

# **Git** with Grit

A virtual training series on the fundamentals of Git and Github

 **7:00 PM – 8:00 PM | (GMT+ 6:00)**

 **16<sup>th</sup> , 18<sup>th</sup> , 19<sup>th</sup> February, 2021**



Organized By



Partnered With



# with Grit

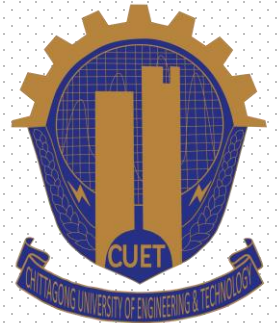


A virtual training series on the fundamentals of Git and Github



## **Mohammad Iftekher Ebne Jalal (Iftu)**

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Undergrad Student,  
Department of Electrical and Electronic Engineering,  
Chittagong University of Engineering and Technology (CUET)





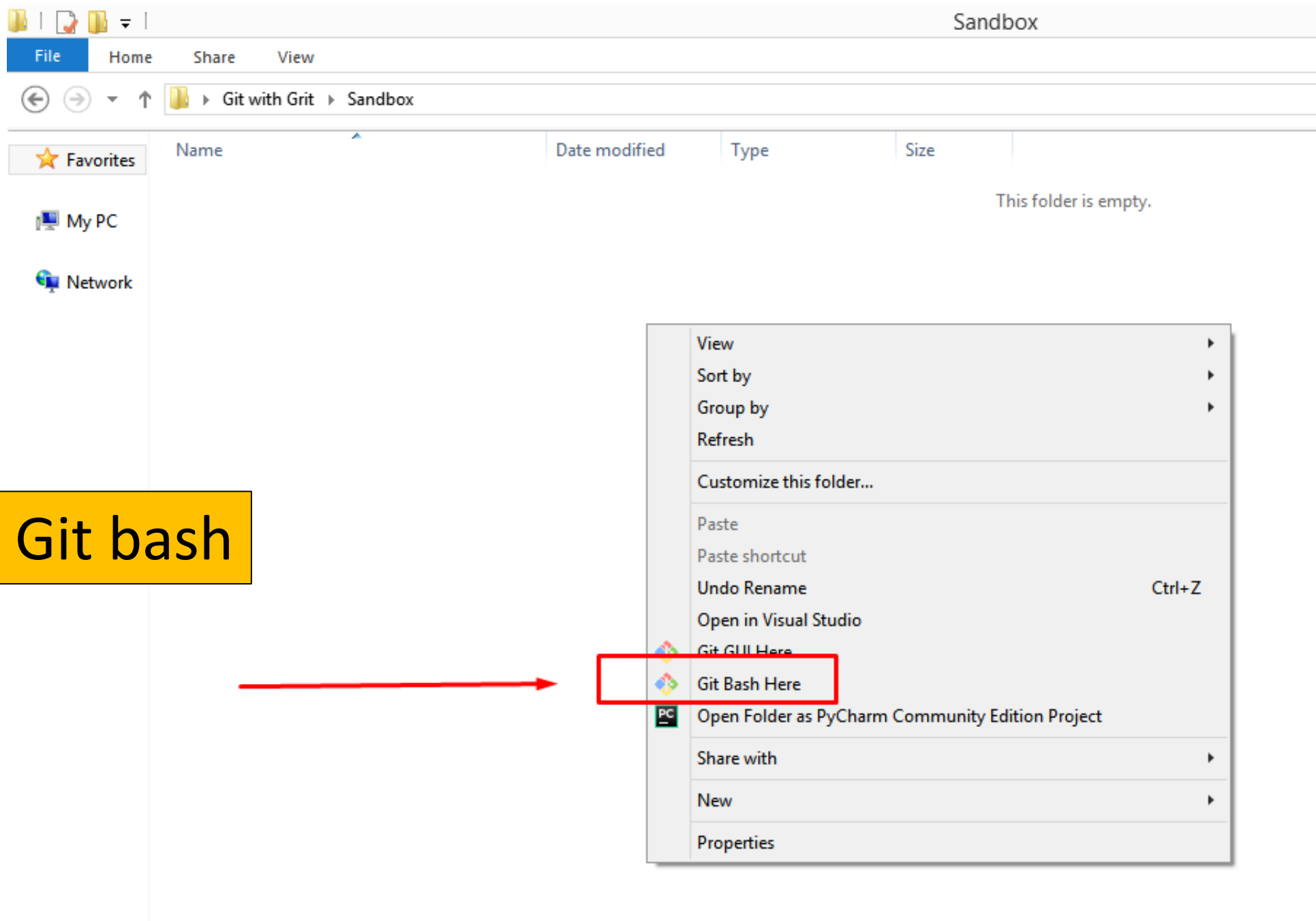
# Git with Grit

A virtual training series on the fundamentals of Git and Github

## DAY-1



# Opening Git bash



Git with Grit > Sandbox

Name

Date modified

Type

Size

This folder is empty.



MINGW64:/c/Users/user/Desktop/Git with Grit/Sandbox



```
user@Iftu-Acer MINGW64 ~/Desktop/Git with Grit/Sandbox  
$
```

# Configuration

```
git config --global user.name "Your Name"      /Set USER NAME/  
git config --global user.email youremail@yourdomain.com  
/Set USER EMAIL/  
git config --global --list /See USER configuration/
```

There are few more features one can configure like editor , color.  
In this session we are concentrating more into the basic operations



```
user@Iftu-Acer MINGW64 ~/Desktop/Git with Grit/Sandbox
```

```
$ git config --global user.name "Iftu"
```

```
user@Iftu-Acer MINGW64 ~/Desktop/Git with Grit/Sandbox
```

```
$ git config --global user.email "iftekheriftu@gmail.com"
```

```
user@Iftu-Acer MINGW64 ~/Desktop/Git with Grit/Sandbox
```

```
$ git config --list --global
```

```
user.email=iftekheriftu@gmail.com
```

```
user.name=Iftu
```

```
gui.recentrepo=C:/Users/user/Desktop/Demo
```

```
filter.lfs.smudge=git-lfs smudge -- %f
```

```
filter.lfs.process=git-lfs filter-process
```

```
filter.lfs.required=true
```

```
filter.lfs.clean=git-lfs clean -- %f
```

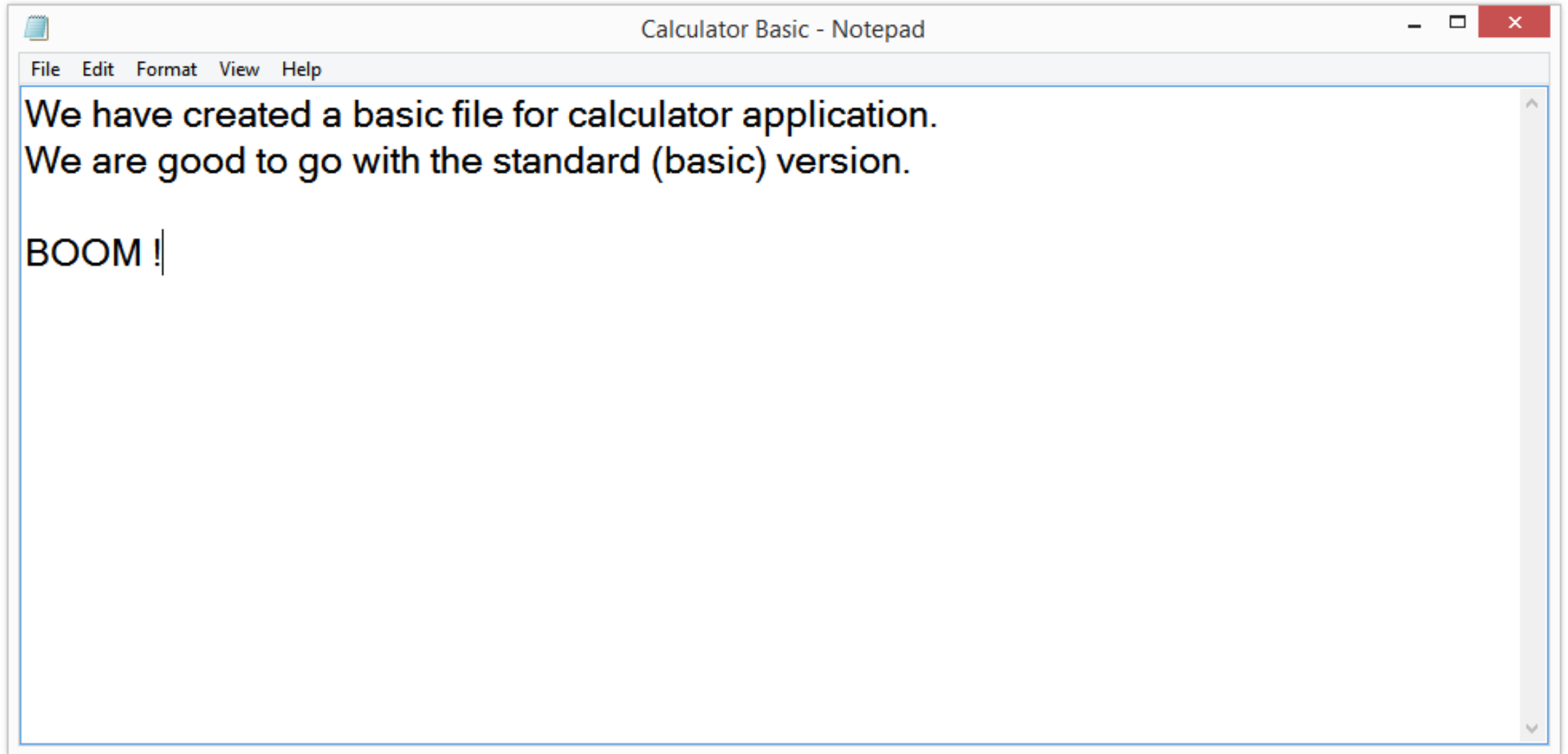
```
user@Iftu-Acer MINGW64 ~/Desktop/Git with Grit/Sandbox
```

```
$
```

# Creating our First file for the project

File Name : Calculator Basic

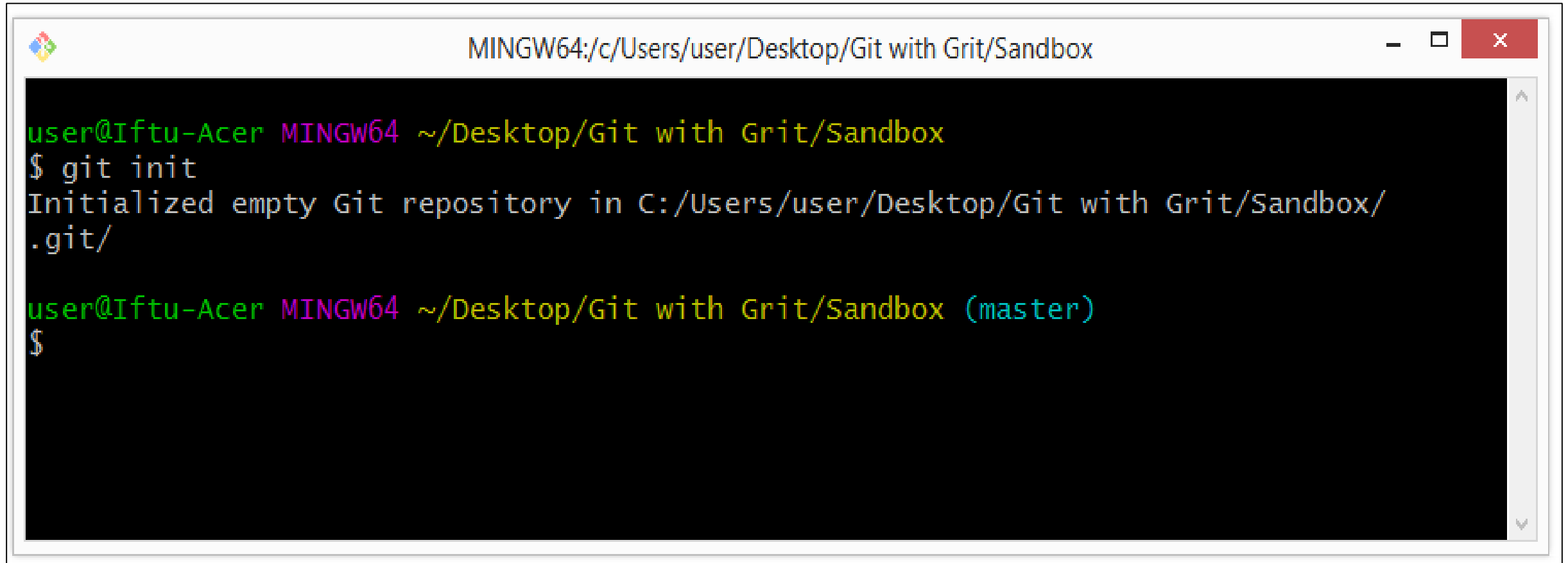
Calculator Basic 12-Feb-21 10:51 AM Text Document 1 KB





