

Zaawansowane Praktyki Programistyczne

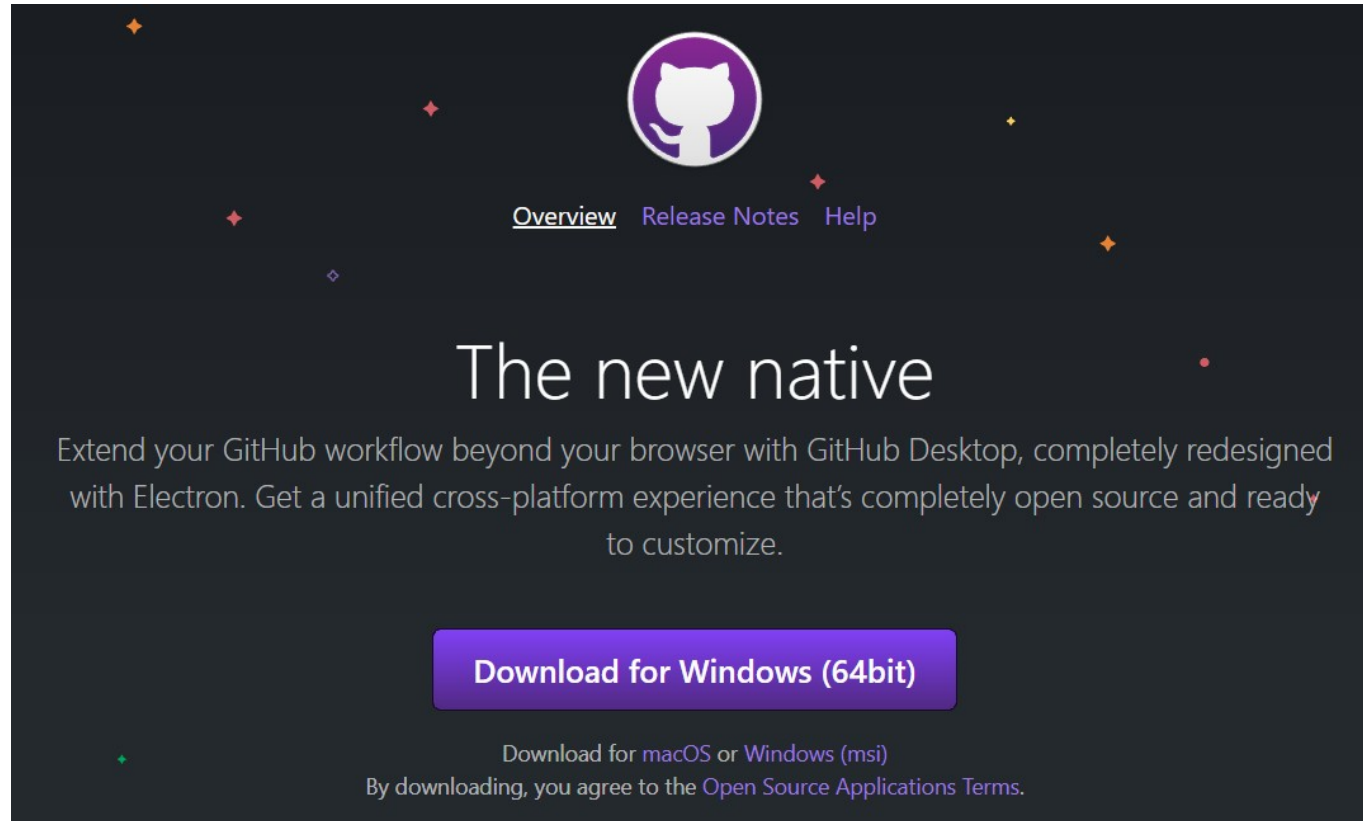
Wykład 1

Git – system wersjonowania projektu

Dr inż. Jakub Długosz
jdlugosz@horyzont.eu




Pobieranie GitHub desktop



<https://desktop.github.com/>

Projekt Git for Windows



git for windows

VERSION 2.19.0

[FAQ](#) [REPOSITORY](#) [MAILING LIST](#)

We bring the awesome
Git SCM to Windows

[Download](#) [Contribute](#)

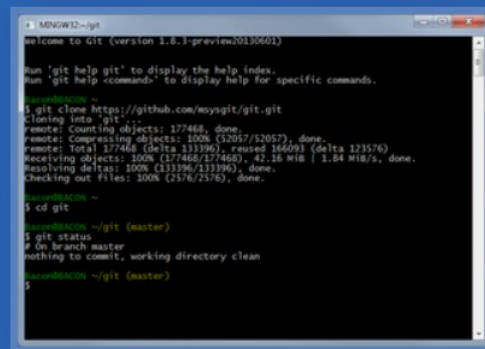
<https://gitforwindows.org/>

Projekt Git for Windows c.d.

