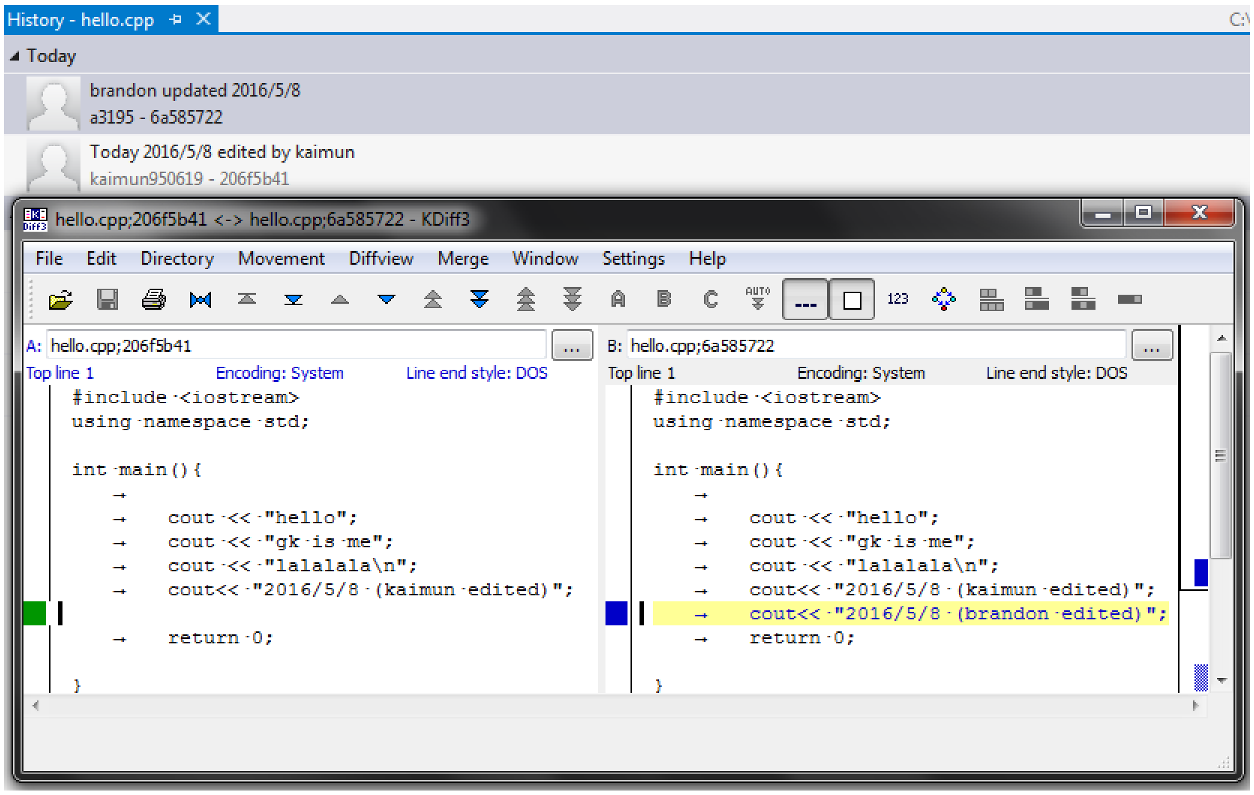
History - hello.cpp
Today

brandon updated 2016/5/8
a3195 - 6a585722

Today 2016/5/8 edited by kaimun
kaimun950619 - 206f5b41

hello.cpp;206f5b41 <-> hello.cpp;6a585722 - KDiff3

File Edit Directory Movement Diffview Merge Window Settings Help

A: hello.cpp;206f5b41
Top line 1 Encoding: System Line end style: DOS

```
#include <iostream>
using namespace std;

int main(){
	
	cout << "hello";
	cout << "gk is me";
	cout << "lalalala\n";
	cout<< "2016/5/8 (kaimun edited)";

	return 0;

}
```

B: hello.cpp;6a585722
Top line 1 Encoding: System Line end style: DOS

```
#include <iostream>
using namespace std;

int main(){
	
	cout << "hello";
	cout << "gk is me";
	cout << "lalalala\n";
	cout<< "2016/5/8 (kaimun edited)";
	cout<< "2016/5/8 (brandon edited)";
	return 0;

}
```