## Let's Turn it On : Initialize the Git

```
$ git init
```



```
MINGW64:/c/Users/user/Desktop/Git with Grit/Sandbox

user@Iftu-Acer MINGW64 ~/Desktop/Git with Grit/Sandbox
$ git init
Initialized empty Git repository in C:/Users/user/Desktop/Git with Grit/Sandbox/.git/

user@Iftu-Acer MINGW64 ~/Desktop/Git with Grit/Sandbox (master)
$
```

Sandbox

Share View

Git with Grit Sandbox

Name	Date modified	Type	Size
 .git			
Calculator Basic			1 KB

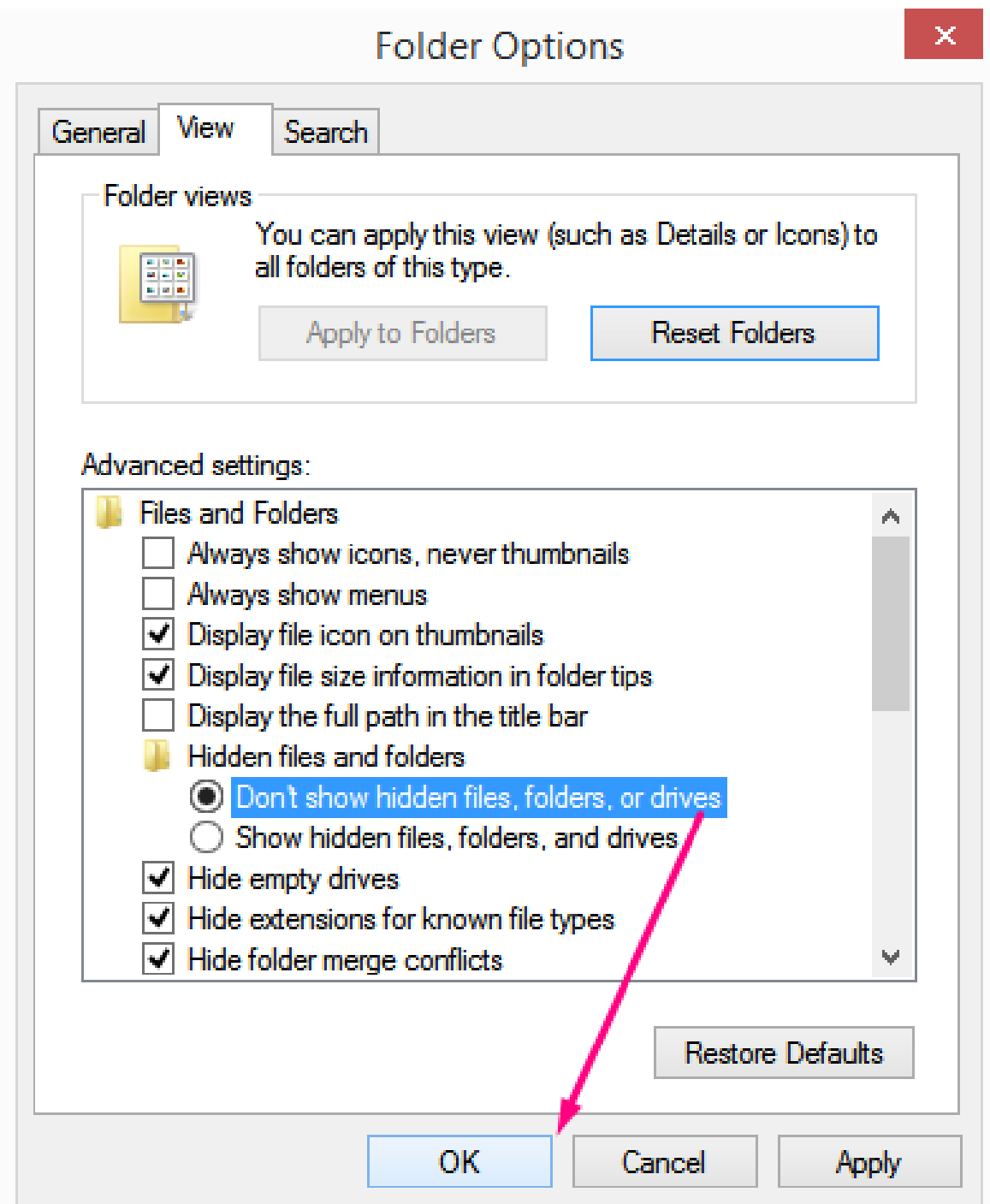
Hidden File

MINGW64:/c/Users/user/Desktop/Git with Grit/Sandbox

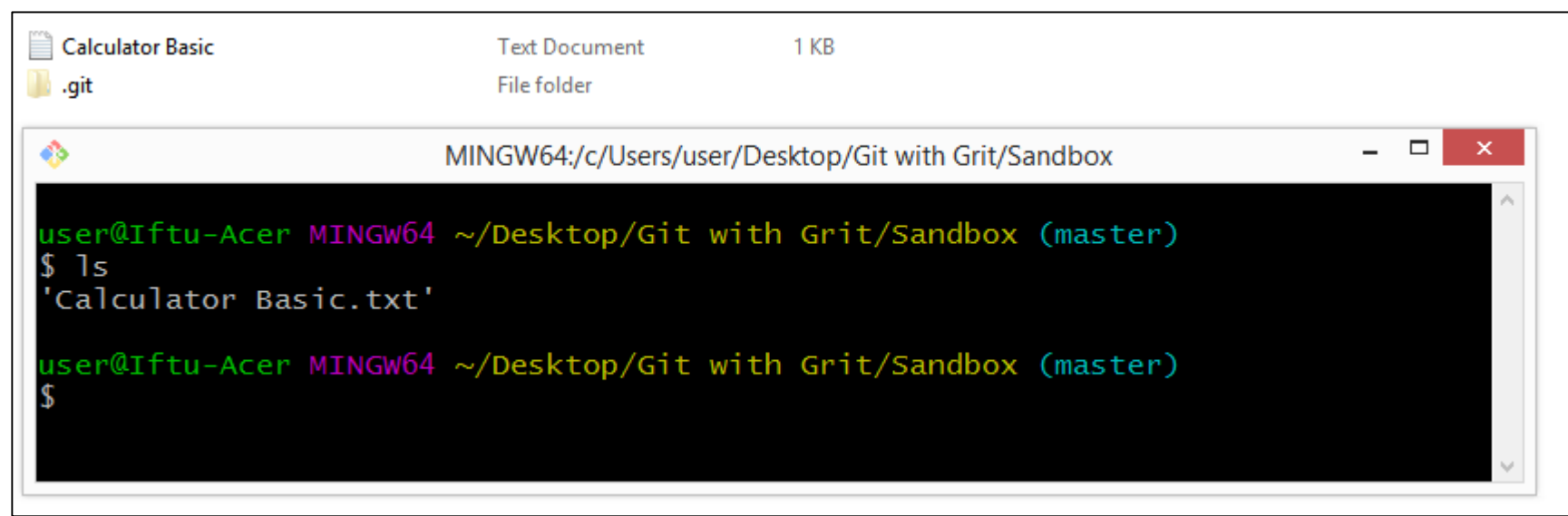
```
user@Iftu-Acer MINGW64 ~/Desktop/Git with Grit/Sandbox
$ git init
Initialized empty Git repository in C:/Users/user/Desktop/Git with Grit/Sandbox/.git/

user@Iftu-Acer MINGW64 ~/Desktop/Git with Grit/Sandbox (master)
$
```