Git for Windows focuses on offering a lightweight, native set of tools that bring the full feature set of the [Git SCM](#) to Windows while providing appropriate user interfaces for experienced Git users and novices alike.

Git BASH

Git for Windows provides a BASH emulation used to run Git from the command line. *NIX users should feel right at home, as the BASH emulation behaves just like the "git" command in LINUX and UNIX environments.



```
MINGW32~git
Welcome to Git (version 1.8.1-preview20130601)

Run 'git help git' to display the help index.
Run 'git help <command>' to display help for specific commands.

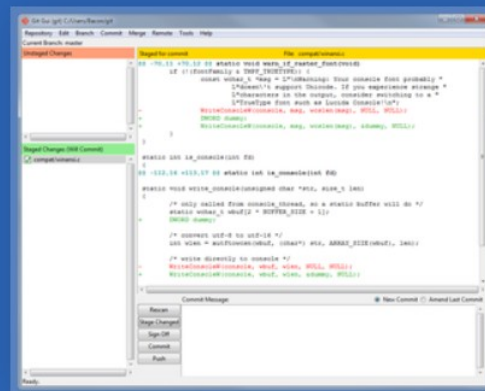
$ git clone https://github.com/msysgit/git.git
Cloning into 'git'...
remote: Counting objects: 177468, done.
remote: Compressing objects: 100% (32037/32037), done.
remote: Total 177468 (delta 133396), reused 166091 (delta 123576)
Receiving objects: 100% (177468/177468), 42.15 MiB | 1.84 MiB/s, done.
Resolving deltas: 100% (33336/33336), done.
Checking out files: 100% (2576/2576), done.

$ cd git
$ git status
# on branch master
nothing to commit, working directory clean

$
```

Git GUI

As Windows users commonly expect graphical user interfaces, Git for Windows also provides the Git GUI, a powerful alternative to Git BASH, offering a graphical version of just about every Git command line function, as well as comprehensive visual diff tools.



Shell Integration

Simply right-click on a folder in Windows Explorer to access the BASH or GUI.

<https://gitforwindows.org/>

Pobieranie samego Git-a dla Windows

Downloading Git



Your download is starting...

You are downloading the latest (**2.19.0**) **64-bit** version of **Git for Windows**. This is the most recent [maintained build](#). It was released **22 days ago**, on 2018-09-13.

If your download hasn't started, [click here to download manually](#).

Other Git for Windows downloads

Git for Windows Setup

[32-bit Git for Windows Setup](#).

[64-bit Git for Windows Setup](#).

Git for Windows Portable ("thumbdrive edition")


[32-bit Git for Windows Portable](#).

[64-bit Git for Windows Portable](#).

The current source code release is version **2.19.0**. If you want the newer version, you can build it from [the source code](#).

<https://git-scm.com/download/win>

Pobieranie samego Git-a dla Windows c.d.

Nazwa ^	Stan	Data modyfikacji	Typ	Rozmiar
 Git-2.19.0-64-bit	✓	05.10.2018 01:31	Aplikacja	42 389 KB

Przed instalacją:

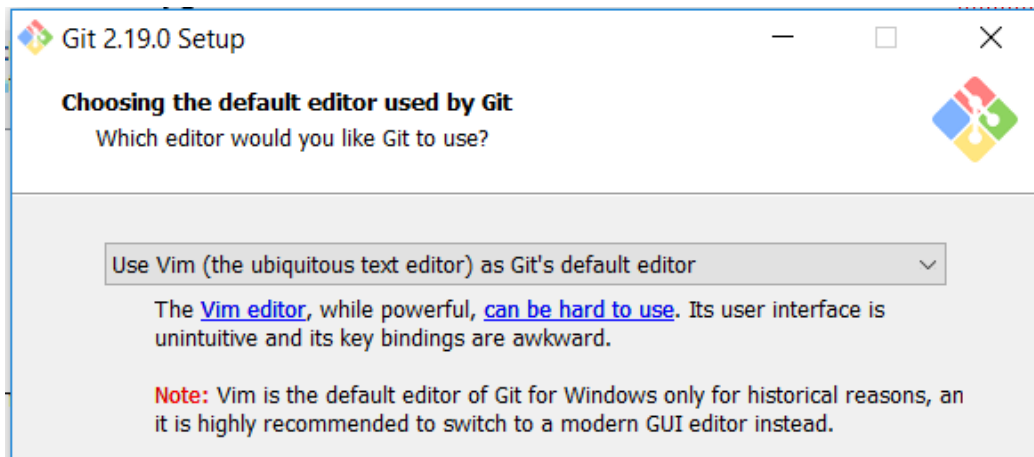
```
Microsoft Windows [Version 10.0.17134.286]  
(c) 2018 Microsoft Corporation. Wszelkie prawa zastrzeżone.  
  
C:\Users\jakub>git --version  
'git' is not recognized as an internal or external command,  
operable program or batch file.
```

