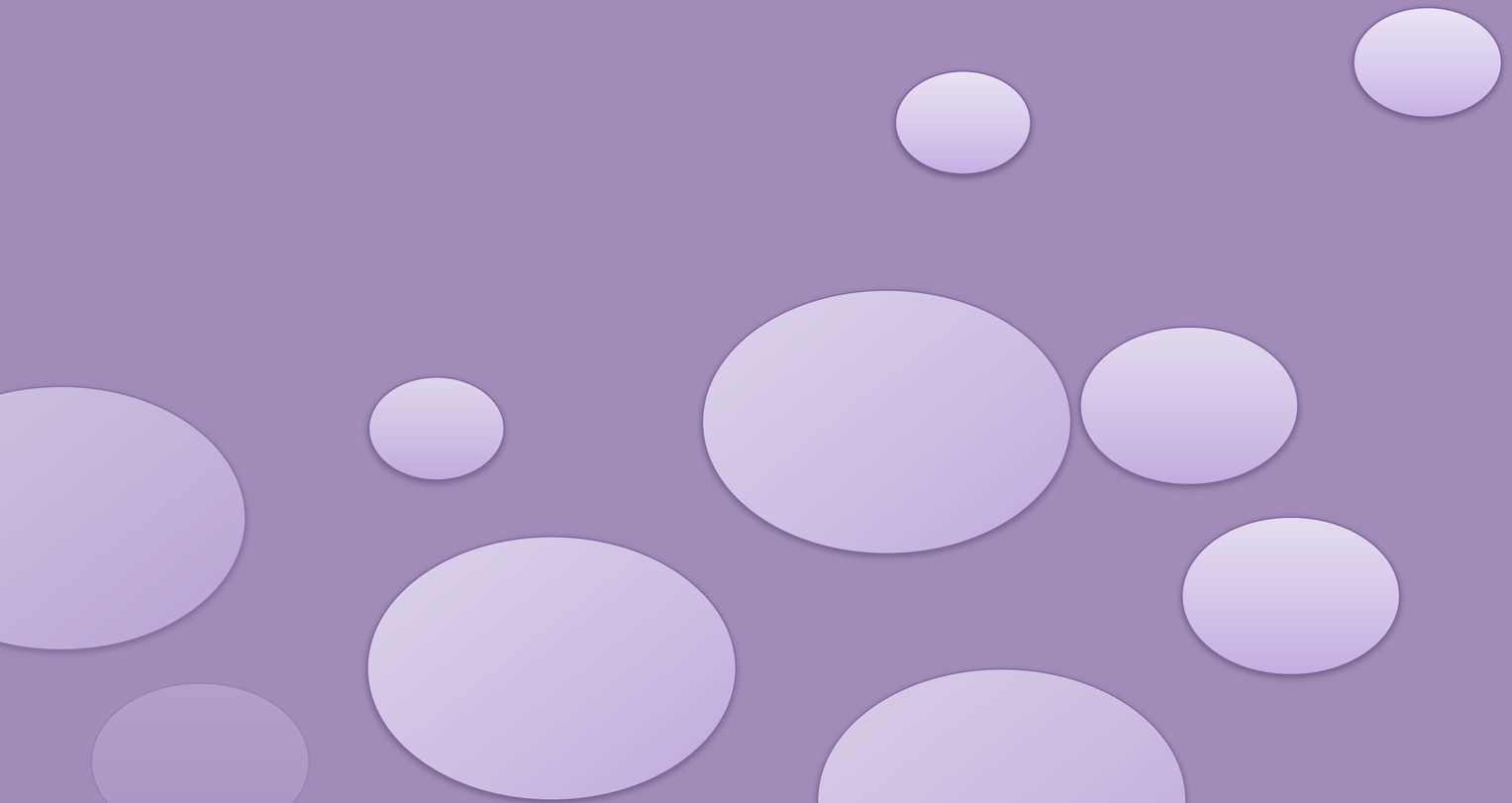
DevSecOps, day 1

3. Lab: Azure DevOps



What will you need?

