Федеральное государственное бюджетное образовательное учреждение высшего образования «Национальный исследовательский университет «МЭИ»

Институт информационных и вычислительных технологий

Кафедра Управления и интеллектуальных технологий

**Отчёт по лабораторной работе № 2**

**По курсу «Разработка ПО систем управления»**

**«Основы языка С++»**

Выполнил студент группы А-02-19

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Москва 2020

**Условные обозначения:**

**Всё, что находится после // и выделено жирным шрифтом - мой комментарий к команде**

u115-02@PROG-20 MINGW32 ~/Desktop/lab02

$ ls

u115-02@PROG-20 MINGW32 ~/Desktop/lab02

$ mkdir alice

u115-02@PROG-20 MINGW32 ~/Desktop/lab02

$ mkdir bob

u115-02@PROG-20 MINGW32 ~/Desktop/lab02

$ cd alice

u115-02@PROG-20 MINGW32 ~/Desktop/lab02/alice

$ mkdir project

u115-02@PROG-20 MINGW32 ~/Desktop/lab02/alice

$ cd ..

u115-02@PROG-20 MINGW32 ~/Desktop/lab02

$ cd alice

u115-02@PROG-20 MINGW32 ~/Desktop/lab02/alice

$ cd project

u115-02@PROG-20 MINGW32 ~/Desktop/lab02/alice/project

$ git init **//создали репозитарий в папке alice/project**

Initialized empty Git repository in C:/Users/u115-02/Desktop/lab02/alice/project/.git/

u115-02@PROG-20 MINGW32 ~/Desktop/lab02/alice/project (master)

$ git config user.name 'Alice (BasnakEA)'

u115-02@PROG-20 MINGW32 ~/Desktop/lab02/alice/project (master)

$ git config user.email 'alice@example.com'

u115-02@PROG-20 MINGW32 ~/Desktop/lab02/alice/project (master)

$ git status

On branch master **// мы находимся на ветке master**

No commits yet **// мы пока не создали ни одного коммита**

Untracked files: **// тут записаны файлы, которые имеются в папке, но ещё не закоммичены**

(use "git add <file>..." to include in what will be committed) **// предложение использовать git add для добавления файла в индекс (для будущего коммита)**

bin/ **//файлы, находящиеся в папке, но не отслеживаемые git’ом**

main.cpp

obj/

project.cbp

nothing added to commit but untracked files present (use "git add" to track**) //коммитить нечего, но есть не отслеживаемые файлы**

-----------------------------------------------------------

u115-02@PROG-20 MINGW32 ~/Desktop/lab02/alice/project (master)

$ git add main.cpp **//заносим main.cpp в индекс**

u115-02@PROG-20 MINGW32 ~/Desktop/lab02/alice/project (master)

$ git status

On branch master

No commits yet

Changes to be committed: **// отслеживаемые файлы, которые можно закоммитить**

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

new file: main.cpp

Untracked files:

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

bin/

obj/

project.cbp

u115-02@PROG-20 MINGW32 ~/Desktop/lab02/alice/project (master)

$ git commit -m 'code: future programm' **//коммитим всё, что находится в индексе (в данном случае main.cpp) с комментарием 'code: future programm'**

[master (root-commit) 4bf4d3f] code: future programm

1 file changed, 9 insertions(+)

create mode 100644 main.cpp

u115-02@PROG-20 MINGW32 ~/Desktop/lab02/alice/project (master)

$ git add project.cbp

warning: LF will be replaced by CRLF in project.cbp.

The file will have its original line endings in your working directory

u115-02@PROG-20 MINGW32 ~/Desktop/lab02/alice/project (master)

$ git commit project.cbp **//вот тут я забыл добавить комментарий, после чего написал его в редакторе Vim**

warning: LF will be replaced by CRLF in project.cbp.

The file will have its original line endings in your working directory

[master 88a99f1] 'build: first build of project'

1 file changed, 43 insertions(+)

create mode 100644 project.cbp

После изменения файла main.cpp

u115-02@PROG-20 MINGW32 ~/Desktop/lab02/alice/project (master)

$ 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: main.cpp **//показывается изменённый файл, который уже был закоммичен**

Untracked files:

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

bin/

obj/

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

u115-02@PROG-20 MINGW32 ~/Desktop/lab02/alice/project (master)

$ git add main.cpp

u115-02@PROG-20 MINGW32 ~/Desktop/lab02/alice/project (master)

$ git commit -m 'code: sum of 2 integers'

[master 4dd3aea] code: sum of 2 integers

1 file changed, 4 insertions(+), 1 deletion(-)

u115-02@PROG-20 MINGW32 ~/Desktop/lab02/alice/project (master)

$ git commit --amend -m 'code: insert 2 numbers'

[master 95a1ef1] code: insert 2 numbers

Date: Fri Mar 13 10:13:40 2020 +0300

1 file changed, 4 insertions(+), 1 deletion(-)