Pobieranie samego Git-a dla Windows c.d.

Select the components you want to install; clear the components you do not want to install. Click Next when you are ready to continue.

- ☐ Additional icons
 - ☐ On the Desktop
- ☒ Windows Explorer integration
 - ☒ Git Bash Here
 - ☒ Git GUI Here
- ☒ Git LFS (Large File Support)
- ☒ Associate .git* configuration files with the default text editor
- ☒ Associate .sh files to be run with Bash
- ☐ Use a TrueType font in all console windows
- ☐ Check daily for Git for Windows updates

Current selection requires at least 237,0 MB of disk space.



Pobieranie samego Git-a dla Windows c.d.

Adjusting your PATH environment

How would you like to use Git from the command line?



☐ **Use Git from Git Bash only**

This is the safest choice as your PATH will not be modified at all. You will only be able to use the Git command line tools from Git Bash.

☒ **Use Git from the Windows Command Prompt**

This option is considered safe as it only adds some minimal Git wrappers to your PATH to avoid cluttering your environment with optional Unix tools. You will be able to use Git from both Git Bash and the Windows Command Prompt.

☐ **Use Git and optional Unix tools from the Windows Command Prompt**

Both Git and the optional Unix tools will be added to your PATH.

Warning: This will override Windows tools like "find" and "sort". Only use this option if you understand the implications.

Choosing HTTPS transport backend

Which SSL/TLS library would you like Git to use for HTTPS connections?



☒ **Use the OpenSSL library**

Server certificates will be validated using the ca-bundle.crt file.

☐ **Use the native Windows Secure Channel library**

Server certificates will be validated using Windows Certificate Stores. This option also allows you to use your company's internal Root CA certificates distributed e.g. via Active Directory Domain Services.

Pobieranie samego Git-a dla Windows c.d.

Configuring the line ending conversions

How should Git treat line endings in text files?



☒ **Checkout Windows-style, commit Unix-style line endings**

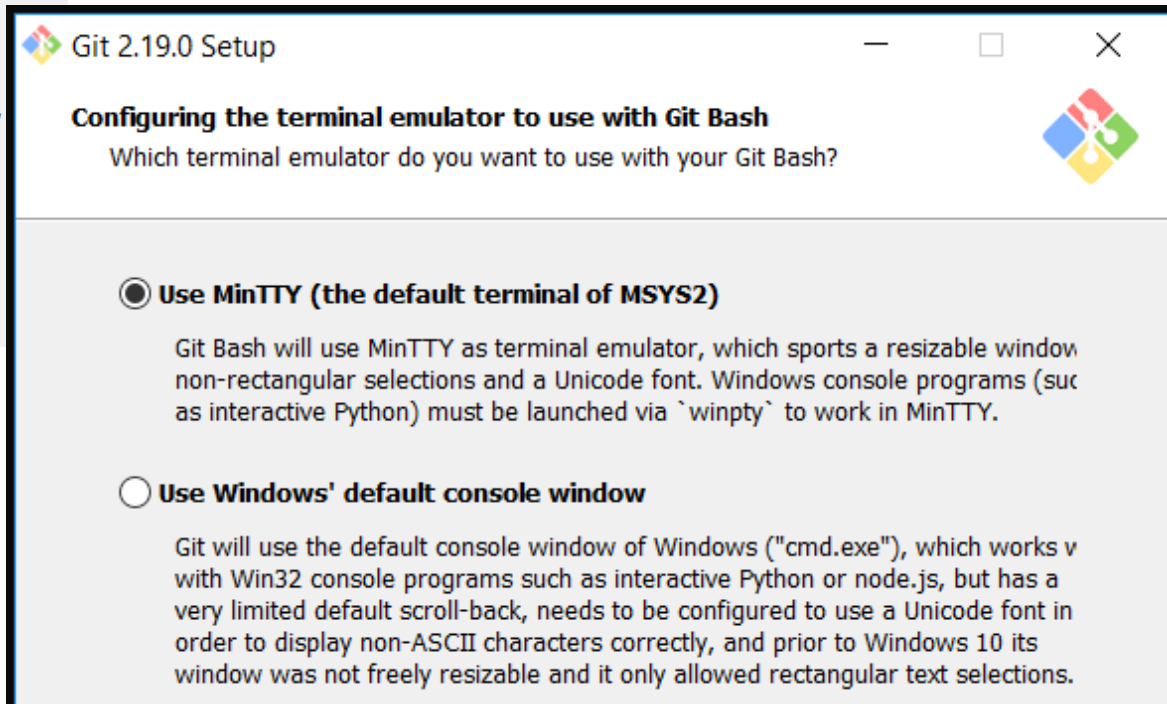
Git will convert LF to CRLF when checking out text files. When committing text files, CRLF will be converted to LF. For cross-platform projects, this is the recommended setting on Windows ("core.autocrlf" is set to "true").