## Regulating hidden files in UI level

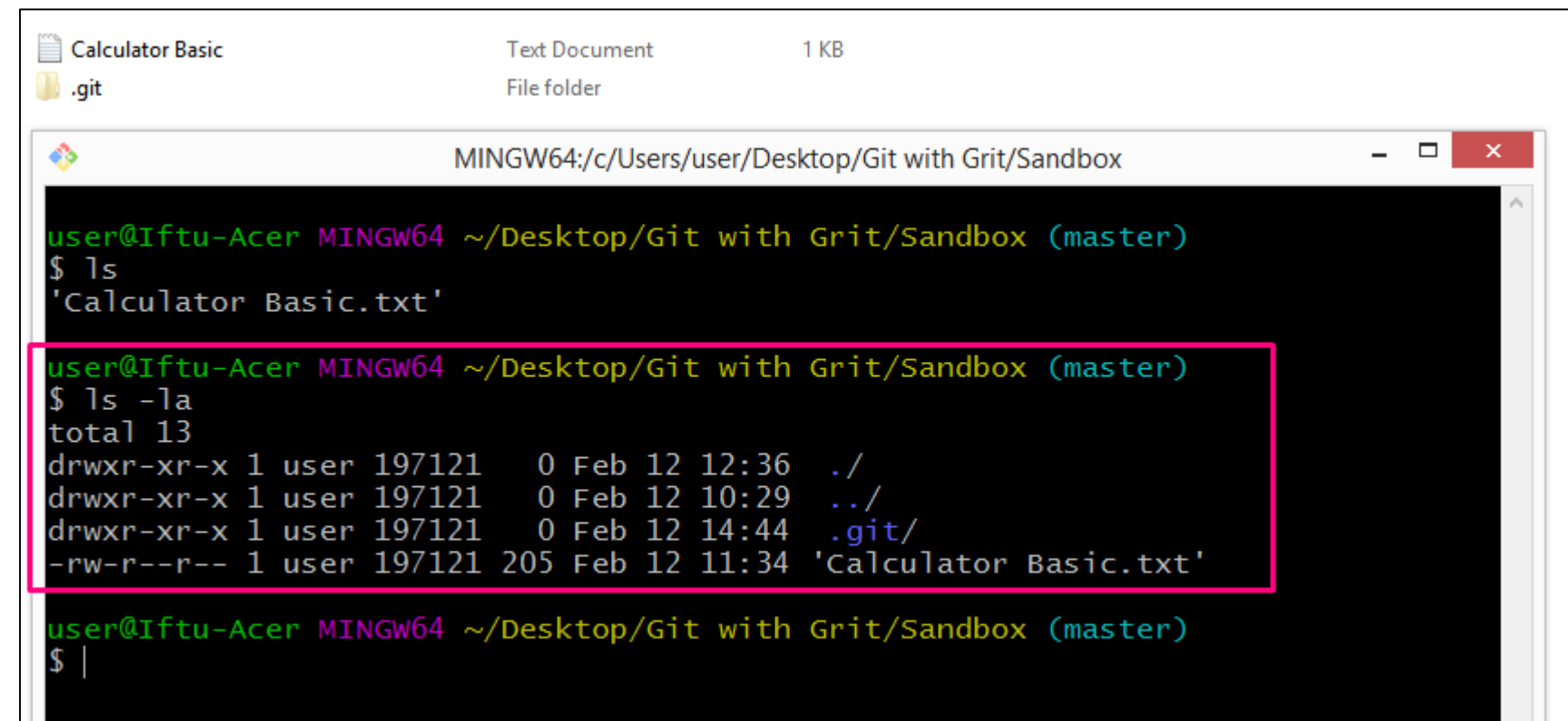


ls



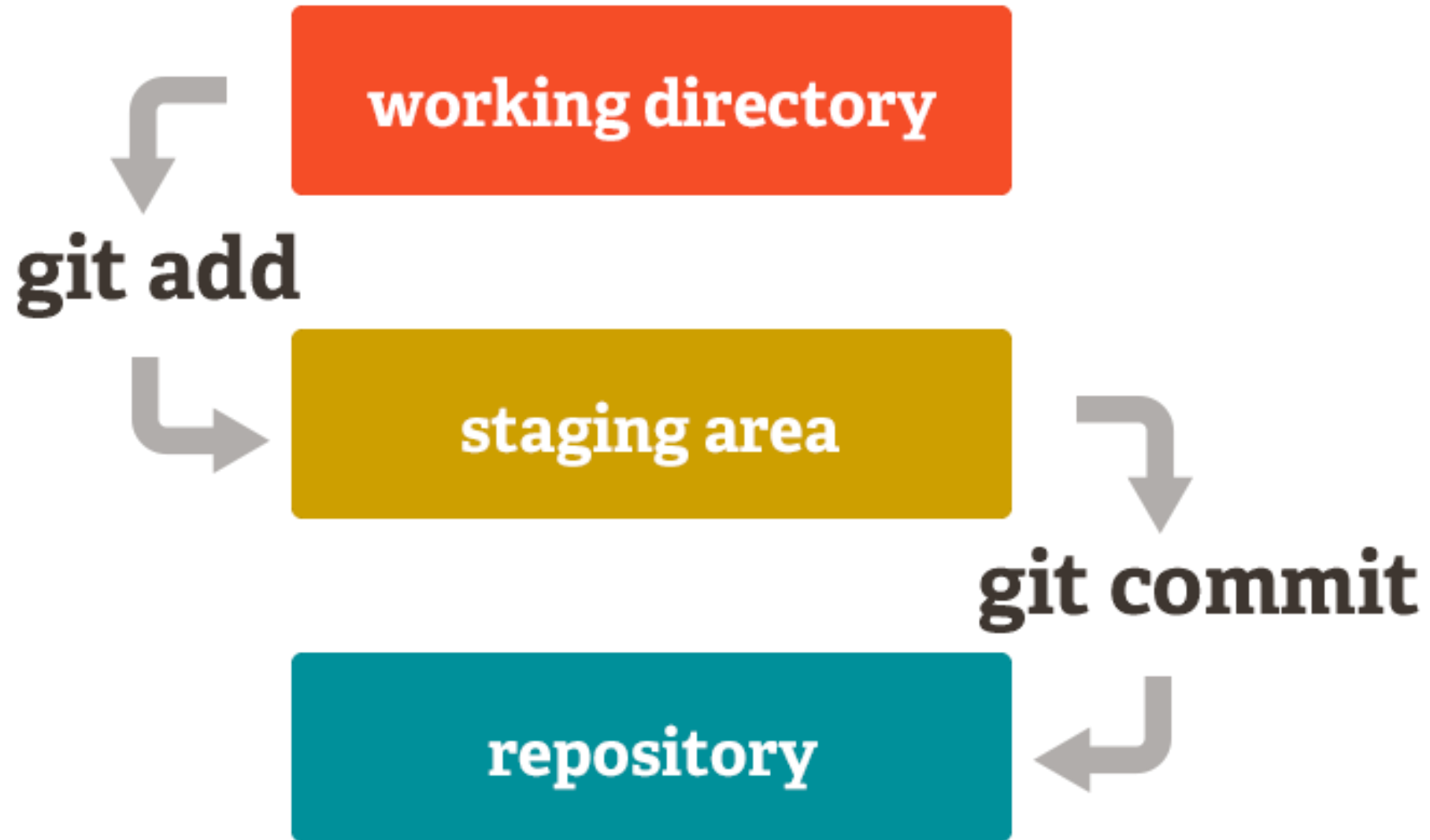
```
user@Iftu-Acer MINGW64 ~/Desktop/Git with Grit/Sandbox (master)
$ ls
'Calculator Basic.txt'
```

ls -la



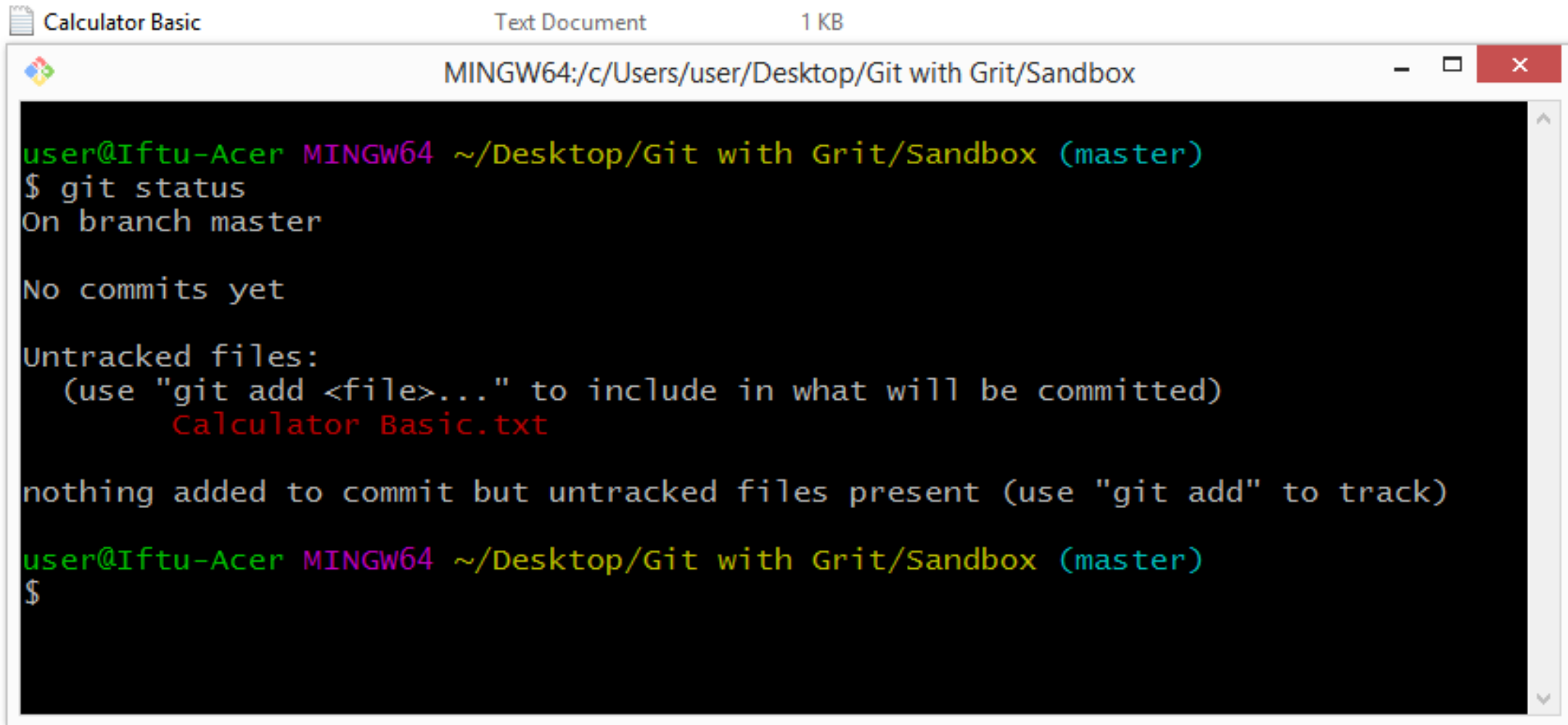
```
user@Iftu-Acer MINGW64 ~/Desktop/Git with Grit/Sandbox (master)
$ ls
'Calculator Basic.txt'

user@Iftu-Acer MINGW64 ~/Desktop/Git with Grit/Sandbox (master)
$ ls -la
total 13
drwxr-xr-x 1 user 197121  0 Feb 12 12:36 ./
drwxr-xr-x 1 user 197121  0 Feb 12 10:29 ../
drwxr-xr-x 1 user 197121  0 Feb 12 14:44 .git/
-rw-r--r-- 1 user 197121 205 Feb 12 11:34 'Calculator Basic.txt'
```



Source : <https://medium.com/@lucasmaurer/git-gud-the-working-tree-staging-area-and-local-repo-a1f0f4822018>

# \$ git status



The image shows a Windows Calculator Basic window titled "Calculator Basic" with a subtitle "Text Document" and a size of "1 KB". The window's address bar displays the path "MINGW64:/c/Users/user/Desktop/Git with Grit/Sandbox". The main content area is a black terminal window with the following text:

```
user@Iftu-Acer MINGW64 ~/Desktop/Git with Grit/Sandbox (master)
$ git status
On branch master

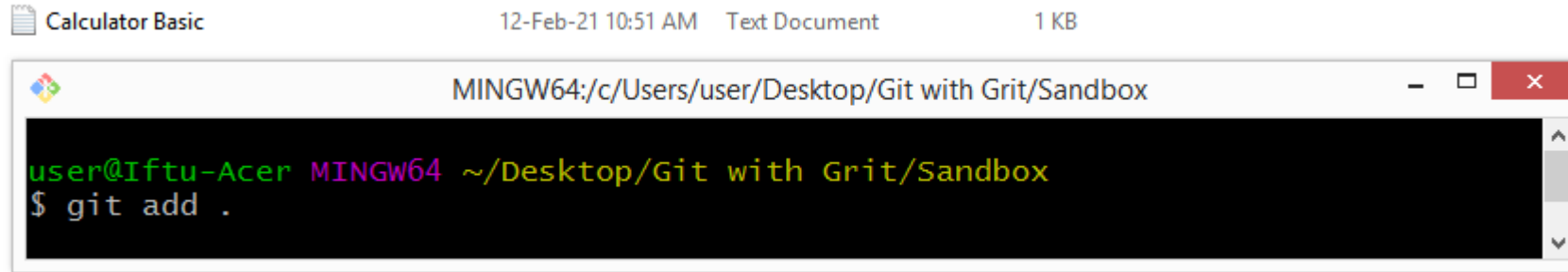
No commits yet

Untracked files:
  (use "git add <file>..." to include in what will be committed)
    Calculator Basic.txt

nothing added to commit but untracked files present (use "git add" to track)

user@Iftu-Acer MINGW64 ~/Desktop/Git with Grit/Sandbox (master)
$
```

\$ git add .

