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

Антипов Д. А.

Проверили

Мохов А. С.

Козлюк Д. А.

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**Компьютер Алисы**

**Копируем проект на компьютер Алисы**

antipov@DESKTOP-NA12K0R MINGW64 ~/Desktop/lab02/Alice

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

Cloning into 'project'...

remote: Enumerating objects: 24, done.

remote: Counting objects: 100% (24/24), done.

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

remote: Total 24 (delta 4), reused 24 (delta 4), pack-reused 0

Unpacking objects: 100% (24/24), 2.78 KiB | 2.00 KiB/s, done.

antipov@DESKTOP-NA12K0R MINGW64 ~/Desktop/lab02/Alice

$ cd project/

antipov@DESKTOP-NA12K0R MINGW64 ~/Desktop/lab02/Alice/project (master)

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

antipov@DESKTOP-NA12K0R MINGW64 ~/Desktop/lab02/Alice/project (master)

$ git config user.email alice@example.com

**В main.cpp добавлен поиск максимума**

antipov@DESKTOP-NA12K0R MINGW64 ~/Desktop/lab02/Alice/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 restore <file>..." to discard changes in working directory)

modified: main.cpp

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

antipov@DESKTOP-NA12K0R MINGW64 ~/Desktop/lab02/Alice/project (master)

$ git add main.cpp

antipov@DESKTOP-NA12K0R MINGW64 ~/Desktop/lab02/Alice/project (master)

$ git commit -m 'maximum'

[master 6f2286c] maximum

1 file changed, 8 insertions(+)

**Делаем коммит на GitHub**

antipov@DESKTOP-NA12K0R MINGW64 ~/Desktop/lab02/Alice/project (master)

$ git push

Enumerating objects: 5, done.

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

Delta compression using up to 4 threads

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

Writing objects: 100% (3/3), 397 bytes | 198.00 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/AntipovDA/cs-lab02.git

490f8dd..6f2286c master -> master

**Компьютер Боба**

antipov@DESKTOP-NA12K0R MINGW64 ~/Desktop/lab02/Bob

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

Cloning into 'project'...

remote: Enumerating objects: 24, done.

remote: Counting objects: 100% (24/24), done.

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

remote: Total 24 (delta 4), reused 24 (delta 4), pack-reused 0

Unpacking objects: 100% (24/24), 2.78 KiB | 2.00 KiB/s, done.

antipov@DESKTOP-NA12K0R MINGW64 ~/Desktop/lab02/Bob

$ cd project/

antipov@DESKTOP-NA12K0R MINGW64 ~/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 restore <file>..." to discard changes in working directory)

modified: main.cpp

Untracked files:

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

project.depend

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

antipov@DESKTOP-NA12K0R MINGW64 ~/Desktop/lab02/Bob/project (master)

$ git add main.cpp

antipov@DESKTOP-NA12K0R MINGW64 ~/Desktop/lab02/Bob/project (master)

$ git commit -m 'minimum'

[master 8f3740b] minimum

1 file changed, 8 insertions(+)

**Пытаемся создать коммит на GitHub и получаем ошибку, так как там уже имеется коммит Алисы, отличающийся от коммита Боба**

antipov@DESKTOP-NA12K0R MINGW64 ~/Desktop/lab02/Bob/project (master)

$ git push

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

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

error: failed to push some refs to 'https://github.com/AntipovDA/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.

**Копируем изменения проекта с GitHub на компьютер Боба**

antipov@DESKTOP-NA12K0R MINGW64 ~/Desktop/lab02/Bob/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), 388 bytes | 1024 bytes/s, done.

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

+ 6f2286c...a83a467 master -> origin/master (forced update)

antipov@DESKTOP-NA12K0R MINGW64 ~/Desktop/lab02/Bob/project (master)

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

\* 303fb05 (HEAD -> master) minimum

| \* a83a467 (origin/master, origin/HEAD) maximum

|/

\* 490f8dd Delenie of numbers

\* 3c67ed3 Product of two numbers

\* 5924826 git : ignore

\* 48d3836 Difference two numbers

\* e63b9c7 Sum two numbers

\* 101b3a1 Enter A and B

\* 99eae7a build: first build

\* 1f16c6f code: заготовка программы

**Перемещаем коммит Боба поверх коммита Алисы и получаем конфликт, так как файлы main.cpp этих коммитов отличается**

antipov@DESKTOP-NA12K0R MINGW64 ~/Desktop/lab02/Bob/project (master)

$ git rebase origin/master

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

Applying: 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 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".