☐ **Checkout as-is, commit Unix-style line endings**

Git will not perform any conversion when checking out text files. When committing text files, CRLF will be converted to LF. For cross-platform projects, this is the recommended setting on Unix ("core.autocrlf" is set to "input").

☐ **Checkout as-is, commit as-is**

Git will not perform any conversions when checking out or committing text files. Choosing this option is not recommended for cross-platform projects ("core.autocrlf" is set to "false").



Pobieranie samego Git-a dla Windows c.d.

Configuring extra options

Which features would you like to enable?



☒ **Enable file system caching**

File system data will be read in bulk and cached in memory for certain operations ("core.fscache" is set to "true"). This provides a significant performance boost.

☒ **Enable Git Credential Manager**

The [Git Credential Manager for Windows](#) provides secure Git credential storage for Windows, most notably multi-factor authentication support for Visual Studio Team Services and GitHub. (requires .NET framework v4.5.1 or later).

☐ **Enable symbolic links**

Enable [symbolic links](#) (requires the SeCreateSymbolicLink permission). Please note that existing repositories are unaffected by this setting.

Configuring experimental options

Which bleeding-edge features would you like to enable?

☐ **Enable experimental, built-in rebase**

(NEW!) Use the experimental built-in rebase (about 70% faster, but only lightly tested).

☐ **Enable experimental, built-in stash**

(NEW!) Use the experimental built-in stash (about 90% faster, but only lightly tested).

Pobieranie samego Git-a dla Windows c.d.

▼ c:\Program Files\Git*.*				
↑ Nazwa	Roz.	Wielkość	Czas	Atryb
📁 [..]		<DIR>	05.10.2018 02:01	----
📁 [bin]		<DIR>	05.10.2018 02:00	----
📁 [cmd]		<DIR>	05.10.2018 02:01	----
📁 [dev]		<DIR>	05.10.2018 02:01	----
📁 [etc]		<DIR>	05.10.2018 02:01	----
📁 [mingw64]		<DIR>	05.10.2018 02:00	----
📁 [tmp]		<DIR>	05.10.2018 02:01	----
📁 [usr]		<DIR>	05.10.2018 02:01	----
🔗 git-bash	exe	148 760	11.09.2018 18:33	-a--
🔗 git-cmd	exe	147 736	11.09.2018 18:33	-a--
📄 LICENSE	txt	18 765	12.03.2018 16:58	-a--
🌐 ReleaseNotes	html	135 220	11.09.2018 19:04	-a--
📄 unins000	dat	1 125 394	05.10.2018 02:01	-a--
🔗 unins000	exe	1 297 048	05.10.2018 01:40	-a--
📄 unins000	msg	22 795	05.10.2018 02:01	-a--

Edycja zmiennej środowiskowej

```
%SystemRoot%\system32
%SystemRoot%
%SystemRoot%\System32\Wbem
%SYSTEMROOT%\System32\WindowsPowerShell\v1.0\
%SYSTEMROOT%\System32\OpenSSH\
C:\Program Files\Git\cmd
```

Po instalacji:

```
C:\Users\jakub>git --version
git version 2.19.0.windows.1
```

