

# Distributed Work

# Introduction

- ❖ We usually split the work on a specific project allowing a group of developers working separately to develop our system.

# The `git clone` Command

- ❖ When we need an exact copy of an existing repository along with its history we will clone it.

# The `git fetch` Command

- ❖ We will use this command when we need to fetch the changes from the source to the destination.

# The `git merge` Command

- ❖ We will use this command when we need to merge two workspaces (branches).

# The `git pull` Command

- ❖ The `git pull` command is equivalent with executing `git fetch` followed by `git merge`.

# The `git push` Command

- ❖ The `git push` command is used to push our contents from the source to the destination.

# The `git remote` Command

- ❖ We will use this command to manage the source and the destination. Using this command we can specify the way our work is shared with others.



# Sharing on The Internet

- ❖ There are various online Git hosting providers we can use in order to share our code with the world.

# Bitbucket

- ❖ Bitbucket offers free unlimited public and private repositories with a limit on the number of users with whom the files are shared in private.
- ❖ Signing to Bitbucket is fairly simple. You can sign for a free account that allows you to share the files with up to five different users.

<http://bitbucket.org>

# Remote Repository

- ❖ Once our account on BitBucket is ready for use we can create a repository on BitBucket servers.



# Remote Repository

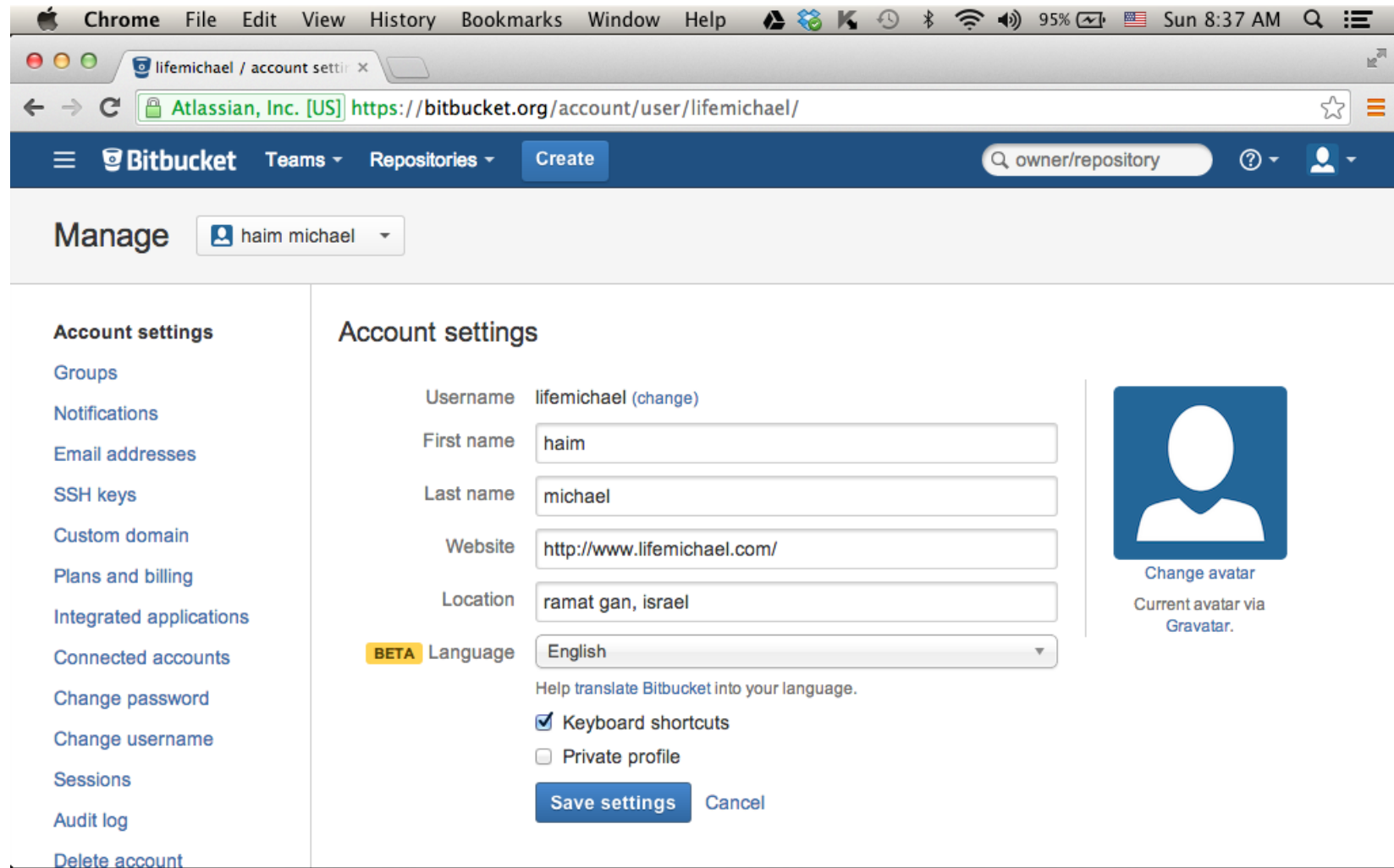
The screenshot shows a web browser window with the Bitbucket interface. The address bar shows the URL <https://bitbucket.org/lifemichael/myrepositorydemo/overview>. The Bitbucket logo and navigation menu are at the top. The repository name 'myrepositorydemo' is displayed with the owner 'lifemichael'. Action buttons for 'Clone', 'Branch', 'Pull request', and a settings icon are visible. Below the repository name, there are tabs for 'Overview', 'Source', 'Commits', 'Branches', 'Pull requests', and 'Downloads'. The 'Overview' tab is active, showing a sidebar with links: 'Get started', 'Make changes and push', 'Invite your friends', and 'Get to work'. The main content area has the heading 'Add some code' and the text 'You can start a brand new project or push up an existing repo to Bitbucket. What are you doing?'. Below this text are two links: 'I'm starting from scratch' and 'I have an existing project to push up'.