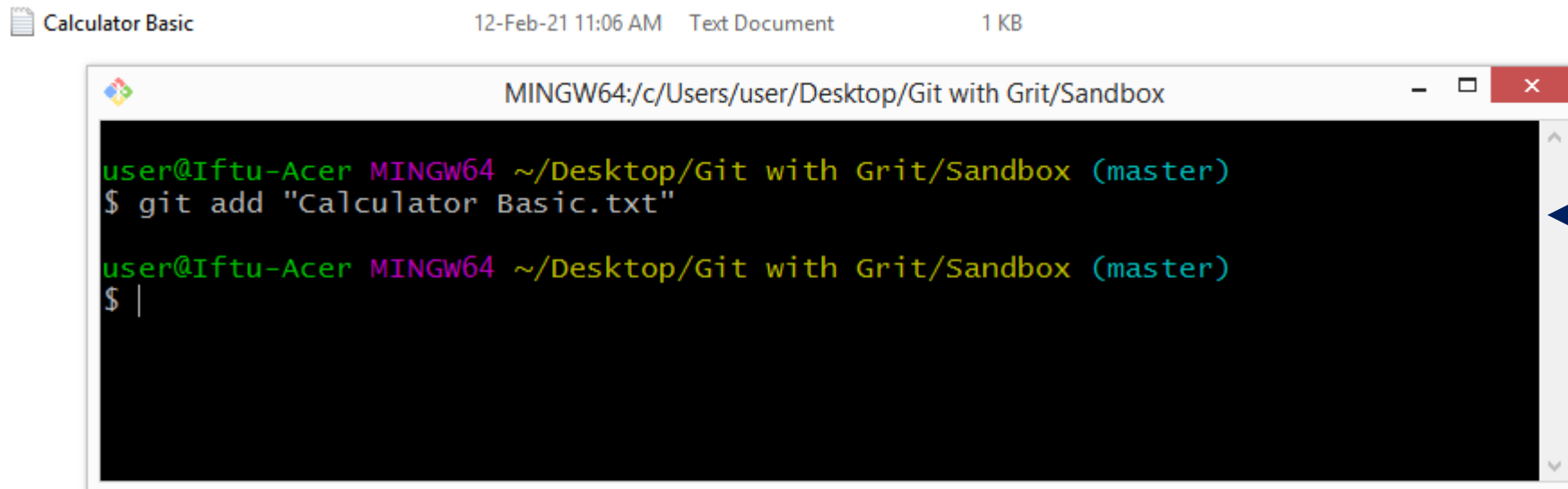


A terminal window titled 'MINGW64:/c/Users/user/Desktop/Git with Grit/Sandbox' showing the command 'user@Iftu-Acer MINGW64 ~/Desktop/Git with Grit/Sandbox \$ git add .' being entered. The window has a standard Windows title bar with minimize, maximize, and close buttons.

Use one of these 2.

**add .** sends all the updates to staging area

\$ git add "File Name.extension"



A terminal window titled 'MINGW64:/c/Users/user/Desktop/Git with Grit/Sandbox' showing two lines of command execution: 'user@Iftu-Acer MINGW64 ~/Desktop/Git with Grit/Sandbox (master) \$ git add "Calculator Basic.txt"' followed by a new prompt 'user@Iftu-Acer MINGW64 ~/Desktop/Git with Grit/Sandbox (master) \$ |'. The window has a standard Windows title bar.

**add "filename.ext"** sends specifically that file to staging

# \$ git status



The image shows a Windows file explorer window with 'Calculator Basic' (1 KB) and a terminal window. The terminal window title is 'MINGW64:/c/Users/user/Desktop/Git with Grit/Sandbox'. The terminal output is as follows:

```
user@Iftu-Acer MINGW64 ~/Desktop/Git with Grit/Sandbox (master)
$ git status
On branch master

No commits yet

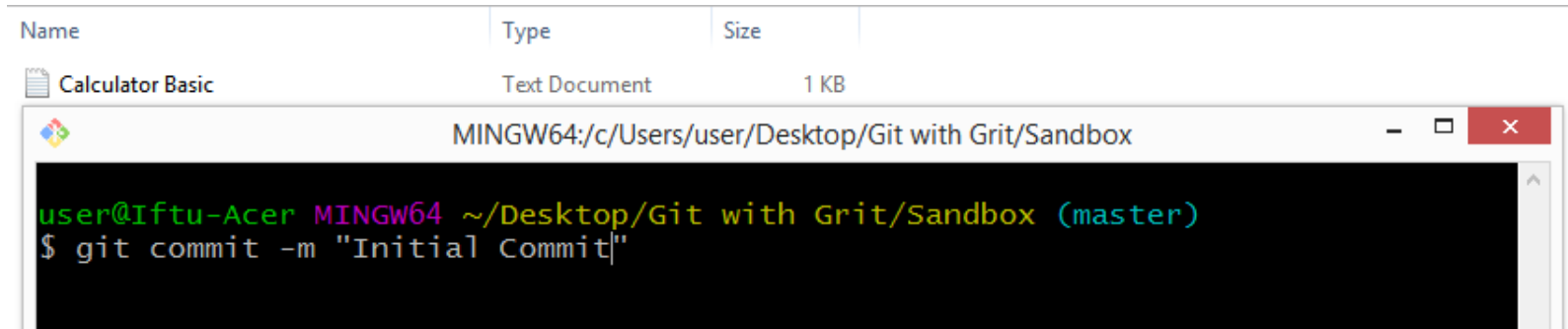
Changes to be committed:
  (use "git rm --cached <file>..." to unstage)
    new file:   Calculator Basic.txt

user@Iftu-Acer MINGW64 ~/Desktop/Git with Grit/Sandbox (master)
$ |
```

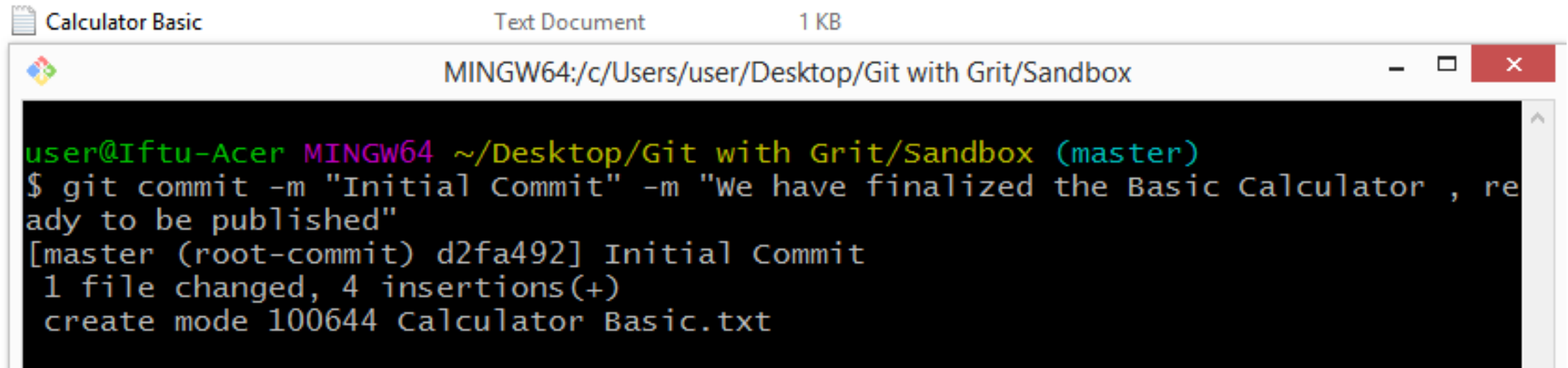
“Changes to be committed” – Oh Sure !



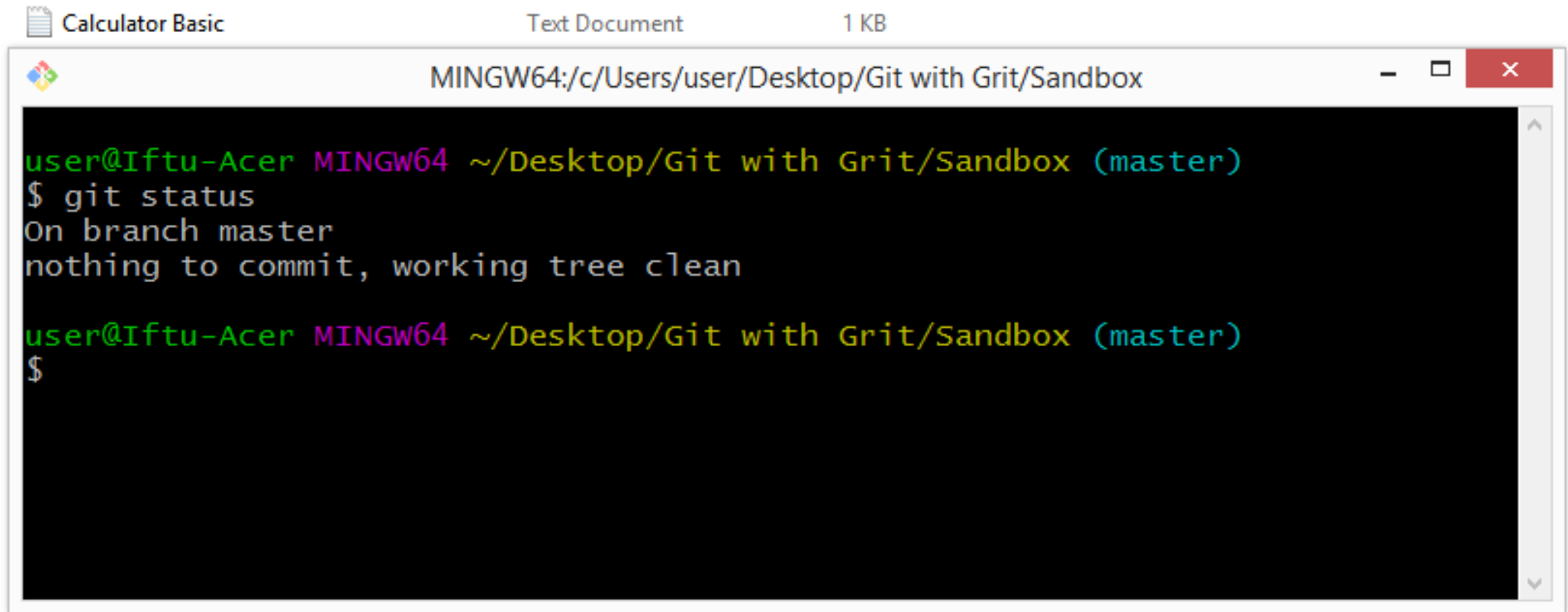
\$ git commit -m "Short Commit Message"



\$ git commit -m "Short Commit Message" -m "Detailed Explanation"



# \$ git status



The screenshot shows a Windows desktop with a 'Calculator Basic' window and a 'Text Document' window. The 'Text Document' window is titled 'MINGW64:/c/Users/user/Desktop/Git with Grit/Sandbox' and contains a terminal window. The terminal window has a black background and displays the following text:

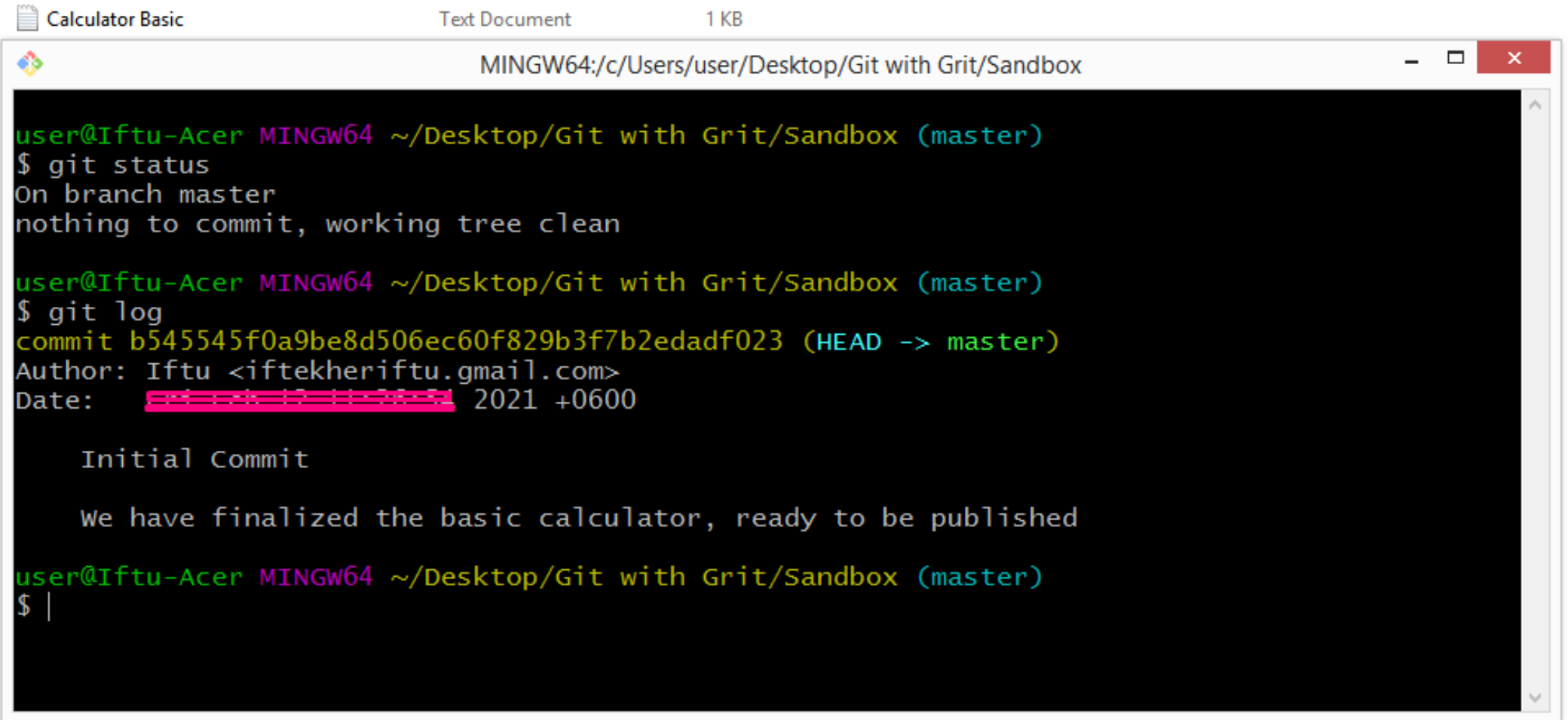
```
user@Iftu-Acer MINGW64 ~/Desktop/Git with Grit/Sandbox (master)
$ git status
On branch master
nothing to commit, working tree clean

user@Iftu-Acer MINGW64 ~/Desktop/Git with Grit/Sandbox (master)
$
```

Phew ! Commits got in

Let's See how far we have come : LOG

\$ git log



The screenshot shows a Windows terminal window titled "MINGW64:/c/Users/user/Desktop/Git with Grit/Sandbox". The window has a standard Windows title bar with minimize, maximize, and close buttons. The terminal output is as follows:

```
user@Iftu-Acer MINGW64 ~/Desktop/Git with Grit/Sandbox (master)
$ git status
On branch master
nothing to commit, working tree clean

user@Iftu-Acer MINGW64 ~/Desktop/Git with Grit/Sandbox (master)
$ git log
commit b545545f0a9be8d506ec60f829b3f7b2edadf023 (HEAD -> master)
Author: Iftu <iftekeriftu@gmail.com>
Date: 2021-07-17 11:38:52 2021 +0600

    Initial Commit

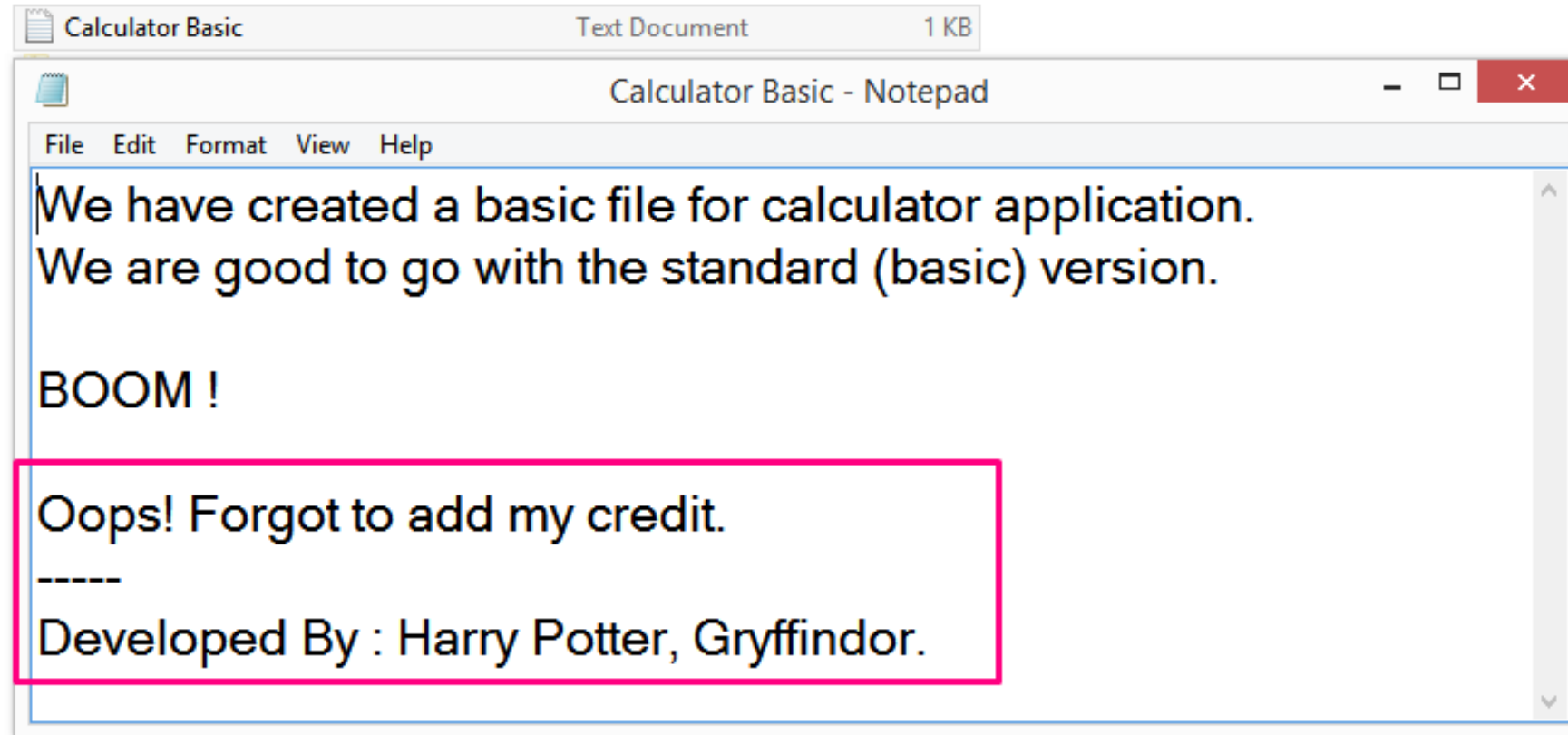
    We have finalized the basic calculator, ready to be published

user@Iftu-Acer MINGW64 ~/Desktop/Git with Grit/Sandbox (master)
$ |
```

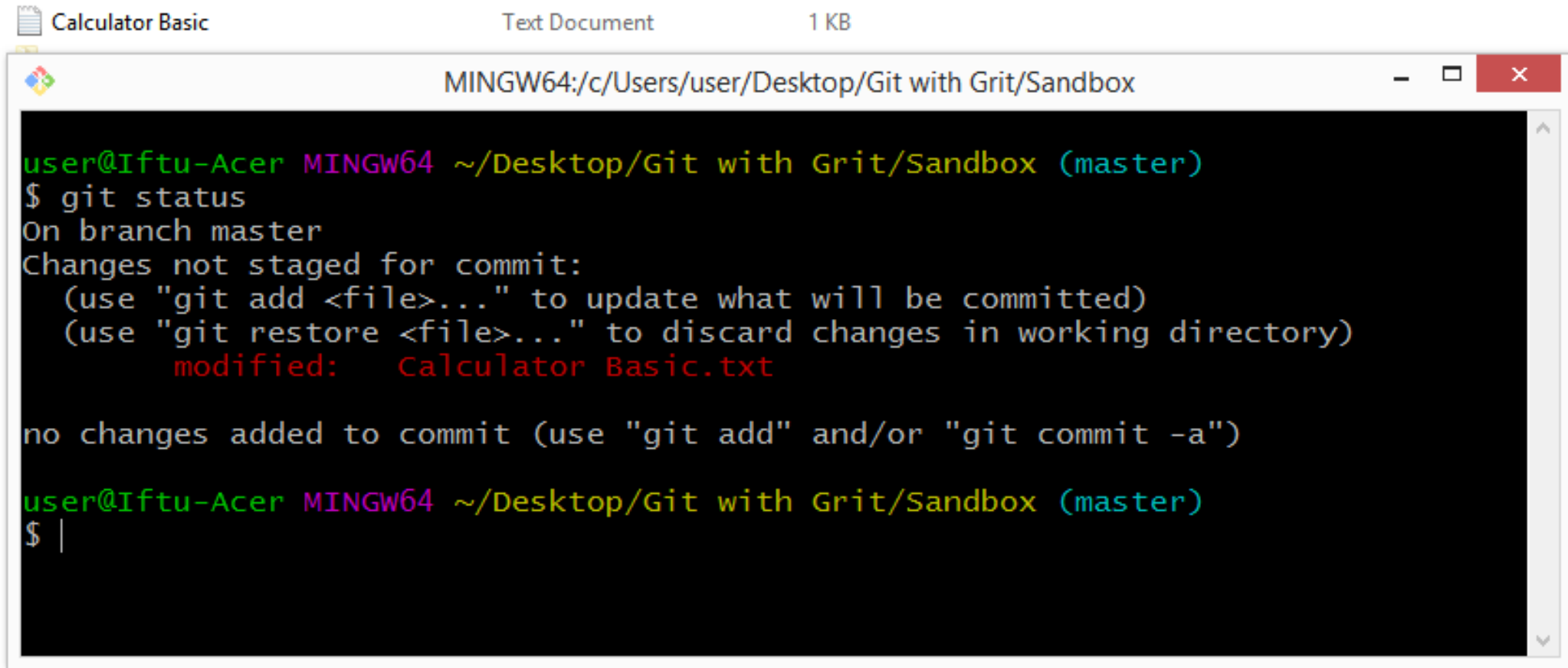
Each Commit has unique Hash

SHA - Secure Hash Algorithm

# Time to see if Git can actually TRACK CHANGES



# \$ git status



The image shows a Windows file explorer window at the top with the title 'Calculator Basic', 'Text Document', and '1 KB'. Below it is a terminal window titled 'MINGW64:/c/Users/user/Desktop/Git with Grit/Sandbox'. The terminal output shows the command 'git status' being executed, resulting in the message 'On branch master' and 'Changes not staged for commit:'. It lists 'modified: Calculator Basic.txt' and provides instructions on how to stage changes. The prompt '\$ |' is visible at the bottom of the terminal.