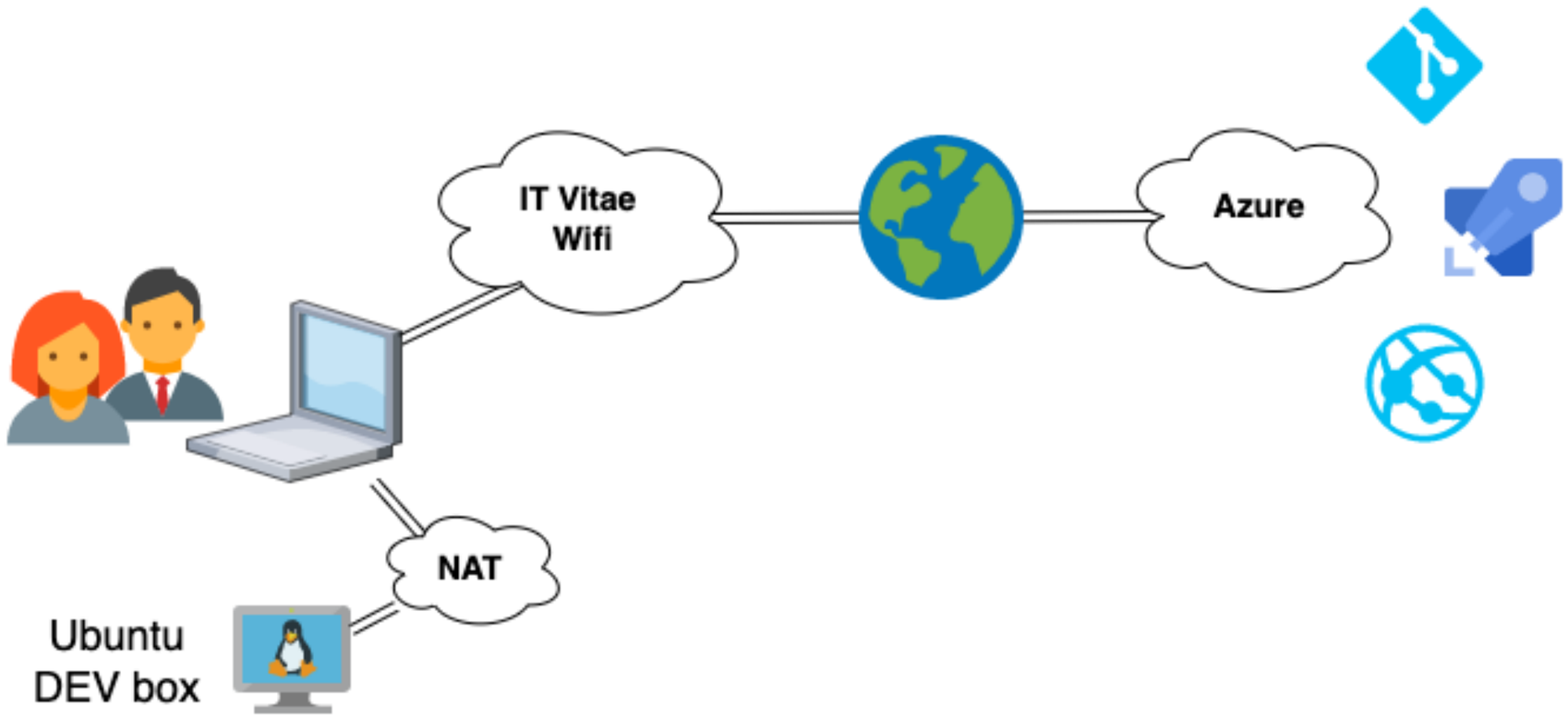
- A semi-recent (5 years) laptop, or PC.
  - Intel i5/i7, AMD Zen2, Apple Silicon (ARM)
  - At least 8GB RAM
  - At least 60GB of storage space

What will you need?

- VirtualBox
- A *Vagrantfile* is available.
  - It makes a Ubuntu 22.04 VM, with all tools.

- The *Vagrantfile* gives 4 CPU cores and 4GB.
  - If you can spare it, give the VM more!

Our working environment



Our working environment

- Use a browser on your host OS.
- Use Git, etc on your DEV box.
- Use SSH to login to your DEV box.
  - *vagrant ssh devsecops*

Let's start "work"!

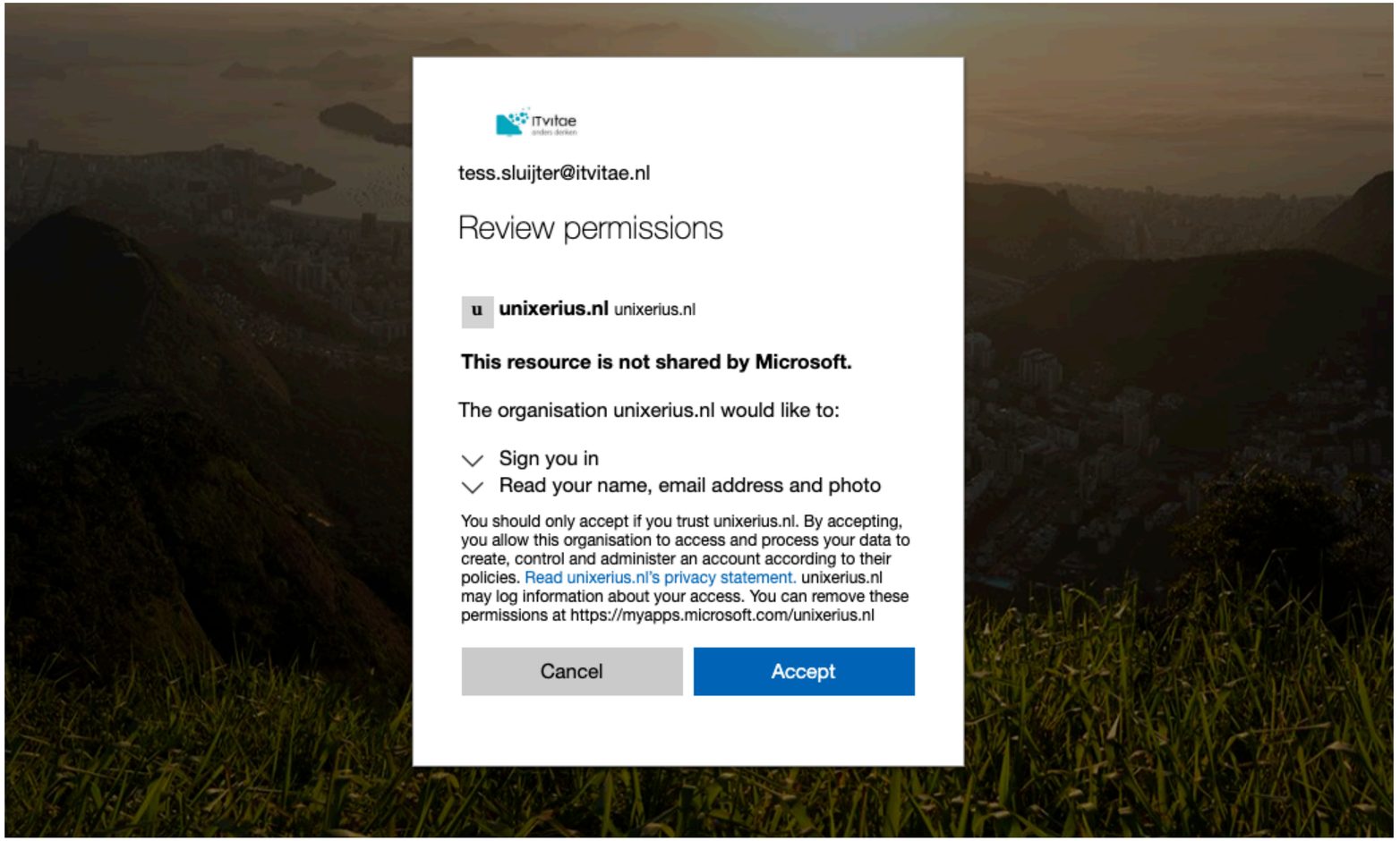
- I have invited all of you to a new project.
  - We have Scrum boards, Git repos and more.