# Setting Password

- ❖ Before moving forward we should make sure that we have a password for our BitBucket account. Without having a password it would be impossible to use the new repository.
- ❖ Without setting a password we will get "The requested URL returned error: 412" error when trying to use the repository on the BitBucket server.



# Setting Password



The screenshot shows a web browser window with the Bitbucket account settings page. The browser's address bar shows the URL <https://bitbucket.org/account/user/lifemichael/>. The page has a dark blue header with the Bitbucket logo, navigation links (Teams, Repositories, Create), and a search bar. Below the header, there's a 'Manage' section with a dropdown menu showing 'haim michael'. The main content area is titled 'Account settings' and contains several input fields for user information: Username (lifemichael), First name (haim), Last name (michael), Website (http://www.lifemichael.com/), Location (ramat gan, israel), and Language (English, marked as BETA). There are also checkboxes for 'Keyboard shortcuts' (checked) and 'Private profile' (unchecked). At the bottom of the form are 'Save settings' and 'Cancel' buttons. On the right side of the form, there's a placeholder for an avatar with the text 'Change avatar' and 'Current avatar via Gravatar.' A sidebar on the left lists various account settings options like Groups, Notifications, Email addresses, SSH keys, Custom domain, Plans and billing, Integrated applications, Connected accounts, Change password, Change username, Sessions, Audit log, and Delete account.

Chrome File Edit View History Bookmarks Window Help 95% Sun 8:37 AM

lifemichael / account settin x

Atlassian, Inc. [US] <https://bitbucket.org/account/user/lifemichael/>

Bitbucket Teams Repositories Create owner/repository

Manage haim michael

**Account settings**

Groups

Notifications

Email addresses

SSH keys

Custom domain

Plans and billing

Integrated applications

Connected accounts

Change password

Change username

Sessions

Audit log

Delete account

**Account settings**

Username lifemichael (change)

First name haim

Last name michael

Website <http://www.lifemichael.com/>

Location ramat gan, israel

**BETA** Language English

Help [translate Bitbucket](#) into your language.