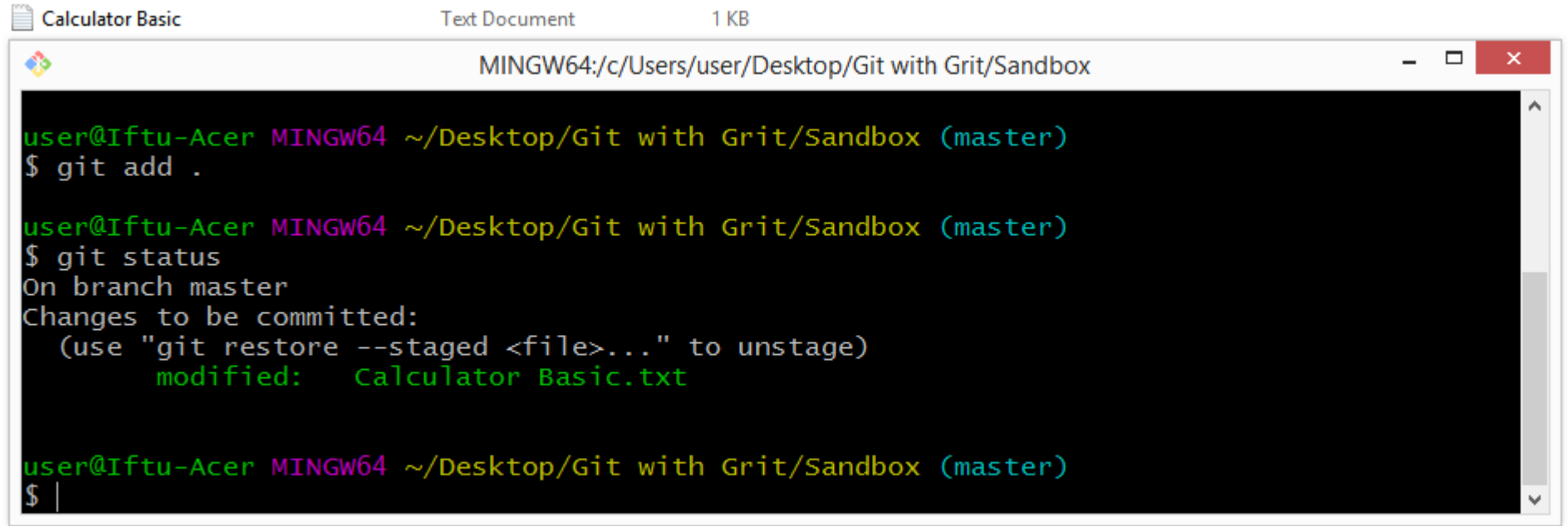
```
user@Iftu-Acer MINGW64 ~/Desktop/Git with Grit/Sandbox (master)
$ git status
On branch master
Changes not staged for commit:
  (use "git add <file>..." to update what will be committed)
  (use "git restore <file>..." to discard changes in working directory)
        modified:   Calculator Basic.txt

no changes added to commit (use "git add" and/or "git commit -a")

user@Iftu-Acer MINGW64 ~/Desktop/Git with Grit/Sandbox (master)
$ |
```

There you go ! Git knows that you modified this file ...

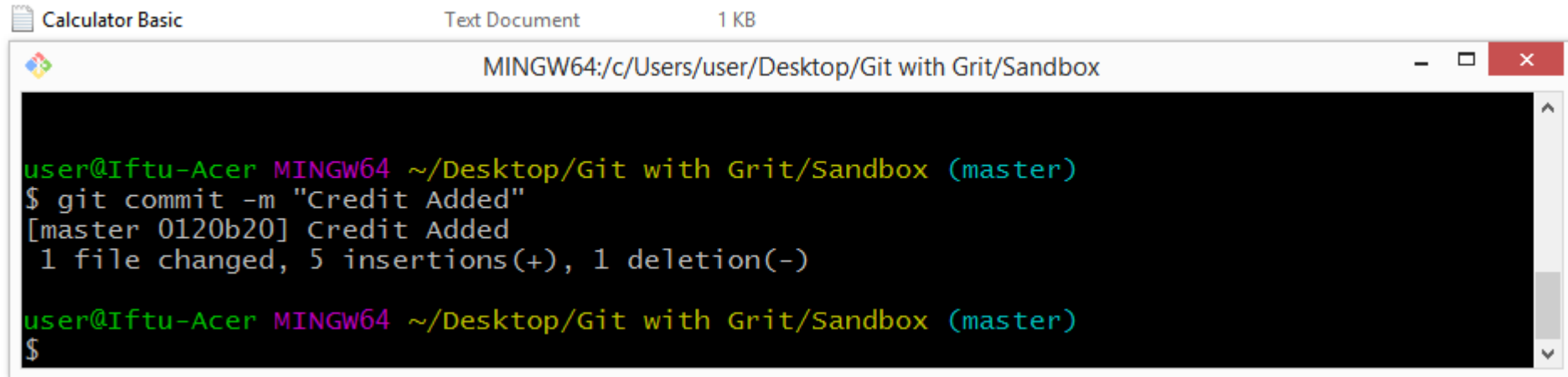
```
$ git add .  
$ git status
```



A terminal window titled "MINGW64:/c/Users/user/Desktop/Git with Grit/Sandbox" with standard Windows window controls. The terminal shows the following commands and output:

```
user@Iftu-Acer MINGW64 ~/Desktop/Git with Grit/Sandbox (master)  
$ git add .  
  
user@Iftu-Acer MINGW64 ~/Desktop/Git with Grit/Sandbox (master)  
$ git status  
On branch master  
Changes to be committed:  
  (use "git restore --staged <file>..." to unstage)  
        modified:   Calculator Basic.txt  
  
user@Iftu-Acer MINGW64 ~/Desktop/Git with Grit/Sandbox (master)  
$ |
```

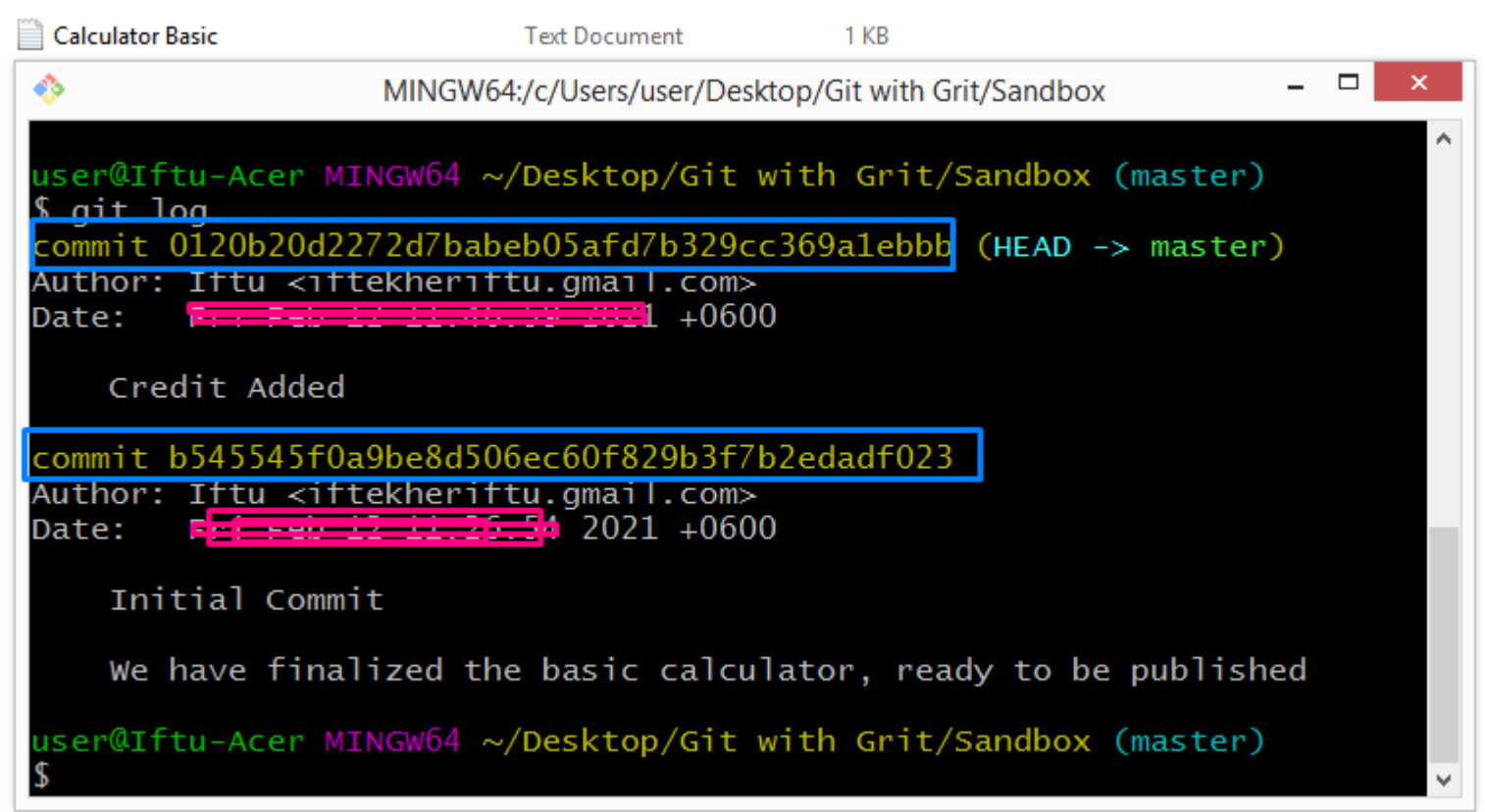
```
$ git commit
```



A terminal window titled "MINGW64:/c/Users/user/Desktop/Git with Grit/Sandbox" with standard Windows window controls. The terminal shows the following commands and output:

```
user@Iftu-Acer MINGW64 ~/Desktop/Git with Grit/Sandbox (master)  
$ git commit -m "Credit Added"  
[master 0120b20] Credit Added  
 1 file changed, 5 insertions(+), 1 deletion(-)  
  
user@Iftu-Acer MINGW64 ~/Desktop/Git with Grit/Sandbox (master)  
$
```

\$ git log



```
user@Iftu-Acer MINGW64 ~/Desktop/Git with Grit/Sandbox (master)
$ git log
commit 0120b20d2272d7babeb05afd7b329cc369a1ebbb (HEAD -> master)
Author: Iftu <iftekherriftu@gmail.com>
Date: Feb 12 2021 +0600

    Credit Added

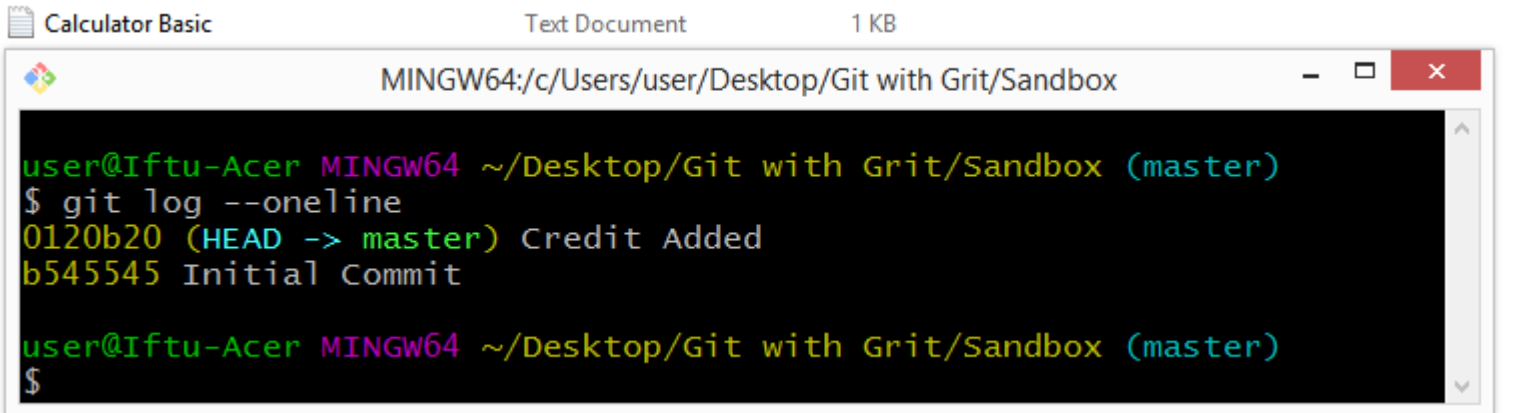
commit b545545f0a9be8d506ec60f829b3f7b2edadf023
Author: Iftu <iftekherriftu@gmail.com>
Date: Feb 12 2021 +0600

    Initial Commit

    We have finalized the basic calculator, ready to be published

user@Iftu-Acer MINGW64 ~/Desktop/Git with Grit/Sandbox (master)
$
```