- You will work in teams of 2-3, on the same project.

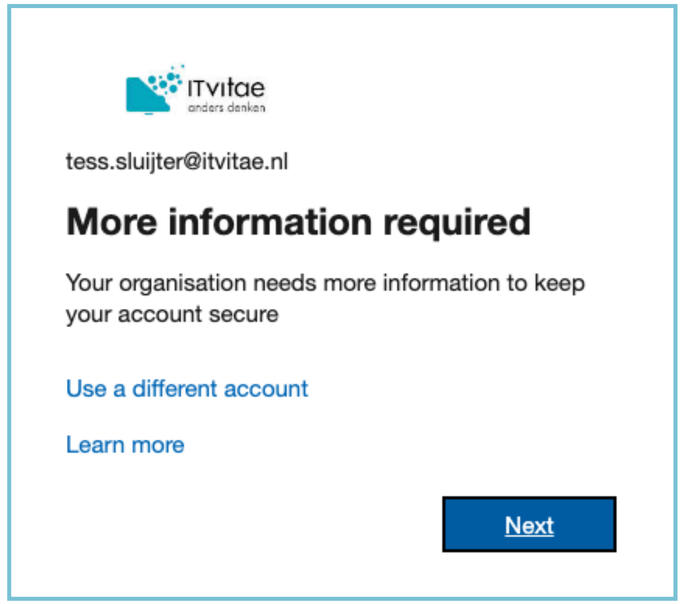
Logging in

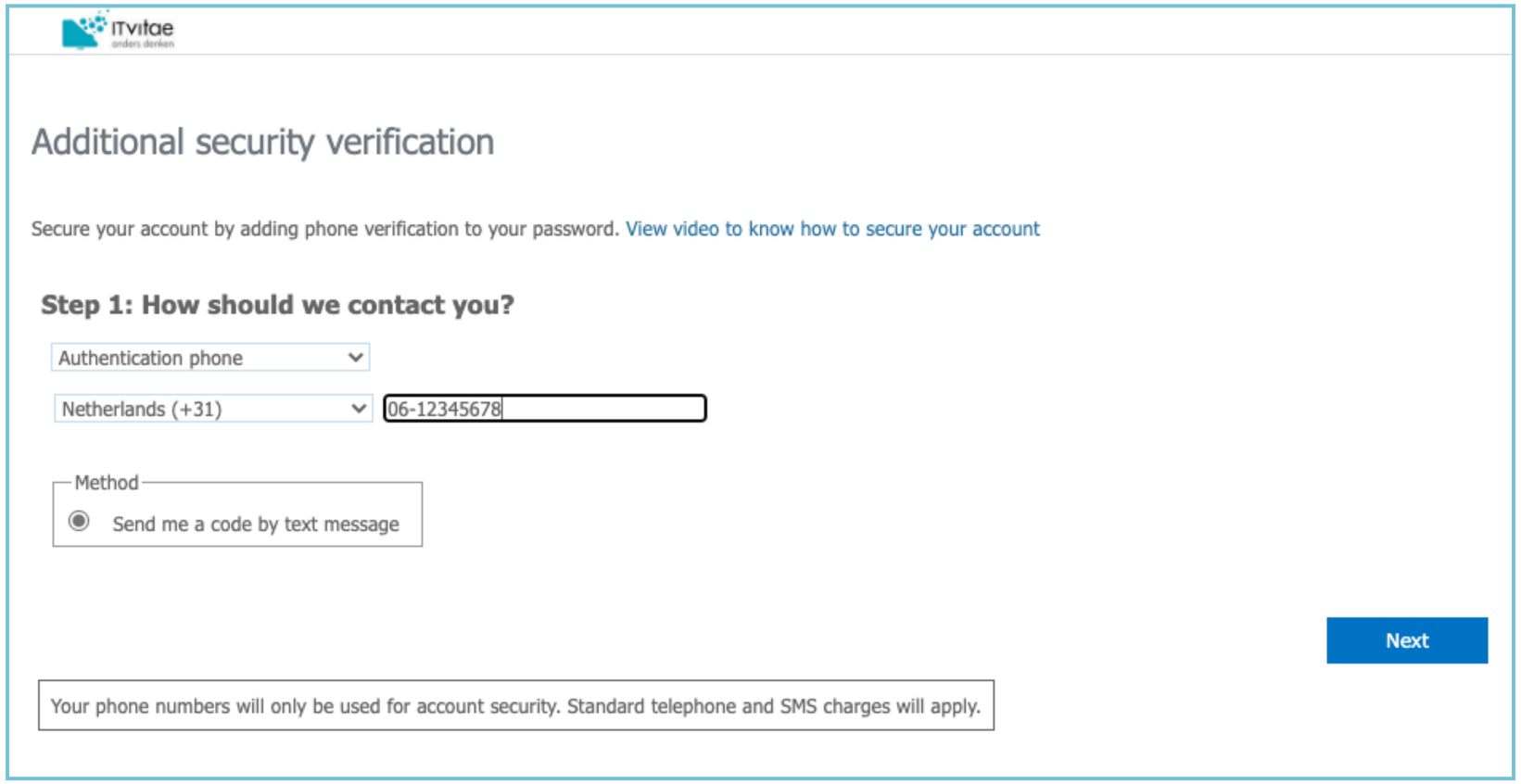
- Go to https://dev.azure.com/Unixerius-learning/
- Login using your ITVitae credentials.
  - You will be asked to setup MFA.
  - Use Azure MFA app, or your mobile number.