Pierwsze repozytorium w Gitcie

▼ c:\projekt-git*.*		
↑ Nazwa	Roz.	Wielkość
📁 [..]	<DIR>	

```
c:\projekt-git>git status
fatal: not a git repository (or any of the parent directories): .git
```

```
c:\projekt-git>git init pierwsze-repo
Initialized empty Git repository in c:/projekt-git/pierwsze-repo/.git/
```

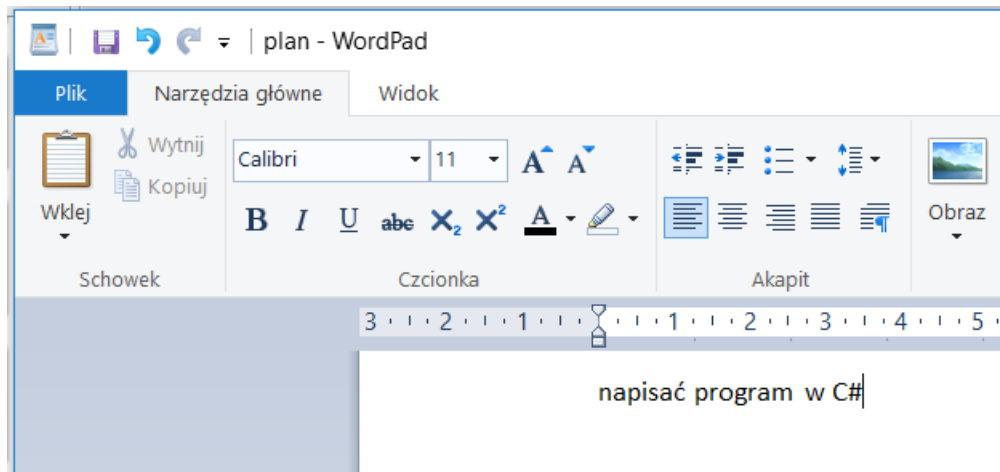
▼ c:\projekt-git*.*		
↑ Nazwa	Roz.	Wielkość
📁 [..]		
📁 [pierwsze-repo]		

▼ c:\projekt-git\pierwsze-repo*.*		
↑ Nazwa	Roz.	Wielkość
📁 [..]		
📁 [.git]		

Pierwsze repozytorium w Gitcie

```
c:\projekt-git>cd pierwsze-repo  
  
c:\projekt-git\pierwsze-repo>git status  
On branch master  
  
No commits yet  
  
nothing to commit (create/copy files and use "git add" to track)
```

c:\projekt-git\pierwsze-repo\		
Nazwa	Roz.	Wiell
[..]		<DIR
plan	rtf	2



c:\projekt-git\pierwsze-repo\		
Nazwa	Roz.	Wiell
[..]		<DIR
[.git]		<DIR
plan	rtf	:

Pierwsze repozytorium w Gitcie

```
c:\projekt-git\pierwsze-repo>git status
```

```
On branch master
```

```
No commits yet
```

```
Untracked files:
```

```
(use "git add <file>..." to include in what will be committed)
```

```
    plan.rtf
```

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

```
c:\projekt-git\pierwsze-repo>git branch
```

```
c:\projekt-git\pierwsze-repo>git add plan.rtf
```

```
c:\projekt-git\pierwsze-repo>git status
```

```
On branch master
```

```
No commits yet
```

```
Changes to be committed:
```

```
(use "git rm --cached <file>..." to unstage)
```

```
    new file:   plan.rtf
```

Pierwsze repozytorium w Gitcie

```
c:\projekt-git\pierwsze-repo>git log
fatal: your current branch 'master' does not have any commits yet
```

```
c:\projekt-git\pierwsze-repo>git commit -m "Dodano plik plan.rtf"
```

```
*** Please tell me who you are.
```

```
Run
```

```
git config --global user.email "you@example.com"
```

```
git config --global user.name "Your Name"
```

```
to set your account's default identity.
```

```
Omit --global to set the identity only in this repository.
```

```
fatal: unable to auto-detect email address (got 'jakub@DESKTOP-BAPEISP.(none)')
```

```
c:\projekt-git\pierwsze-repo>git config user.email "jakub@domena.pl"
```

```
c:\projekt-git\pierwsze-repo>git config user.name "Jakub Długosz"
```