После изменения файла main.cpp

u115-02@PROG-20 MINGW32 ~/Desktop/lab02/alice/project (master)

$ git add –u

u115-02@PROG-20 MINGW32 ~/Desktop/lab02/alice/project (master)

$ git commit -m 'sum of 2 integers'

[master 8875992] sum of 2 integers

1 file changed, 2 insertions(+)

После изменения файла main.cpp

u115-02@PROG-20 MINGW32 ~/Desktop/lab02/alice/project (master)

$ git commit -a -m 'code: difference of 2 integers'

[master 9fa5f8b] code: difference of 2 integers

1 file changed, 2 insertions(+), 1 deletion(-)

После создания .gitignore

115-02@PROG-20 MINGW32 ~/Desktop/lab02/alice/project (master)

$ git status

On branch master

Untracked files:

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

.gitignore

obj/

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

После внесений изменений в .gitignore

u115-02@PROG-20 MINGW32 ~/Desktop/lab02/alice/project (master)

$ git status

On branch master

Untracked files:

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

.gitignore

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

u115-02@PROG-20 MINGW32 ~/Desktop/lab02/alice/project (master)

$ git add .gitignore

u115-02@PROG-20 MINGW32 ~/Desktop/lab02/alice/project (master)

$ git commit -a -m 'git: gitignore created'

[master 5acf775] git: gitignore created

1 file changed, 2 insertions(+)

create mode 100644 .gitignore

u115-02@PROG-20 MINGW32 ~/Desktop/lab02/alice/project (master)

$ git log --stat

commit 5acf775468bcde3e2c61531d99bfd341df2c416d (HEAD -> master)

**// указан хэш коммита**

**// HEAD указывает на коммит, после которого будет создан новый (то есть текущий коммит)**

**// master указывает на главную ветку проекта**

**// далее указана вся информация о всех созданных ранее коммитах**

Author: Alice (BasnakEA) <alice@example.com>

Date: Fri Mar 13 10:30:38 2020 +0300

git: gitignore created

.gitignore | 2 ++

1 file changed, 2 insertions(+)

commit fff3eb8cce70f85ba5e75dae7ae3f5ab874d238d

Author: Alice (BasnakEA) <alice@example.com>

Date: Fri Mar 13 10:19:24 2020 +0300

code: difference of 2 integers

main.cpp | 3 ++-

1 file changed, 2 insertions(+), 1 deletion(-)

commit 887599282ea5b1c02542bfb92bdb05fd5c3ae919

Author: Alice (BasnakEA) <alice@example.com>

Date: Fri Mar 13 10:17:21 2020 +0300

sum of 2 integers

u115-02@PROG-20 MINGW32 ~/Desktop/lab02/alice/project (master)

$ git log --oneline --decorate

**// далее указаны все созданные ранне коммиты, но информации о них меньше**

5acf775 (HEAD -> master) git: gitignore created

fff3eb8 code: difference of 2 integers

8875992 sum of 2 integers

95a1ef1 code: insert 2 numbers

88a99f1 'build: first build of project'

4bf4d3f code: future programm

u115-02@PROG-20 MINGW32 ~/Desktop/lab02/alice/project (master)

$ git log --oneline --decorate --all –graph

**// то же самое, что и предыдущая команда, но теперь при наличии нескольких ветвей будет строиться дерево, показывающее различные ветви**

\* 5acf775 (HEAD -> master) git: gitignore created

\* fff3eb8 code: difference of 2 integers

\* 8875992 sum of 2 integers

\* 95a1ef1 code: insert 2 numbers

\* 88a99f1 'build: first build of project'

\* 4bf4d3f code: future program

u115-02@PROG-20 MINGW32 ~/Desktop/lab02/alice/project (master)

$ git log --grep "code:" **//выводятся все коммиты, в комментариях у которых есть "code:"**

commit fff3eb8cce70f85ba5e75dae7ae3f5ab874d238d

Author: Alice (BasnakEA) <alice@example.com>

Date: Fri Mar 13 10:19:24 2020 +0300

code: difference of 2 integers

commit 95a1ef124044ec89916b95707597ecebd8809343

Author: Alice (BasnakEA) <alice@example.com>

Date: Fri Mar 13 10:13:40 2020 +0300

code: insert 2 numbers

commit 4bf4d3faf4d578d4d3f8ab7e0865d5fca13e3b62

Author: Alice (BasnakEA) <alice@example.com>

Date: Fri Mar 13 10:00:12 2020 +0300

code: future program

// **(по условию лабораторной тут должен быть ещё один коммит, но я забыл у него дописать “code:”)**

u115-02@PROG-20 MINGW32 ~/Desktop/lab02/alice/project (master)