Logging in


ITvitae
tess.sluijter@itvitae.nl
Review permissions
u
unixerius.nl unixerius.nl
This resource is not shared by Microsoft.
The organisation unixerius.nl would like to:
Sign you in
Read your name, email address and photo
You should only accept if you trust unixerius.nl. By accepting, you allow this organisation to access and process your data to create, control and administer an account according to their policies. Read unixerius.nl's privacy statement. unixerius.nl may log information about your access. You can remove these permissions at https://myapps.microsoft.com/unixerius.nl
Cancel
Accept

Logging in


ITvitae
anders denken
tess.sluijter@itvitae.nl
More information required
Your organisation needs more information to keep your account secure
Use a different account
Learn more
Next

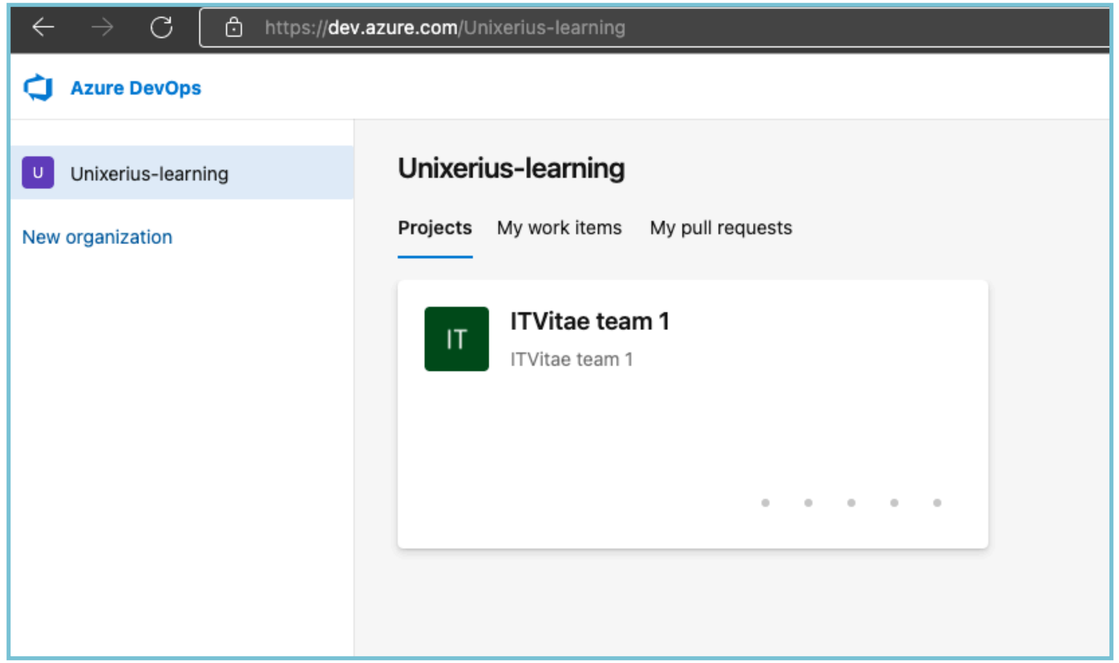

ITvitae
anders denken
Additional security verification
Secure your account by adding phone verification to your password. View video to know how to secure your account
Step 1: How should we contact you?
Authentication phone
Netherlands (+31)
06-12345678
Method
Send me a code by text message
Next
Your phone numbers will only be used for account security. Standard telephone and SMS charges will apply.

Multi-factor authentication

- Azure DevOps and the Azure Portal:
  - Admin-level access to your project and infra!
  - Very serious target for phishing!
  - Case study: *SchizoDuckie vs Belastingdienst*.