Pierwsze repozytorium w Gitcie

```
c:\projekt-git\pierwsze-repo>git commit -m "Dodano plik plan.rtf"
[master (root-commit) 15c50aa] Dodano plik plan.rtf
1 file changed, 0 insertions(+), 0 deletions(-)
create mode 100644 plan.rtf
```

```
c:\projekt-git\pierwsze-repo>git status
On branch master
nothing to commit, working tree clean
```

```
c:\projekt-git\pierwsze-repo>git branch
* master
```

```
c:\projekt-git\pierwsze-repo>git log
commit 15c50aa1d33251b105aa455dee11294e7369a269 (HEAD -> master)
Author: Jakub D<C5><82>ugosz <jakub@domena.pl>
Date:   Fri Oct 5 02:51:01 2018 +0200

    Dodano plik plan.rtf
```

Pierwsze repozytorium w Gitcie

```
c:\projekt-git\pierwsze-repo>git show 15c50aa1d33251b105aa455dee11294e7369a269
```

```
commit 15c50aa1d33251b105aa455dee11294e7369a269 (HEAD -> master)
```

```
Author: Jakub D<C5><82>ugosz <jakub@domena.pl>
```

```
Date:   Fri Oct 5 02:51:01 2018 +0200
```

```
    Dodano plik plan.rtf
```

```
diff --git a/plan.rtf b/plan.rtf
```

```
new file mode 100644
```

```
index 0000000..a988474
```

```
--- /dev/null
```

```
+++ b/plan.rtf
```

```
@@ -0,0 +1,5 @@
```

```
+{\rtf1\ansi\deff0\nouicompat{\fonttbl{\f0\fnil\fcharset238 Calibri;}{\f1\fnil\fcharset0 Calibri;}}^M
```

```
+{\*\generator Riched20 10.0.17134}\viewkind4\uc1^M
```

```
+\pard\sa200\sl276\slmult1\f0\fs22\lang1045 napisa\'e6 program w C#\f1\lang21\par^M
```

```
+}^M
```

```
+^@
```

```
\ No newline at end of file
```

Pierwsze repozytorium w Gitcie

```
c:\projekt-git\pierwsze-repo>git log --follow plan.rtf
commit 15c50aa1d33251b105aa455dee11294e7369a269 (HEAD -> master)
Author: Jakub D<C5><82>ugosz <jakub@domena.pl>
Date:   Fri Oct 5 02:51:01 2018 +0200

    Dodano plik plan.rtf
```

```
c:\projekt-git\pierwsze-repo>git mv plan.rtf zadanie.rtf
```

```
c:\projekt-git\pierwsze-repo>git status
On branch master
Changes to be committed:
  (use "git reset HEAD <file>..." to unstage)

        renamed:    plan.rtf -> zadanie.rtf
```

▼ c:\projekt-git\pierwsze-repo*.*		
↑ Nazwa	Roz.	Wielkość
↑ [..]		<DIR> (
! [.git]		<DIR> (
zadanie	rtf	237 (

```
c:\projekt-git\pierwsze-repo>git commit -m "zmieniono nazwę pliku na zadanie"
[master c98f40c] zmieniono nazwę pliku na zadanie
1 file changed, 0 insertions(+), 0 deletions(-)
rename plan.rtf => zadanie.rtf (100%)
```


Pierwsze repozytorium w Gitcie

```
c:\projekt-git\pierwsze-repo>git status
On branch master
nothing to commit, working tree clean
```

```
c:\projekt-git\pierwsze-repo>git log
commit c98f40c7d944cd7c378e23b2b78ec2c8b64dcf2a (HEAD -> master)
Author: Jakub D<C5><82>ugosz <jakub@domena.pl>
Date:   Fri Oct 5 03:09:36 2018 +0200

    zmieniono nazw<C4><99> pliku na zadanie

commit 15c50aa1d33251b105aa455dee11294e7369a269
Author: Jakub D<C5><82>ugosz <jakub@domena.pl>
Date:   Fri Oct 5 02:51:01 2018 +0200

    Dodano plik plan.rtf
```