$ git log -- main.cpp **// выводятся все коммиты, в которых менялся main.cpp**

commit fff3eb8cce70f85ba5e75dae7ae3f5ab874d238d

Author: Alice (BasnakEA) <alice@example.com>

Date: Fri Mar 13 10:19:24 2020 +0300

code: difference of 2 integers

commit 887599282ea5b1c02542bfb92bdb05fd5c3ae919

Author: Alice (BasnakEA) <alice@example.com>

Date: Fri Mar 13 10:17:21 2020 +0300

sum of 2 integers

commit 95a1ef124044ec89916b95707597ecebd8809343

Author: Alice (BasnakEA) <alice@example.com>

Date: Fri Mar 13 10:13:40 2020 +0300

code: insert 2 numbers

commit 4bf4d3faf4d578d4d3f8ab7e0865d5fca13e3b62

Author: Alice (BasnakEA) <alice@example.com>

Date: Fri Mar 13 10:00:12 2020 +0300

code: future programm

u115-02@PROG-20 MINGW32 ~/Desktop/lab02/alice/project (master)

$ git log --grep "build:"

commit 88a99f191b516d2c883dcd76802cc68db7fb302f

Author: Alice (BasnakEA) <alice@example.com>

Date: Fri Mar 13 10:03:08 2020 +0300

'build: first build of project'

u115-02@PROG-20 MINGW32 ~/Desktop/lab02/alice/project (master)

$ git log -- project.cbp

commit 88a99f191b516d2c883dcd76802cc68db7fb302f

Author: Alice (BasnakEA) <alice@example.com>

Date: Fri Mar 13 10:03:08 2020 +0300

'build: first build of project'

u115-02@PROG-20 MINGW32 ~/Desktop/lab02/alice/project (master)

$ git show **HEAD //просматриваем содержимое текущего коммита**

commit 5acf775468bcde3e2c61531d99bfd341df2c416d (HEAD -> master)

Author: Alice (BasnakEA) <alice@example.com>

Date: Fri Mar 13 10:30:38 2020 +0300

git: gitignore created

diff --git a/.gitignore b/.gitignore

new file mode 100644

index 0000000..4c7473d

--- /dev/null

+++ b/.gitignore

@@ -0,0 +1,2 @@

+/bin

+/obj

u115-02@PROG-20 MINGW32 ~/Desktop/lab02/alice/project (master)

$ git show master **//просматриваем содержимое последнего коммита ветви master**

commit 5acf775468bcde3e2c61531d99bfd341df2c416d (HEAD -> master)

Author: Alice (BasnakEA) <alice@example.com>

Date: Fri Mar 13 10:30:38 2020 +0300

git: gitignore created

diff --git a/.gitignore b/.gitignore

new file mode 100644

index 0000000..4c7473d

--- /dev/null

+++ b/.gitignore

@@ -0,0 +1,2 @@

+/bin

+/obj

u115-02@PROG-20 MINGW32 ~/Desktop/lab02/alice/project (master)

$ git show 5acf **// просматриваем содержимое коммита по хэшу**

commit 5acf775468bcde3e2c61531d99bfd341df2c416d (HEAD -> master)

Author: Alice (BasnakEA) <alice@example.com>

Date: Fri Mar 13 10:30:38 2020 +0300

git: gitignore created

diff --git a/.gitignore b/.gitignore

new file mode 100644

index 0000000..4c7473d

--- /dev/null

+++ b/.gitignore

@@ -0,0 +1,2 @@

+/bin

+/obj

u115-02@PROG-20 MINGW32 ~/Desktop/lab02/alice/project (master)

$ git show HEAD~1 **// просматриваем содержимое коммита, который стоит перед текущим**

commit fff3eb8cce70f85ba5e75dae7ae3f5ab874d238d

Author: Alice (BasnakEA) <alice@example.com>

Date: Fri Mar 13 10:19:24 2020 +0300

code: difference of 2 integers

diff --git a/main.cpp b/main.cpp

index e1391fe..59cf19d 100644

--- a/main.cpp

+++ b/main.cpp

@@ -8,7 +8,8 @@ int main()

int a, b;

cin >> a >> b;

- cout << "A + B = " << a + b << '\n';

+ cout << "A + B = " << a + b << '\n'

+ << "A - B = " << a - b << '\n';

return 0;

}

u115-02@PROG-20 MINGW32 ~/Desktop/lab02/alice/project (master)

$ git diff **// сравниваем изменения файлов в рабочей папке и в последнем коммите**

diff --git a/main.cpp b/main.cpp

index 59cf19d..1540349 100644

--- a/main.cpp **//старый файл main.cpp (находится в коммите)**

+++ b/main.cpp **//новый файл main.cpp (находится в рабочей папке проекта)**

@@ -9,7 +9,8 @@ int main()

cin >> a >> b;

cout << "A + B = " << a + b << '\n'

- << "A - B = " << a - b << '\n';