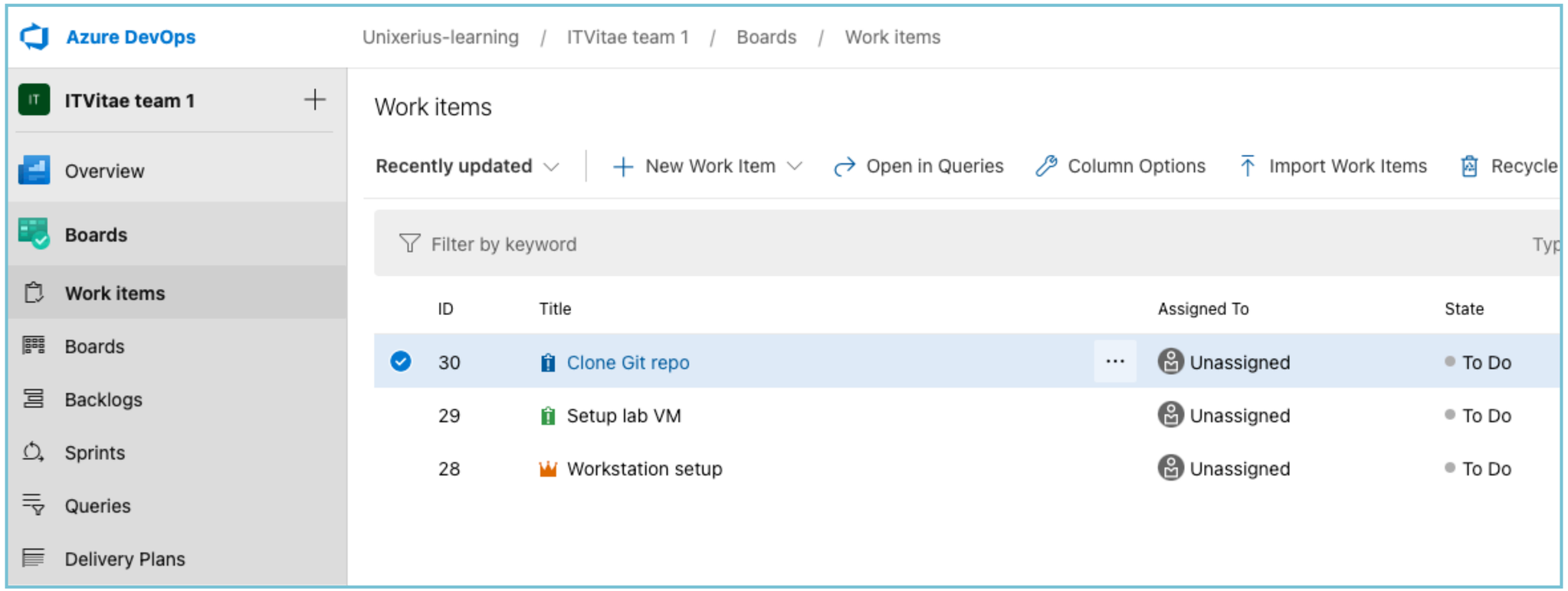
Welcome!

- You have been assigned to a team.
- Your team has 1 project.



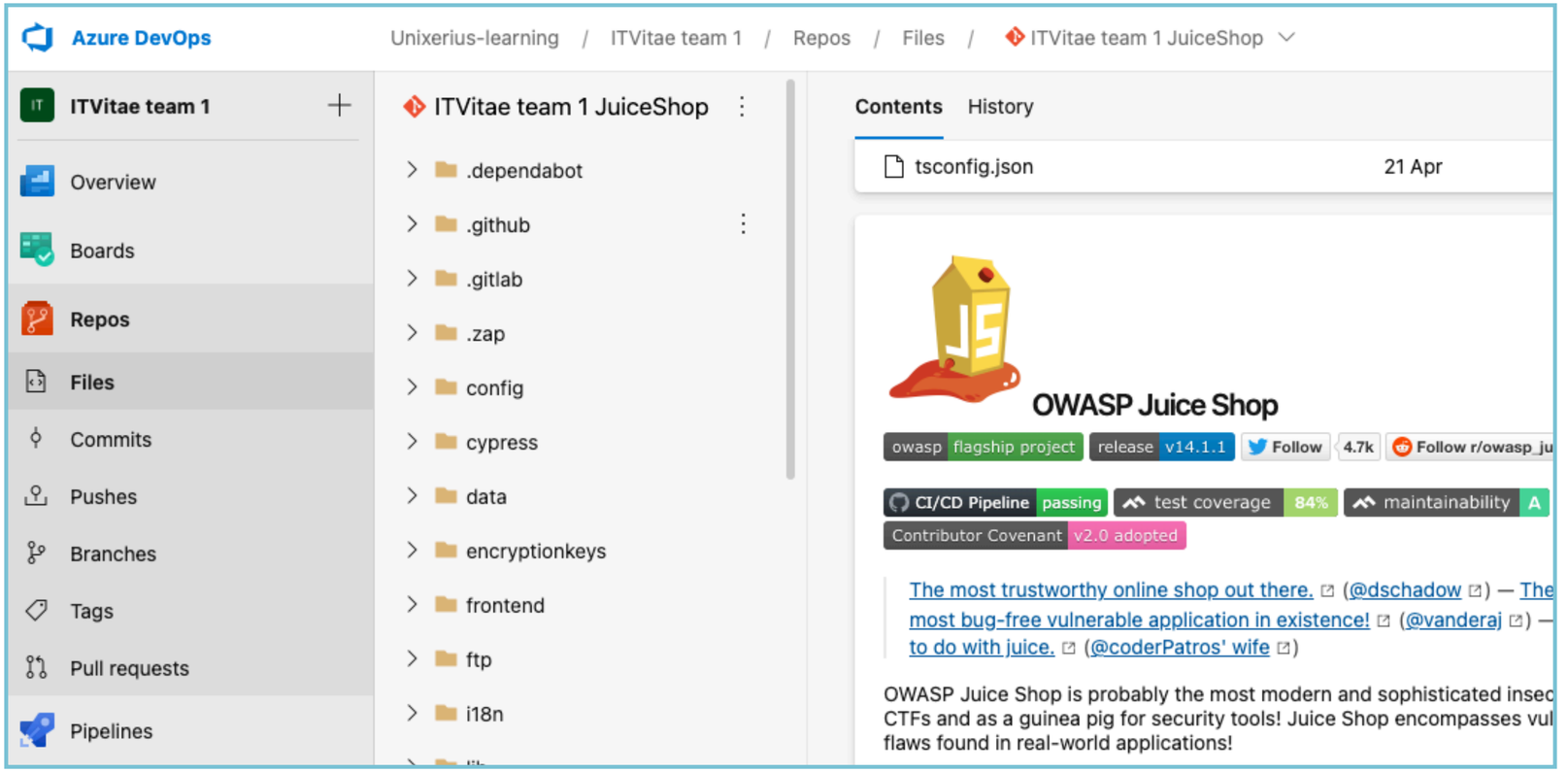
Welcome!