\$ git log --oneline



```
user@Iftu-Acer MINGW64 ~/Desktop/Git with Grit/Sandbox (master)
$ git log --oneline
0120b20 (HEAD -> master) Credit Added
b545545 Initial Commit

user@Iftu-Acer MINGW64 ~/Desktop/Git with Grit/Sandbox (master)
$
```



Let's

Compare

changes

\$ git diff b545545 0120b20

```
Calculator Basic      Text Document      1 KB
MINGW64:/c/Users/user/Desktop/Git with Grit/Sandbox
user@Iftu-Acer MINGW64 ~/Desktop/Git with Grit/Sandbox (master)
$ git log --oneline
0120b20 (HEAD -> master) Credit Added
b545545 Initial Commit

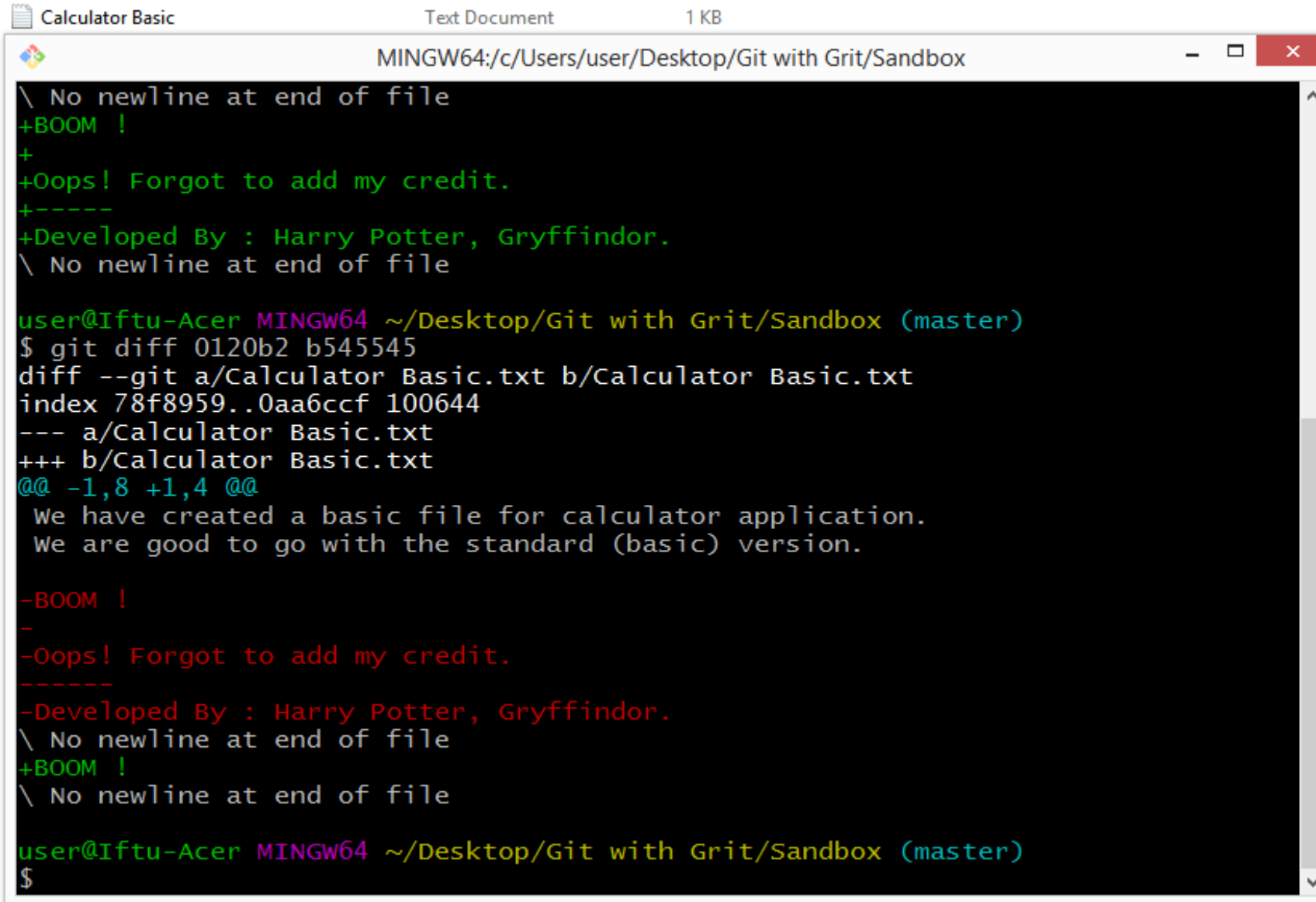
user@Iftu-Acer MINGW64 ~/Desktop/Git with Grit/Sandbox (master)
$ git diff |

user@Iftu-Acer MINGW64 ~/Desktop/Git with Grit/Sandbox (master)
$ git diff b545545 0120b20
diff --git a/Calculator Basic.txt b/Calculator Basic.txt
index 0aa6ccf..78f8959 100644
--- a/Calculator Basic.txt
+++ b/Calculator Basic.txt
@@ -1,4 +1,8 @@
  We have created a basic file for calculator application.
  We are good to go with the standard (basic) version.

-BOOM !
\ No newline at end of file
+BOOM !
+
+Oops! Forgot to add my credit.
+-----
+Developed By : Harry Potter, Gryffindor.
\ No newline at end of file

user@Iftu-Acer MINGW64 ~/Desktop/Git with Grit/Sandbox (master)
$ |
```

```
$ git diff 0120b20 b545545
```



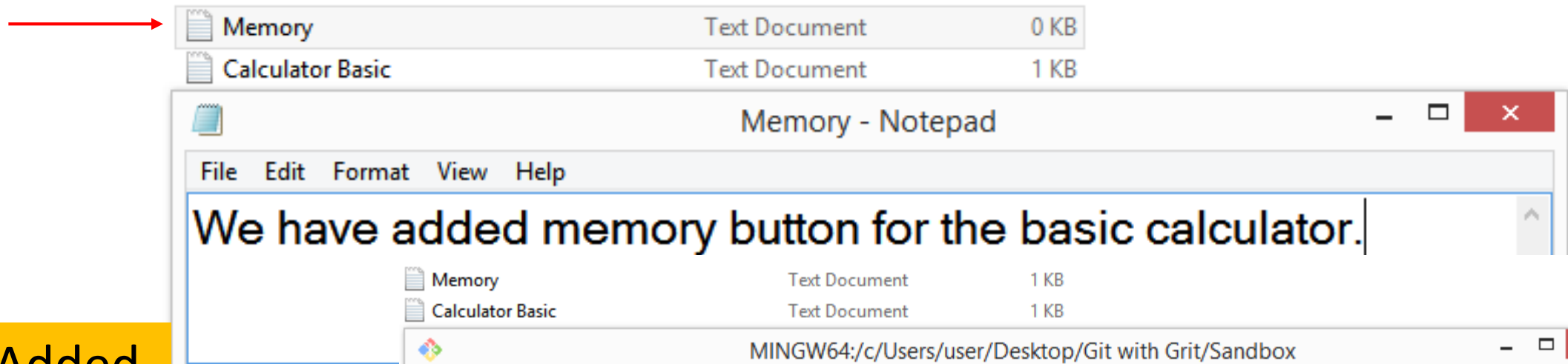
The screenshot shows a Windows terminal window titled "MINGW64:/c/Users/user/Desktop/Git with Grit/Sandbox". The window contains the output of a git diff command. The output shows a comparison between two versions of a file, highlighting changes in green for additions and red for deletions. The changes include a new line at the end of the file, a line about a boom, a line about forgetting to add credit, and a line about the developer's name. The output also shows the file's index and the paths of the files being compared.

```
Calculator Basic      Text Document      1 KB
MINGW64:/c/Users/user/Desktop/Git with Grit/Sandbox
\ No newline at end of file
+BOOM !
+
+Oops! Forgot to add my credit.
+-----
+Developed By : Harry Potter, Gryffindor.
\ No newline at end of file

user@Iftu-Acer MINGW64 ~/Desktop/Git with Grit/Sandbox (master)
$ git diff 0120b2 b545545
diff --git a/Calculator Basic.txt b/Calculator Basic.txt
index 78f8959..0aa6ccf 100644
--- a/Calculator Basic.txt
+++ b/Calculator Basic.txt
@@ -1,8 +1,4 @@
 We have created a basic file for calculator application.
 We are good to go with the standard (basic) version.

-BOOM !
-
-Oops! Forgot to add my credit.
-----
-Developed By : Harry Potter, Gryffindor.
\ No newline at end of file
+BOOM !
\ No newline at end of file

user@Iftu-Acer MINGW64 ~/Desktop/Git with Grit/Sandbox (master)
$
```




New File Added  
in the directory

```
$ git add .  
$ git status  
$ git commit
```

```
MINGW64:/c/Users/user/Desktop/Git with Grit/Sandbox  
user@Iftu-Acer MINGW64 ~/Desktop/Git with Grit/Sandbox (master)  
$ git status  
On branch master  
Untracked files:  
  (use "git add <file>..." to include in what will be committed)  
    Memory.txt  
  
nothing added to commit but untracked files present (use "git add" to track)  
user@Iftu-Acer MINGW64 ~/Desktop/Git with Grit/Sandbox (master)  
$ git add .  
user@Iftu-Acer MINGW64 ~/Desktop/Git with Grit/Sandbox (master)  
$ git commit -m "Memory Added"  
[master 6ec30b2] Memory Added  
1 file changed, 1 insertion(+)  
create mode 100644 Memory.txt  
user@Iftu-Acer MINGW64 ~/Desktop/Git with Grit/Sandbox (master)  
$
```