+ << "A - B = " << a - b << '\n'

+ << "A \* B = " << a \* b << '\n';

return 0;

}

**// ‘-‘ помечены удалённые строки**

**// ‘+’ помечены добавленные строки**

u115-02@PROG-20 MINGW32 ~/Desktop/lab02/alice/project (master)

$ git diff HEAD~2 **// сравнение коммитов всех коммитов, начиная с заданного, и рабочей копии**

diff --git a/.gitignore b/.gitignore

new file mode 100644

index 0000000..4c7473d

--- /dev/null

+++ b/.gitignore

@@ -0,0 +1,2 @@

+/bin

+/obj

diff --git a/main.cpp b/main.cpp

index e1391fe..1540349 100644

--- a/main.cpp

+++ b/main.cpp

@@ -8,7 +8,9 @@ int main()

int a, b;

cin >> a >> b;

- cout << "A + B = " << a + b << '\n';

+ cout << "A + B = " << a + b << '\n'

+ << "A - B = " << a - b << '\n'

+ << "A \* B = " << a \* b << '\n';

return 0;

}

u115-02@PROG-20 MINGW32 ~/Desktop/lab02/alice/project (master)

$ git diff HEAD~2 HEAD **// сравнение двух заданных коммитов**

diff --git a/.gitignore b/.gitignore

new file mode 100644

index 0000000..4c7473d

--- /dev/null

+++ b/.gitignore

@@ -0,0 +1,2 @@

+/bin

+/obj

diff --git a/main.cpp b/main.cpp

index e1391fe..59cf19d 100644

--- a/main.cpp

+++ b/main.cpp

@@ -8,7 +8,8 @@ int main()

int a, b;

cin >> a >> b;

- cout << "A + B = " << a + b << '\n';

+ cout << "A + B = " << a + b << '\n'

+ << "A - B = " << a - b << '\n';

return 0;

}

u115-02@PROG-20 MINGW32 ~/Desktop/lab02/alice/project (master)

$ git diff 4bf4 fff3 **// сравнение первого коммита (4bf4) и коммита с добавлением разности (fff3)**

diff --git a/main.cpp b/main.cpp

index b4392ec..59cf19d 100644

--- a/main.cpp

+++ b/main.cpp

@@ -4,6 +4,12 @@ using namespace std;

int main()

{

- cout << "Hello world!" << endl;

+ cout << "Enter A and B: ";

+ int a, b;

+ cin >> a >> b;

+

+ cout << "A + B = " << a + b << '\n'

+ << "A - B = " << a - b << '\n';

+

return 0;

}

diff --git a/project.cbp b/project.cbp

new file mode 100644

index 0000000..e066312

--- /dev/null

+++ b/project.cbp

**// во время выполнения лабораторной работы я забыл скопировать часть работы, где был представлен откат изменений**

**// поэтому дома сделал свой пример использования данной команды**

**// я создал папку reset, где проинициализировал новый репозитарий**

**// там был создан файл example.txt**

basna@DESKTOP-NA12K0R MINGW64 ~/Desktop/labs/lab\_02/reset (master)

$ git add example.txt

basna@DESKTOP-NA12K0R MINGW64 ~/Desktop/labs/lab\_02/reset (master)

$ git commit -m 'ver 1'

[master (root-commit) 6732cd9] ver 1

1 file changed, 1 insertion(+)

create mode 100644 example.txt

Изменили файл example.txt ещё несколько раз

basna@DESKTOP-NA12K0R MINGW64 ~/Desktop/labs/lab\_02/reset (master)

$ git add example.txt

basna@DESKTOP-NA12K0R MINGW64 ~/Desktop/labs/lab\_02/reset (master)

$ git commit -m 'ver 2'

[master 3254ed2] ver 2

1 file changed, 3 insertions(+), 1 deletion(-)

basna@DESKTOP-NA12K0R MINGW64 ~/Desktop/labs/lab\_02/reset (master)

$ git add example.txt

basna@DESKTOP-NA12K0R MINGW64 ~/Desktop/labs/lab\_02/reset (master)

$ git commit -m 'ver 3'

[master 4bbf719] ver 3

1 file changed, 3 insertions(+), 1 deletion(-)

basna@DESKTOP-NA12K0R MINGW64 ~/Desktop/labs/lab\_02/reset (master)

$ git add example.txt

basna@DESKTOP-NA12K0R MINGW64 ~/Desktop/labs/lab\_02/reset (master)

$ git commit -m 'ver 4'

[master a68438f] ver 4

1 file changed, 3 insertions(+), 1 deletion(-)

basna@DESKTOP-NA12K0R MINGW64 ~/Desktop/labs/lab\_02/reset (master)

$ git reset --hard HEAD~1

HEAD is now at 4bbf719 ver 3

**// откатываем состояние рабочей копии и текущий коммит HEAD на один назад**

basna@DESKTOP-NA12K0R MINGW64 ~/Desktop/labs/lab\_02/reset (master)