☒ Keyboard shortcuts

☐ Private profile

Save settings Cancel

Change avatar

Current avatar via Gravatar.

# Adding Remote Origin

- ❖ We can now link the remote repository with the local one in order to allow us pushing the files from the local repository to the remote one.



# Adding Remote Origin

```
h-MacBook-Pro-sl-haim-3:ourdemo haimmichael$ git remote add origin https://lifemichael@bitbucket.org/lifemichael/ourdemo.git
h-MacBook-Pro-sl-haim-3:ourdemo haimmichael$ git push -u origin master
Counting objects: 4, done.
Writing objects: 100% (4/4), 273 bytes, done.
Total 4 (delta 0), reused 0 (delta 0)
To https://lifemichael@bitbucket.org/lifemichael/ourdemo.git
 * [new branch]      master -> master
Branch master set up to track remote branch master from origin.
```



# Adding Remote Origin

- ❖ Using `git remote add` we add a git repository identified by its path to our current local repository configuration file. Doing so, changes in our current local repository will be tracked by the other.
- ❖ We use `origin` as an alias for the path representing the remote repository.

# Adding Remote Origin

- ❖ Using `-u origin master` together with `push` sets a default setting for `push` and `pull` to work with the remote repository we refer.
- ❖ If we don't use the `-u origin master` in our first push then with each and every `push` or `pull` we will need to specify `origin master` along with the request. Using `-u origin` in our first push it would be enough from now on to specify `git pull` and `git push`.

# The `git pull` Command

- ❖ Working on our files we will find ourselves doing `git add` and `git commit` with every new version.
- ❖ In order to sync the local repository with the remote one we should first `git pull` the files from the remote one to our local and then `git push` back to the remote.
- ❖ The `git pull` command is equivalent for doing the `git fetch` and the `git merge` right after.

# The `git pull` Command

- ❖ In order to keep your working flow as simple as possible make sure that when you do your first push you use the `-u` parameter.

```
git push -u origin master
```



# The `git pull` Command

```
h-MacBook-Pro-sl-haim-3:yaya haimmichael$ git add *
h-MacBook-Pro-sl-haim-3:yaya haimmichael$ git commit -m "adding shalom israel"
[master 5afe289] adding shalom israel
 1 file changed, 2 insertions(+), 1 deletion(-)
h-MacBook-Pro-sl-haim-3:yaya haimmichael$ git pull
Already up-to-date.
h-MacBook-Pro-sl-haim-3:yaya haimmichael$ git push
Counting objects: 5, done.
Delta compression using up to 4 threads.
Compressing objects: 100% (2/2), done.
Writing objects: 100% (3/3), 291 bytes, done.
Total 3 (delta 0), reused 0 (delta 0)
To https://lifemichael@bitbucket.org/lifemichael/yayarepo.git
   8cf8de2..5afe289  master -> master
h-MacBook-Pro-sl-haim-3:yaya haimmichael$
```

# Share Our Work

- ❖ BitBucket allows us to share the repository we have on their server with others in order to allow them to work with us.



# Share Our Work

The screenshot shows a web browser window with the Bitbucket repository page for `lifemichael/yayarepo`. The browser's address bar shows the URL `https://bitbucket.org/lifemichael/yayarepo`. The page features a 'Recent activity' section on the left, a repository overview on the right, and an 'Invite users to this repo' section at the bottom right.