Pierwsze repozytorium w Gitcie

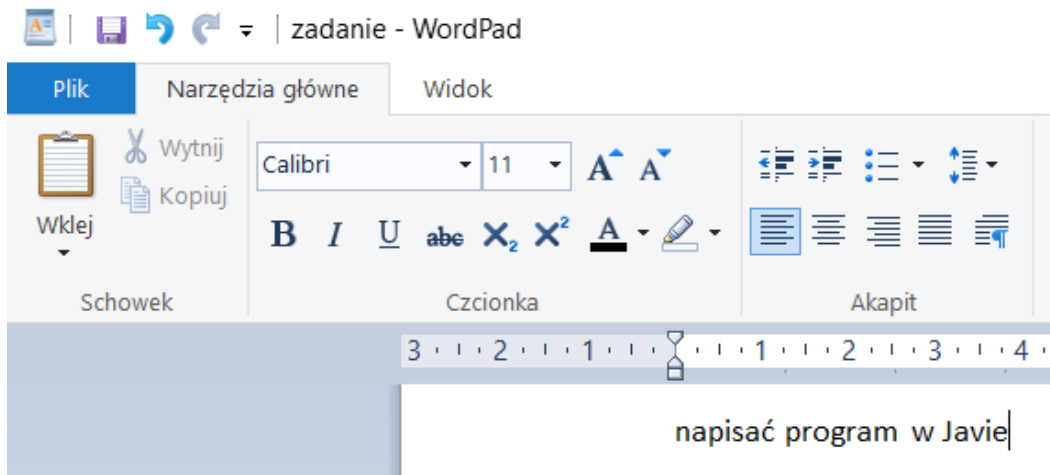
```
c:\projekt-git\pierwsze-repo>git log --follow "zadanie.rtf"
commit c98f40c7d944cd7c378e23b2b78ec2c8b64dcf2a (HEAD -> master)
Author: Jakub D<C5><82>ugosz <jakub@domena.pl>
Date:   Fri Oct 5 03:09:36 2018 +0200

    zmieniono nazw<C4><99> pliku na zadanie

commit 15c50aa1d33251b105aa455dee11294e7369a269
Author: Jakub D<C5><82>ugosz <jakub@domena.pl>
Date:   Fri Oct 5 02:51:01 2018 +0200

    Dodano plik plan.rtf
```

Pierwsze repozytorium w Gitcie



```
c:\projekt-git\pierwsze-repo>git status
On branch master
Changes not staged for commit:
  (use "git add <file>..." to update what will be committed)
  (use "git checkout -- <file>..." to discard changes in working directory)

        modified:   zadanie.rtf

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

Pierwsze repozytorium w Gitcie

```
c:\projekt-git\pierwsze-repo>git diff
diff --git a/zadanie.rtf b/zadanie.rtf
index a988474..a070e19 100644
--- a/zadanie.rtf
+++ b/zadanie.rtf
@@ -1,5 +1,5 @@
-{\\rtf1\\ansi\\deff0\\nouicompat{\\fonttbl{\\f0\\fnil\\fcharset238 Calibri;}{\\f1\\fnil\\fcharset0 Calibri;}}
+{\\rtf1\\ansi\\ansicpg1250\\deff0\\nouicompat{\\fonttbl{\\f0\\fnil\\fcharset238 Calibri;}{\\f1\\fnil\\fcharset0 Calibri;}}^M
 {\\*\\generator Riched20 10.0.17134}\\viewkind4\\uc1
-\\pard\\sa200\\sl276\\slmult1\\f0\\fs22\\lang1045 napisa\\'e6 program w C#\\f1\\lang21\\par
+\\pard\\sa200\\sl276\\slmult1\\f0\\fs22\\lang1045 napisa\\'e6 program w Javie\\f1\\lang21\\par^M
 }
^@
\\ No newline at end of file
```

Pierwsze repozytorium w Gitcie

```
c:\projekt-git\pierwsze-repo>git commit -m "zmieniono technologie z C# na Java"
On branch master
Changes not staged for commit:
      modified:   zadanie.rtf

no changes added to commit

c:\projekt-git\pierwsze-repo>git add zadanie.rtf

c:\projekt-git\pierwsze-repo>git commit -m "zmieniono technologie z C# na Java"
[master 0861272] zmieniono technologie z C# na Java
1 file changed, 0 insertions(+), 0 deletions(-)
```


Pierwsze repozytorium w Gitcie

```
c:\projekt-git\pierwsze-repo>git log
commit 0861272b2e5dd21f659a7f8610d7b33117adca01 (HEAD -> master)
Author: Jakub D<C5><82>ugosz <jakub@domena.pl>
Date:   Fri Oct 5 03:25:51 2018 +0200

    zmieniono technologi<C4><99> z C# na Java

commit c98f40c7d944cd7c378e23b2b78ec2c8b64dcf2a
Author: Jakub D<C5><82>ugosz <jakub@domena.pl>
Date:   Fri Oct 5 03:09:36 2018 +0200