$ git checkout HEAD -- example.txt

**// откатываем определённый файл (в данном случае example.txt) в рабочей папке к версии HEAD (можно откатывать к любой другой версии)**

u115-02@PROG-20 MINGW32 ~/Desktop/lab02/alice/project (master)

$ git remote add origin <https://github.com/BasnakEA/cs-lab02.git> **//обозначили имя удалённого хранилища (теперь для обращения к хранилищу по данной ссылке можно писать всю ссылку, а только “origin”)**

u115-02@PROG-20 MINGW32 ~/Desktop/lab02/alice/project (master)

$ git push -u origin master **//копируем весь наш проект в удалённое хранилище**

Enumerating objects: 18, done.

Counting objects: 100% (18/18), done.

Compressing objects: 100% (16/16), done.

Writing objects: 100% (18/18), 2.18 KiB | 101.00 KiB/s, done.

Total 18 (delta 2), reused 0 (delta 0)

remote: Resolving deltas: 100% (2/2), done.

To https://github.com/BasnakEA/cs-lab02.git

\* [new branch] master -> master

Branch 'master' set up to track remote branch 'master' from 'origin'.

**Компьютер Боба**

u115-02@PROG-20 MINGW32 ~/Desktop/lab02/bob

$ git clone https://github.com/BasnakEA/cs-lab02.git project

**// копируем проект из удалённого хранилища на компьютер Боба в папку project**

Cloning into 'project'...

remote: Enumerating objects: 18, done.

remote: Counting objects: 100% (18/18), done.

remote: Compressing objects: 100% (14/14), done.

remote: Total 18 (delta 2), reused 18 (delta 2), pack-reused 0

Unpacking objects: 100% (18/18), done.

u115-02@PROG-20 MINGW32 ~/Desktop/lab02/bob

$ cd project

u115-02@PROG-20 MINGW32 ~/Desktop/lab02/bob/project (master)

$ git remote –v **//смотрим ссылку на удалённое хранилище**

origin https://github.com/BasnakEA/cs-lab02.git (fetch)

origin https://github.com/BasnakEA/cs-lab02.git (push)

u115-02@PROG-20 MINGW32 ~/Desktop/lab02/bob/project (master)

$ git config user.name 'Bob (BasnakEA)'

u115-02@PROG-20 MINGW32 ~/Desktop/lab02/bob/project (master)

$ git config user.email 'bob@example.com'

Внесены изменения в main.cpp

u115-02@PROG-20 MINGW32 ~/Desktop/lab02/bob/project (master)

$ git status

On branch master

Your branch is up to date with 'origin/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: main.cpp

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

u115-02@PROG-20 MINGW32 ~/Desktop/lab02/bob/project (master)

$ git add main.cpp

u115-02@PROG-20 MINGW32 ~/Desktop/lab02/bob/project (master)

$ git commit -m 'code: composition of 2 integers'

[master f037ce6] code: composition of 2 integers

1 file changed, 3 insertions(+), 2 deletions(-)

u115-02@PROG-20 MINGW32 ~/Desktop/lab02/bob/project (master)

$ git log --oneline --decorate

f037ce6 (HEAD -> master) code: composition of 2 integers

5acf775 (origin/master, origin/HEAD) git: gitignore created

fff3eb8 code: difference of 2 integers

8875992 sum of 2 integers

95a1ef1 code: insert 2 numbers

88a99f1 'build: first build of project'

4bf4d3f code: future programm

u115-02@PROG-20 MINGW32 ~/Desktop/lab02/bob/project (master)

$ git push **// копируем проект с компьютера Боба в удалённое хранилище**

Enumerating objects: 5, done.

Counting objects: 100% (5/5), done.

Compressing objects: 100% (3/3), done.

Writing objects: 100% (3/3), 387 bytes | 193.00 KiB/s, done.

Total 3 (delta 1), reused 0 (delta 0)

remote: Resolving deltas: 100% (1/1), completed with 1 local object.

To https://github.com/BasnakEA/cs-lab02.git

5acf775..f037ce6 master -> master

**Компьютер Алисы**

u115-02@PROG-20 MINGW32 ~/Desktop/lab02/alice/project (master)

$ git fetch **// загружаем на компьютер Алисы изменения из удалённого хранилища**

remote: Enumerating objects: 5, done.

remote: Counting objects: 100% (5/5), done.

remote: Compressing objects: 100% (2/2), done.

remote: Total 3 (delta 1), reused 3 (delta 1), pack-reused 0

Unpacking objects: 100% (3/3), done.