**Recent activity**

- `haim michael` pushed 1 commit to `lifemichael/yayarepo` 16 minutes ago  
5afe289 - adding shalom israel
- `haim michael` pushed 1 commit to `lifemichael/yayarepo` 18 minutes ago  
8cf8de2 - adding shalom israel
- `haim michael` pushed 1 commit to `lifemichael/yayarepo` 30 minutes ago  
59ad9b8 - first commit
- `haim michael` pushed 1 commit to `lifemichael/yayarepo` 32 minutes ago  
081cf2d - first commit
- `haim michael` created `lifemichael/yayarepo` 33 minutes ago

**Repository Overview**

- 1 Branch
- 0 Tags
- 0 Forks
- 1 Watcher

Owner	haim michael
Access level	Private
Type	Git
Last updated	13 minutes ago
Created	29 minutes ago
Size	95.2 KB (download)

**Invite users to this repo**

Send invitation

# The `git clone` Command

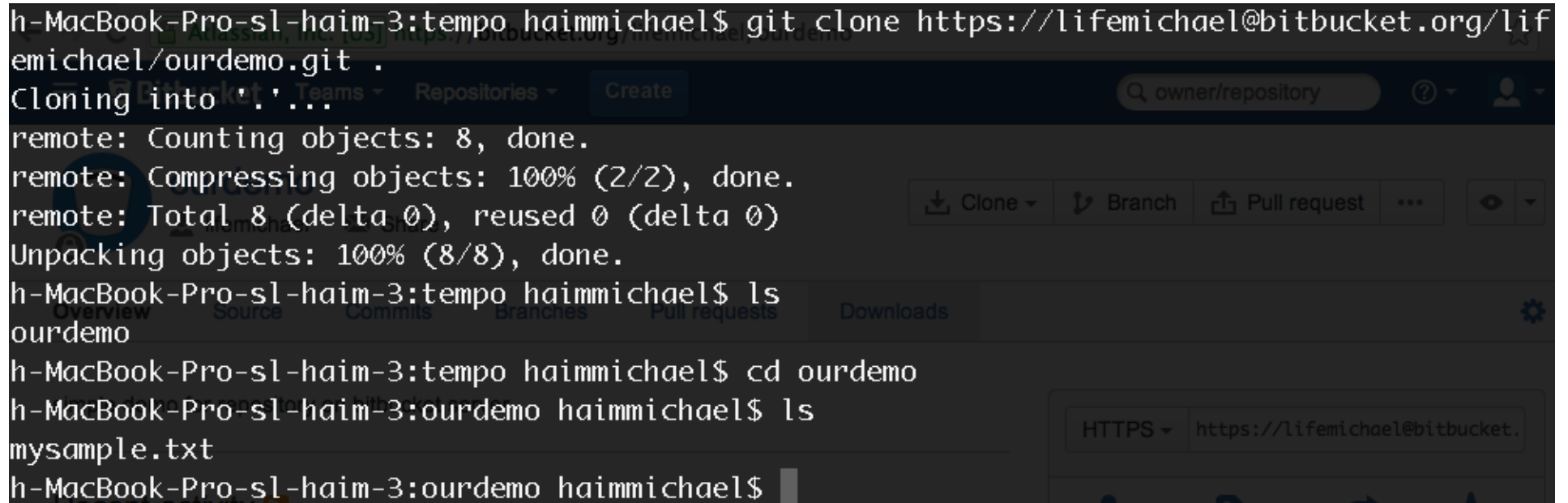
- ❖ Using the `git clone` command we can clone a repository we have on a remote server and get it ready for work in a specific directory on our local machine.





# The `git clone` Command

```
h-MacBook-Pro-sl-haim-3:tempo haimmichael$ git clone https://lifemichael@bitbucket.org/lifemichael/ourdemo.git .
Cloning into '.'...
remote: Counting objects: 8, done.
remote: Compressing objects: 100% (2/2), done.
remote: Total 8 (delta 0), reused 0 (delta 0)
Unpacking objects: 100% (8/8), done.
h-MacBook-Pro-sl-haim-3:tempo haimmichael$ ls
ourdemo
h-MacBook-Pro-sl-haim-3:tempo haimmichael$ cd ourdemo
h-MacBook-Pro-sl-haim-3:ourdemo haimmichael$ ls
mysample.txt
h-MacBook-Pro-sl-haim-3:ourdemo haimmichael$
```



# Intranet Sharing

- ❖ We can install a Git server in our local network and use it without been exposed to remote servers. Gitolite is one of the options.

<http://gitolite.com/gitolite/index.html>