- Your team has a task board.

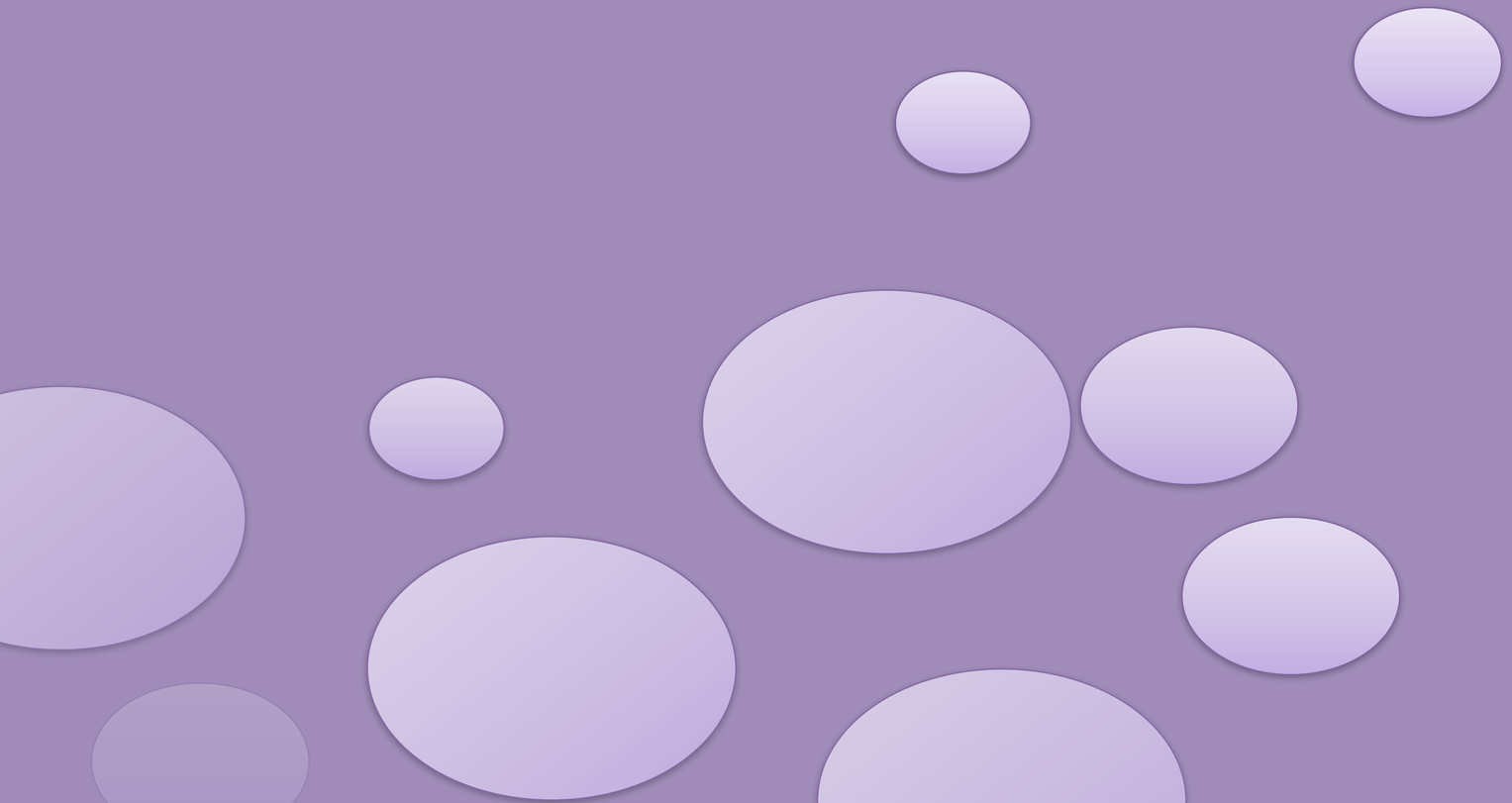


Welcome!