From https://github.com/BasnakEA/cs-lab02

5acf775..f037ce6 master -> origin/master

u115-02@PROG-20 MINGW32 ~/Desktop/lab02/alice/project (master)

$ git log --oneline --decorate --all --graph

\* f037ce6 (origin/master) code: composition of 2 integers **// коммит, который скопировался с удалённого хранилища**

\* 5acf775 (HEAD -> master) git: gitignore created

\* fff3eb8 code: difference of 2 integers

\* 8875992 sum of 2 integers

\* 95a1ef1 code: insert 2 numbers

\* 88a99f1 'build: first build of project'

\* 4bf4d3f code: future program

u115-02@PROG-20 MINGW32 ~/Desktop/lab02/alice/project (master)

$ git pull --ff-only **// двигаем ветку master к скачанному коммиту**

Updating 5acf775..f037ce6

Fast-forward

main.cpp | 5 +++--

1 file changed, 3 insertions(+), 2 deletions(-)

u115-02@PROG-20 MINGW32 ~/Desktop/lab02/alice/project (master)

$ git log --oneline --decorate --all --graph

\* f037ce6 (HEAD -> master, origin/master) code: composition of 2 integers

\* 5acf775 git: gitignore created

\* fff3eb8 code: difference of 2 integers

\* 8875992 sum of 2 integers

\* 95a1ef1 code: insert 2 numbers

\* 88a99f1 'build: first build of project'

\* 4bf4d3f code: future program

Внесены изменения в main.cpp Алисы

u115-02@PROG-20 MINGW32 ~/Desktop/lab02/alice/project (master)

$ git add -u

u115-02@PROG-20 MINGW32 ~/Desktop/lab02/alice/project (master)

$ git commit -m 'delenie of 2 integers'

[master 0f885c6] delenie of 2 integers

1 file changed, 2 insertions(+), 1 deletion(-)

u115-02@PROG-20 MINGW32 ~/Desktop/lab02/alice/project (master)

$ git push

Enumerating objects: 5, done.

Counting objects: 100% (5/5), done.

Compressing objects: 100% (3/3), done.

Writing objects: 100% (3/3), 375 bytes | 187.00 KiB/s, done.

Total 3 (delta 1), reused 0 (delta 0)

remote: Resolving deltas: 100% (1/1), completed with 1 local object.

To https://github.com/BasnakEA/cs-lab02.git

f037ce6..0f885c6 master -> master

Внесены изменения в main.cpp Алисы

u115-02@PROG-20 MINGW32 ~/Desktop/lab02/alice/project (master)

$ git add main.cpp

u115-02@PROG-20 MINGW32 ~/Desktop/lab02/alice/project (master)

$ git commit -m 'code: search maximum'

[master 7994b95] code: search maximum

1 file changed, 13 insertions(+), 2 deletions(-)

u115-02@PROG-20 MINGW32 ~/Desktop/lab02/alice/project (master)

$ git push

Enumerating objects: 5, done.

Counting objects: 100% (5/5), done.

Compressing objects: 100% (3/3), done.

Writing objects: 100% (3/3), 531 bytes | 265.00 KiB/s, done.

Total 3 (delta 0), reused 0 (delta 0)

To https://github.com/BasnakEA/cs-lab02.git

0f885c6..7994b95 master -> master

**Компьютер Боба**

Внесены изменения в main.cpp Боба

u115-02@PROG-20 MINGW32 ~/Desktop/lab02/bob/project (master)

$ git add main.cpp

u115-02@PROG-20 MINGW32 ~/Desktop/lab02/bob/project (master)

$ git commit -m 'search of minimum'

[master b2d3a86] search of minimum

1 file changed, 11 insertions(+), 2 deletions(-)

u115-02@PROG-20 MINGW32 ~/Desktop/lab02/bob/project (master)

$ git push

To https://github.com/BasnakEA/cs-lab02.git

! [rejected] master -> master (fetch first)

error: failed to push some refs to 'https://github.com/BasnakEA/cs-lab02.git'

hint: Updates were rejected because the remote contains work that you do

hint: not have locally. This is usually caused by another repository pushing

hint: to the same ref. You may want to first integrate the remote changes

hint: (e.g., 'git pull ...') before pushing again.

hint: See the 'Note about fast-forwards' in 'git push --help' for details.

u115-02@PROG-20 MINGW32 ~/Desktop/lab02/bob/project (master)

$ git fetch

remote: Enumerating objects: 5, done.

remote: Counting objects: 100% (5/5), done.

remote: Compressing objects: 100% (3/3), done.

remote: Total 3 (delta 0), reused 3 (delta 0), pack-reused 0

Unpacking objects: 100% (3/3), done.