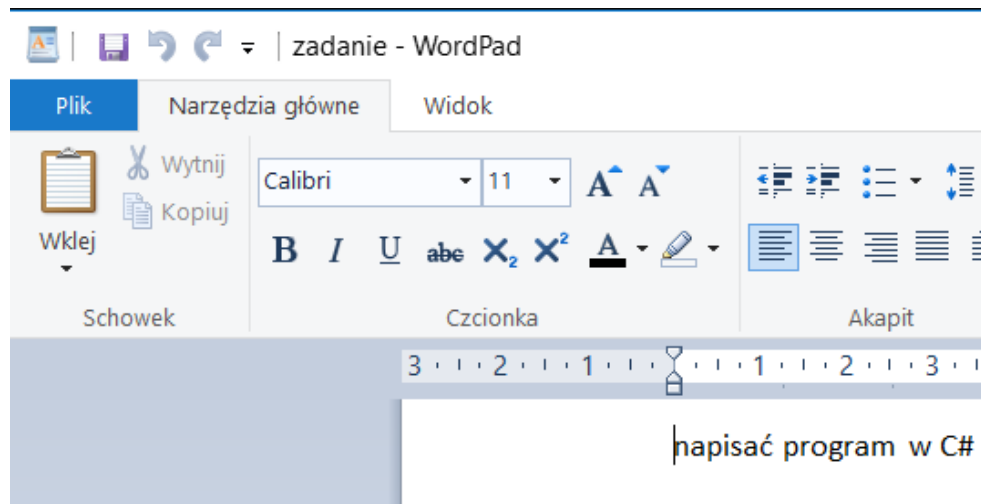
    zmieniono nazw<C4><99> pliku na zadanie

commit 15c50aa1d33251b105aa455dee11294e7369a269
Author: Jakub D<C5><82>ugosz <jakub@domena.pl>
Date:   Fri Oct 5 02:51:01 2018 +0200

    Dodano plik plan.rtf
```

Pierwsze repozytorium w Gitcie

```
c:\projekt-git\pierwsze-repo>git reset --hard c98f40c7d944cd7c378e23b2b78ec2c8b64dcf2a  
HEAD is now at c98f40c zmieniono nazwę pliku na zadanie
```



Pierwsze repozytorium w Gitcie

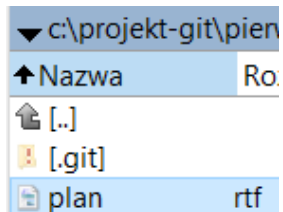
```
c:\projekt-git\pierwsze-repo>git log
commit c98f40c7d944cd7c378e23b2b78ec2c8b64dcf2a (HEAD -> master)
Author: Jakub D<C5><82>ugosz <jakub@domena.pl>
Date:   Fri Oct 5 03:09:36 2018 +0200

    zmieniono nazw<C4><99> pliku na zadanie

commit 15c50aa1d33251b105aa455dee11294e7369a269
Author: Jakub D<C5><82>ugosz <jakub@domena.pl>
Date:   Fri Oct 5 02:51:01 2018 +0200

    Dodano plik plan.rtf
```

```
c:\projekt-git\pierwsze-repo>git reset --hard 15c50aa1d33251b105aa455dee11294e7369a269
HEAD is now at 15c50aa Dodano plik plan.rtf
```



```
c:\projekt-git\pierwsze-repo>git log
commit 15c50aa1d33251b105aa455dee11294e7369a269 (HEAD -> master)
Author: Jakub D<C5><82>ugosz <jakub@domena.pl>
Date:   Fri Oct 5 02:51:01 2018 +0200

    Dodano plik plan.rtf
```

Pierwsze repozytorium w Gitcie

```
c:\projekt-git\pierwsze-repo>git config --list
core.symlinks=false
core.autocrlf=true
core.fscache=true
color.diff=auto
color.status=auto
color.branch=auto
color.interactive=true
help.format=html
rebase.autosquash=true
http.sslcainfo=C:/Program Files/Git/mingw64/ssl/certs/ca-bundle.crt
http.sslbackend=openssl
diff.astextplain.textconv=astextplain
filter.lfs.clean=git-lfs clean -- %f
filter.lfs.smudge=git-lfs smudge -- %f
filter.lfs.process=git-lfs filter-process
filter.lfs.required=true
credential.helper=manager
core.repositoryformatversion=0
core.filemode=false
core.bare=false
core.logallrefupdates=true
core.symlinks=false
core.ignorecase=true
user.email=jakub@domena.pl
user.name=Jakub D<C5><82>ugosz
```

Pierwsze repozytorium w Gitcie

```
c:\projekt-git\pierwsze-repo>git config user.name  
Jakub Długosz  
  
c:\projekt-git\pierwsze-repo>git config user.email  
jakub@domena.pl
```