- Your team has a Git repo.



4. Lab : Setting up Git



Assignment: setup Git

- Each team will be cloning *their own* repo.

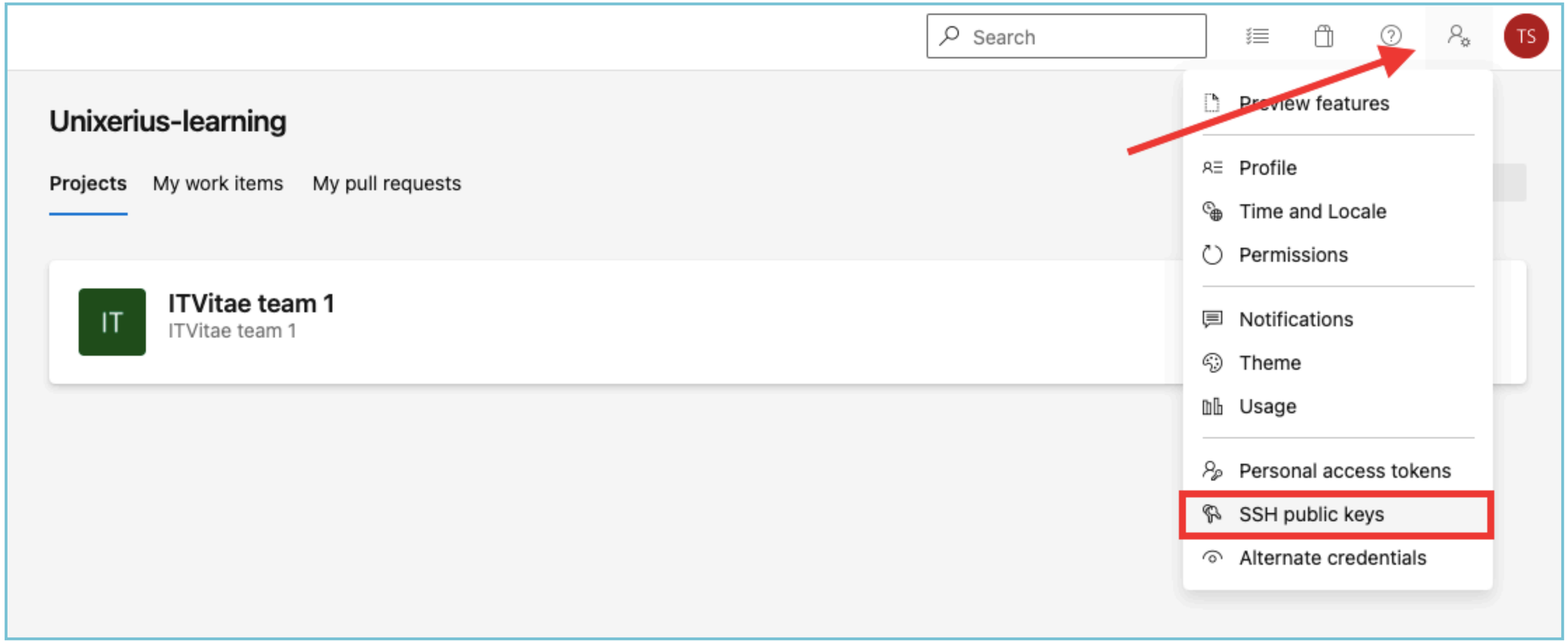
- On your dev VM, make a new SSH RSA key pair.
- You will link your SSH public key,
  - To your Azure DevOps account.