From https://github.com/BasnakEA/cs-lab02

0f885c6..7994b95 master -> origin/master

u115-02@PROG-20 MINGW32 ~/Desktop/lab02/bob/project (master)

$ git log --oneline --decorate --all --graph

\* b2d3a86 (HEAD -> master) search of minimum

| \* 7994b95 (origin/master, origin/HEAD) code: search maximum

|/ **//появилось разветвление (дерево)**

\* 0f885c6 delenie of 2 integers

\* f037ce6 code: composition of 2 integers

\* 5acf775 git: gitignore created

\* fff3eb8 code: difference of 2 integers

\* 8875992 sum of 2 integers

\* 95a1ef1 code: insert 2 numbers

\* 88a99f1 'build: first build of project'

\* 4bf4d3f code: future programm

u115-02@PROG-20 MINGW32 ~/Desktop/lab02/bob/project (master)

$ git rebase origin/master **// перемещаем коммит Боба поверх коммита Алисы**

First, rewinding head to replay your work on top of it...

Applying: search of minimum

Using index info to reconstruct a base tree...

M main.cpp

Falling back to patching base and 3-way merge...

Auto-merging main.cpp

CONFLICT (content): Merge conflict in main.cpp

error: Failed to merge in the changes.

hint: Use 'git am --show-current-patch' to see the failed patch

Patch failed at 0001 search of minimum

Resolve all conflicts manually, mark them as resolved with

"git add/rm <conflicted\_files>", then run "git rebase --continue".

You can instead skip this commit: run "git rebase --skip".

To abort and get back to the state before "git rebase", run "git rebase --abort".

**// из-за разницы в файлах, мы не можем поместить коммит Боба поверх коммита Алисы**

**// необходимо исправить ошибки и несостыковки в файлах**

u115-02@PROG-20 MINGW32 ~/Desktop/lab02/bob/project (master|REBASE 1/1)

$ git log --oneline --decorate --all --graph

\* b2d3a86 (master) search of minimum

| \* 7994b95 (HEAD, origin/master, origin/HEAD) code: search maximum

|/

\* 0f885c6 delenie of 2 integers

\* f037ce6 code: composition of 2 integers

\* 5acf775 git: gitignore created

\* fff3eb8 code: difference of 2 integers

\* 8875992 sum of 2 integers

\* 95a1ef1 code: insert 2 numbers

\* 88a99f1 'build: first build of project'

\* 4bf4d3f code: future programm

Исправили ошибки в main.cpp

u115-02@PROG-20 MINGW32 ~/Desktop/lab02/bob/project (master|REBASE 1/1)

$ git add main.cpp

u115-02@PROG-20 MINGW32 ~/Desktop/lab02/bob/project (master|REBASE 1/1)

$ git rebase --continue **//продолжаем перенос коммита Боба**

Applying: search of minimum

u115-02@PROG-20 MINGW32 ~/Desktop/lab02/bob/project (master)

$ git log --oneline --decorate --all --graph

\* e73fb68 (HEAD -> master) search of minimum

\* 7994b95 (origin/master, origin/HEAD) code: search maximum

\* 0f885c6 delenie of 2 integers

\* f037ce6 code: composition of 2 integers

\* 5acf775 git: gitignore created

\* fff3eb8 code: difference of 2 integers

\* 8875992 sum of 2 integers

\* 95a1ef1 code: insert 2 numbers

\* 88a99f1 'build: first build of project'

\* 4bf4d3f code: future programm

u115-02@PROG-20 MINGW32 ~/Desktop/lab02/bob/project (master)

$ git push

Enumerating objects: 5, done.

Counting objects: 100% (5/5), done.

Compressing objects: 100% (3/3), done.

Writing objects: 100% (3/3), 450 bytes | 225.00 KiB/s, done.

Total 3 (delta 1), reused 0 (delta 0)

remote: Resolving deltas: 100% (1/1), completed with 1 local object.

To https://github.com/BasnakEA/cs-lab02.git

7994b95..e73fb68 master -> master

**Компьютер Алисы**

u115-02@PROG-20 MINGW32 ~/Desktop/lab02/alice/project (master)

$ git branch double **// создаём ветку double**

u115-02@PROG-20 MINGW32 ~/Desktop/lab02/alice/project (master)

$ git checkout double **// переключаемся с ветки master на ветку double**

Switched to branch 'double'

u115-02@PROG-20 MINGW32 ~/Desktop/lab02/alice/project (double)

$ git checkout master **// переключаемся на ветку master**

Switched to branch 'master'

Your branch is up to date with 'origin/master'.

u115-02@PROG-20 MINGW32 ~/Desktop/lab02/alice/project (master)

$ git fetch

remote: Enumerating objects: 5, done.

remote: Counting objects: 100% (5/5), done.

remote: Compressing objects: 100% (2/2), done.

remote: Total 3 (delta 1), reused 3 (delta 1), pack-reused 0

Unpacking objects: 100% (3/3), done.