# What about Deleting files ?

```
$ git rm "Memory.txt"
```


 Calculator Basic

Text Document

1 KB

 .git

File folder



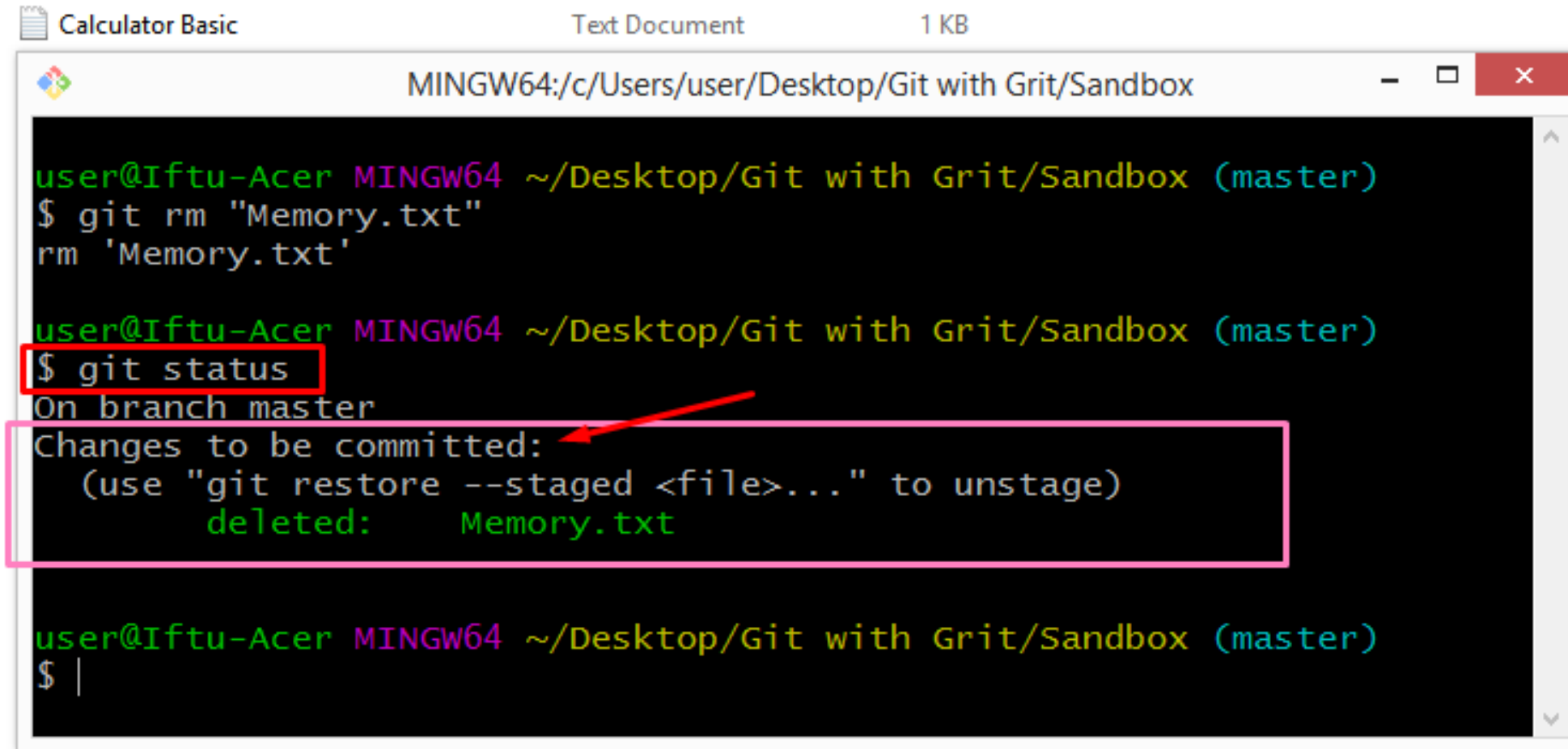
```
MINGW64:/c/Users/user/Desktop/Git with Grit/Sandbox
user@Iftu-Acer MINGW64 ~/Desktop/Git with Grit/Sandbox (master)
$ git rm "Memory.txt"
rm 'Memory.txt'

user@Iftu-Acer MINGW64 ~/Desktop/Git with Grit/Sandbox (master)
$
```

# The deletion snap needs to be Committed as well

---

```
$ git status
```



The screenshot shows a Windows terminal window titled "MINGW64:/c/Users/user/Desktop/Git with Grit/Sandbox". The window contains the following text:

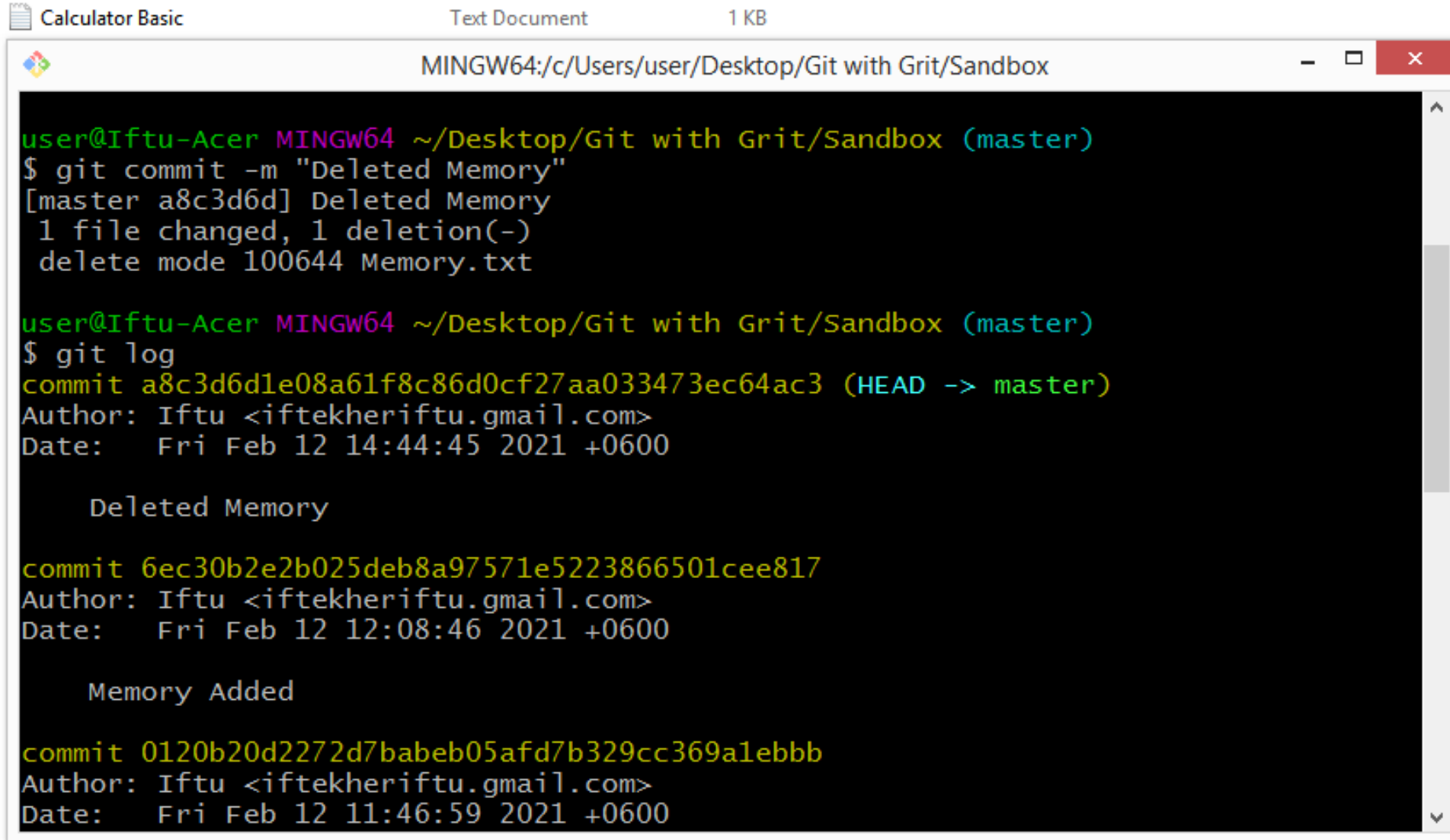
```
user@Iftu-Acer MINGW64 ~/Desktop/Git with Grit/Sandbox (master)
$ git rm "Memory.txt"
rm 'Memory.txt'

user@Iftu-Acer MINGW64 ~/Desktop/Git with Grit/Sandbox (master)
$ git status
On branch master
Changes to be committed:
  (use "git restore --staged <file>..." to unstage)
        deleted:    Memory.txt

user@Iftu-Acer MINGW64 ~/Desktop/Git with Grit/Sandbox (master)
$ |
```

Annotations in the image include a red box around the command `$ git status`, a pink box around the output section starting with "Changes to be committed:", and a red arrow pointing from the pink box to the text "(use 'git restore --staged <file>...' to unstage)".

# Add and Commit



```
user@Iftu-Acer MINGW64 ~/Desktop/Git with Grit/Sandbox (master)
$ git commit -m "Deleted Memory"
[master a8c3d6d] Deleted Memory
1 file changed, 1 deletion(-)
delete mode 100644 Memory.txt

user@Iftu-Acer MINGW64 ~/Desktop/Git with Grit/Sandbox (master)
$ git log
commit a8c3d6d1e08a61f8c86d0cf27aa033473ec64ac3 (HEAD -> master)
Author: Iftu <iftekeriftu@gmail.com>
Date:   Fri Feb 12 14:44:45 2021 +0600

    Deleted Memory

commit 6ec30b2e2b025deb8a97571e5223866501cee817
Author: Iftu <iftekeriftu@gmail.com>
Date:   Fri Feb 12 12:08:46 2021 +0600

    Memory Added

commit 0120b20d2272d7babeb05afd7b329cc369a1ebbb
Author: Iftu <iftekeriftu@gmail.com>
Date:   Fri Feb 12 11:46:59 2021 +0600
```

What if we want to view only the last few Commits history from log ?

**\$ git log -n**

git log -1 //shows the last commit  
git log -2 //shows the last 2 commits

Name	Type	Size
Calculator Basic	Text Document	1 KB
.git	File folder	

**\$ git log -1**

```
MINGW64:/c/Users/user/Desktop/Git with Grit/Sandbox
user@Iftu-Acer MINGW64 ~/Desktop/Git with Grit/Sandbox (master)
$ git log --oneline
a8c3d6d (HEAD -> master) Deleted Memory
6ec30b2 Memory Added
0120b20 Credit Added
b545545 Initial Commit

user@Iftu-Acer MINGW64 ~/Desktop/Git with Grit/Sandbox (master)
$ git log -1
commit a8c3d6d1e08a61f8c86d0cf27aa033473ec64ac3 (HEAD -> master)
Author: Iftu <iftekherriftu@gmail.com>
Date:   Fri Feb 12 14:44:45 2021 +0600

    Deleted Memory

user@Iftu-Acer MINGW64 ~/Desktop/Git with Grit/Sandbox (master)
$
```



## Getting the details of a Commit

\$ git show

```
MINGW64:/c/Users/user/Desktop/Git with Grit/Sandbox
We have finalized the basic calculator, ready to be published

user@Iftu-Acer MINGW64 ~/Desktop/Git with Grit/Sandbox (master)
$ git log --oneline
a8c3d6d (HEAD -> master) Deleted Memory
6ec30b2 Memory Added
0120b20 Credit Added
b545545 Initial Commit

user@Iftu-Acer MINGW64 ~/Desktop/Git with Grit/Sandbox (master)
$ git log -1
commit a8c3d6d1e08a61f8c86d0cf27aa033473ec64ac3 (HEAD -> master)
Author: Iftu <iftekherriftu@gmail.com>
Date:   Fri Feb 12 14:44:45 2021 +0600

    Deleted Memory

user@Iftu-Acer MINGW64 ~/Desktop/Git with Grit/Sandbox (master)
$ git show 6ec30b2
commit 6ec30b2e2b025deb8a97571e5223866501cee817
Author: Iftu <iftekherriftu@gmail.com>
Date:   Fri Feb 12 12:08:46 2021 +0600

    Memory Added

diff --git a/Memory.txt b/Memory.txt
new file mode 100644
index 0000000..27a5f82
--- /dev/null
+++ b/Memory.txt
@@ -0,0 +1 @@
+We have added memory button for the basic calculator.
\ No newline at end of file
```

*Gracias*

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