**После исправления main.cpp на компьютере Боба**

antipov@DESKTOP-NA12K0R MINGW64 ~/Desktop/lab02/Bob/project (master|REBASE 1/1)

$ git add main.cpp

antipov@DESKTOP-NA12K0R MINGW64 ~/Desktop/lab02/Bob/project (master|REBASE 1/1)

$ git rebase --continue

Applying: minimum

antipov@DESKTOP-NA12K0R MINGW64 ~/Desktop/lab02/Bob/project (master)

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

\* fe66b56 (HEAD -> master) minimum

\* a83a467 (origin/master, origin/HEAD) maximum

\* 490f8dd Delenie of numbers

\* 3c67ed3 Product of two numbers

\* 5924826 git : ignore

\* 48d3836 Difference two numbers

\* e63b9c7 Sum two numbers

\* 101b3a1 Enter A and B

\* 99eae7a build: first build

\* 1f16c6f code: заготовка программы

antipov@DESKTOP-NA12K0R MINGW64 ~/Desktop/lab02/Bob/project (master)

$ git push

Enumerating objects: 5, done.

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

Delta compression using up to 4 threads

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

Writing objects: 100% (3/3), 378 bytes | 189.00 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/AntipovDA/cs-lab02.git

a83a467..fe66b56 master -> master

**Компьютер Алисы**

**Создаём ветку double**

antipov@DESKTOP-NA12K0R MINGW64 ~/Desktop/lab02/Alice/project (master)

$ git branch double

**Переключаемся на ветку double**

antipov@DESKTOP-NA12K0R MINGW64 ~/Desktop/lab02/Alice/project (master)

$ git checkout double

Switched to branch 'double'

**После изменения типа чисел на вещественные в файле main.cpp**

antipov@DESKTOP-NA12K0R MINGW64 ~/Desktop/lab02/Alice/project (double)

$ git add main.cpp

antipov@DESKTOP-NA12K0R MINGW64 ~/Desktop/lab02/Alice/project (double)

$ git commit -m 'numbers now double'

[double f933349] numbers now double

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

**Переключаемся на ветку master**

antipov@DESKTOP-NA12K0R MINGW64 ~/Desktop/lab02/Alice/project (double)

$ git checkout master

Switched to branch 'master'

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

**Копируем изменения с GitHub**

antipov@DESKTOP-NA12K0R MINGW64 ~/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), 358 bytes | 1024 bytes/s, done.

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

a83a467..fe66b56 master -> origin/master

**Синхронизируем изменения и рабочую копию**

antipov@DESKTOP-NA12K0R MINGW64 ~/Desktop/lab02/Alice/project (master)

$ git rebase origin/master

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

Fast-forwarded master to origin/master.

antipov@DESKTOP-NA12K0R MINGW64 ~/Desktop/lab02/Alice/project (master)

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

\* f933349 (double) numbers now double

| \* fe66b56 (HEAD -> master, origin/master, origin/HEAD) minimum

|/

\* a83a467 maximum

\* 490f8dd Delenie of numbers

\* 3c67ed3 Product of two numbers

\* 5924826 git : ignore

\* 48d3836 Difference two numbers

\* e63b9c7 Sum two numbers

\* 101b3a1 Enter A and B

\* 99eae7a build: first build

\* 1f16c6f code: заготовка программы

**Сливаем ветки master и double вместе**

antipov@DESKTOP-NA12K0R MINGW64 ~/Desktop/lab02/Alice/project (master)

$ git merge double

Auto-merging main.cpp

Merge made by the 'recursive' strategy.

main.cpp | 2 +-

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

antipov@DESKTOP-NA12K0R MINGW64 ~/Desktop/lab02/Alice/project (master)

$ git push

Enumerating objects: 10, done.

Counting objects: 100% (10/10), done.

Delta compression using up to 4 threads

Compressing objects: 100% (6/6), done.

Writing objects: 100% (6/6), 691 bytes | 230.00 KiB/s, done.

Total 6 (delta 2), reused 0 (delta 0)

remote: Resolving deltas: 100% (2/2), completed with 1 local object.

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

fe66b56..201f60b master -> master

antipov@DESKTOP-NA12K0R MINGW64 ~/Desktop/lab02/Alice/project (master)

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

\* 201f60b (HEAD -> master, origin/master, origin/HEAD) Merge branch 'double'

|\

| \* f933349 (double) numbers now double

\* | fe66b56 minimum

|/

\* a83a467 maximum

\* 490f8dd Delenie of numbers

\* 3c67ed3 Product of two numbers

\* 5924826 git : ignore

\* 48d3836 Difference two numbers

\* e63b9c7 Sum two numbers

\* 101b3a1 Enter A and B

\* 99eae7a build: first build

\* 1f16c6f code: заготовка программы