From https://github.com/BasnakEA/cs-lab02

7994b95..e73fb68 master -> origin/master

u115-02@PROG-20 MINGW32 ~/Desktop/lab02/alice/project (master)

$ git log --oneline --decorate --all --graph

\* e73fb68 (origin/master) search of minimum

\* 7994b95 (HEAD -> master, double) code: search maximum

\* 0f885c6 delenie of 2 integers

\* f037ce6 code: composition of 2 integers

\* 5acf775 git: gitignore created

\* fff3eb8 code: difference of 2 integers

\* 8875992 sum of 2 integers

\* 95a1ef1 code: insert 2 numbers

\* 88a99f1 'build: first build of project'

\* 4bf4d3f code: future programm

u115-02@PROG-20 MINGW32 ~/Desktop/lab02/alice/project (master)

$ git pull --ff-only

Updating 7994b95..e73fb68

Fast-forward

main.cpp | 16 +++++++++++++---

1 file changed, 13 insertions(+), 3 deletions(-)

u115-02@PROG-20 MINGW32 ~/Desktop/lab02/alice/project (master)

$ git log --oneline --decorate --all --graph

\* e73fb68 (HEAD -> master, origin/master) search of minimum

\* 7994b95 (double) code: search maximum

\* 0f885c6 delenie of 2 integers

\* f037ce6 code: composition of 2 integers

\* 5acf775 git: gitignore created

\* fff3eb8 code: difference of 2 integers

\* 8875992 sum of 2 integers

\* 95a1ef1 code: insert 2 numbers

\* 88a99f1 'build: first build of project'

\* 4bf4d3f code: future programm

u115-02@PROG-20 MINGW32 ~/Desktop/lab02/alice/project (master)

$ git checkout double

Switched to branch 'double'

Внесены изменения в main.cpp Алисы

u115-02@PROG-20 MINGW32 ~/Desktop/lab02/alice/project (double)

$ git add main.cpp

u115-02@PROG-20 MINGW32 ~/Desktop/lab02/alice/project (double)

$ git commit -m 'code: integers to double'

[double 97d83dc] code: integers to double

1 file changed, 1 insertion(+), 1 deletion(-)

u115-02@PROG-20 MINGW32 ~/Desktop/lab02/alice/project (double)

$ git log --oneline --decorate --all --graph

\* 97d83dc (HEAD -> double) code: integers to double

| \* e73fb68 (origin/master, master) search of minimum

|/

\* 7994b95 code: search maximum

\* 0f885c6 delenie of 2 integers

\* f037ce6 code: composition of 2 integers

\* 5acf775 git: gitignore created

\* fff3eb8 code: difference of 2 integers

\* 8875992 sum of 2 integers

\* 95a1ef1 code: insert 2 numbers

\* 88a99f1 'build: first build of project'

\* 4bf4d3f code: future programm

u115-02@PROG-20 MINGW32 ~/Desktop/lab02/alice/project (double)

$ git checkout master

Switched to branch 'master'

Your branch is up to date with 'origin/master'.

u115-02@PROG-20 MINGW32 ~/Desktop/lab02/alice/project (master)

$ git log --oneline --decorate --all --graph

\* 97d83dc (double) code: integers to double

| \* e73fb68 (HEAD -> master, origin/master) search of minimum

|/

\* 7994b95 code: search maximum

\* 0f885c6 delenie of 2 integers

\* f037ce6 code: composition of 2 integers

\* 5acf775 git: gitignore created

\* fff3eb8 code: difference of 2 integers

\* 8875992 sum of 2 integers

\* 95a1ef1 code: insert 2 numbers

\* 88a99f1 'build: first build of project'

\* 4bf4d3f code: future programm

u115-02@PROG-20 MINGW32 ~/Desktop/lab02/alice/project (master)

$ git merge double **// сливаем ветки double и master**

Auto-merging main.cpp

CONFLICT (content): Merge conflict in main.cpp

Automatic merge failed; fix conflicts and then commit the result

Исправлены конфликты

u115-02@PROG-20 MINGW32 ~/Desktop/lab02/alice/project (master|MERGING)

$ git add main.cpp

u115-02@PROG-20 MINGW32 ~/Desktop/lab02/alice/project (master|MERGING)

$ git merge --continue **// продолжаем слияние веток**

[master e36cbc6] Merge branch 'double' 'code:max and min with double a and b'

u115-02@PROG-20 MINGW32 ~/Desktop/lab02/alice/project (master)

$ git log --oneline --decorate --all --graph

\* e36cbc6 (HEAD -> master) Merge branch 'double' 'code:max and min with double a and b'

|\

| \* 97d83dc (double) code: integers to double

\* | e73fb68 (origin/master) search of minimum

|/

\* 7994b95 code: search maximum

\* 0f885c6 delenie of 2 integers

\* f037ce6 code: composition of 2 integers

\* 5acf775 git: gitignore created

\* fff3eb8 code: difference of 2 integers

\* 8875992 sum of 2 integers

\* 95a1ef1 code: insert 2 numbers

\* 88a99f1 'build: first build of project'

\* 4bf4d3f code: future programm