Assignment: setup Git

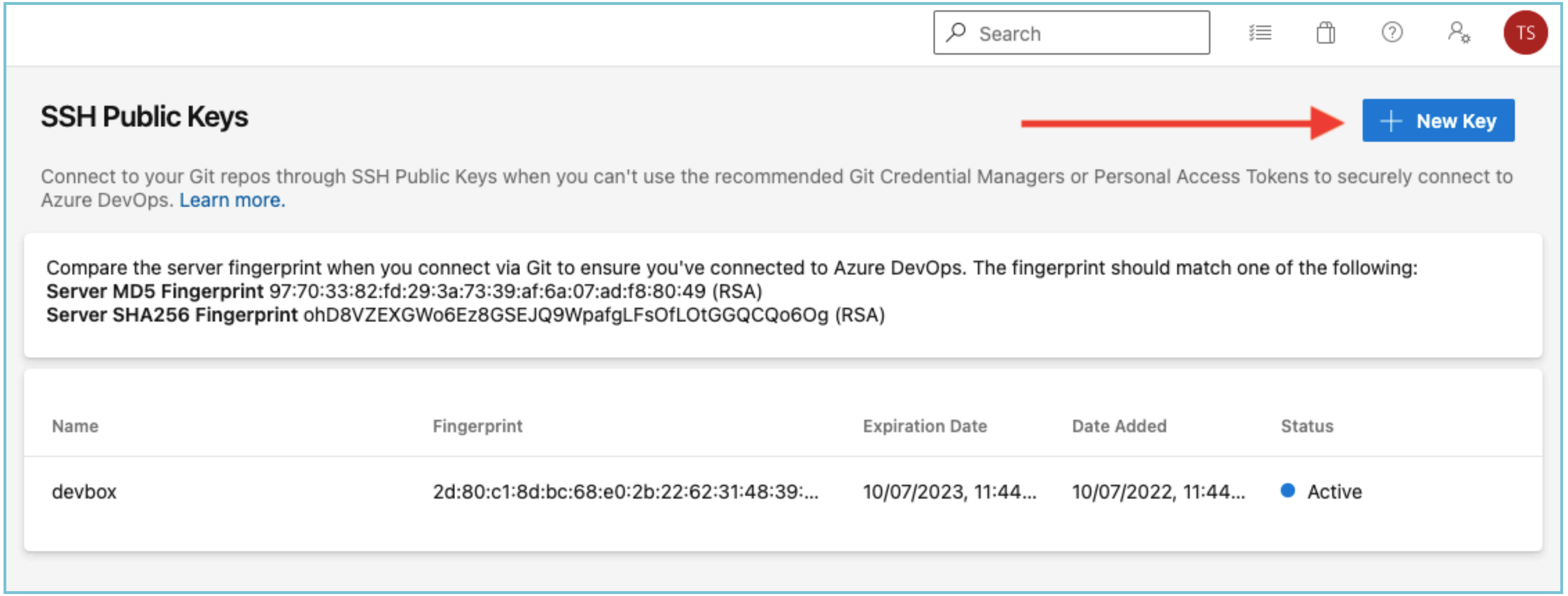
- Please *do* set up a password for your key pair.

```
$ ssh-keygen -t rsa
   # Use the default location
   # Set a password

$ cat ~/.ssh/id_rsa.pub
```

Assignment: setup Git



Assignment: setup Git



Assignment: setup Git

- Also, let's configure your Git client.

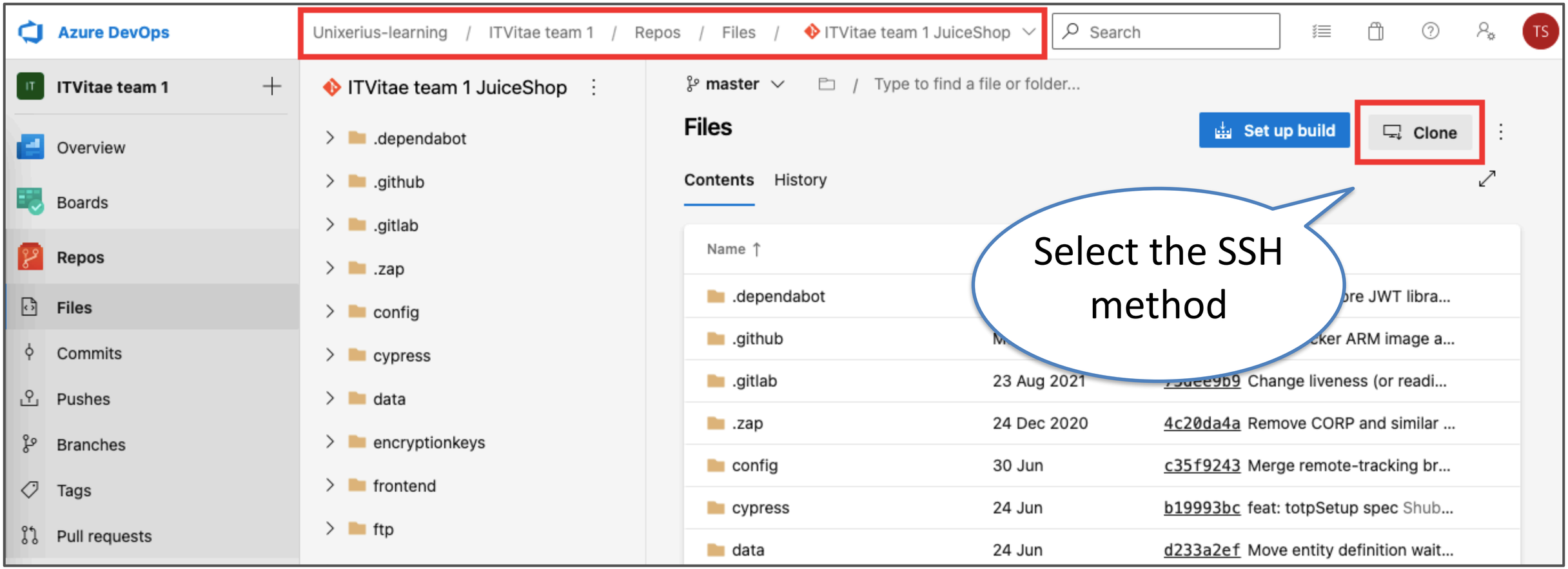
```
$ git config --global user.name \
  "Tess Sluijter"

$ git config --global user.email \
  "tess@itvitae-learning.nl"
```

Assignment: setup Git

- Specify your own Git directory name.
  - Do not just clone the repo.
  - Clone it into *"~/Team1JS"*, for example.

- Otherwise, NPM will complain about "*node-pre-gyp*".

Assignment: setup Git



Assignment: setup Git

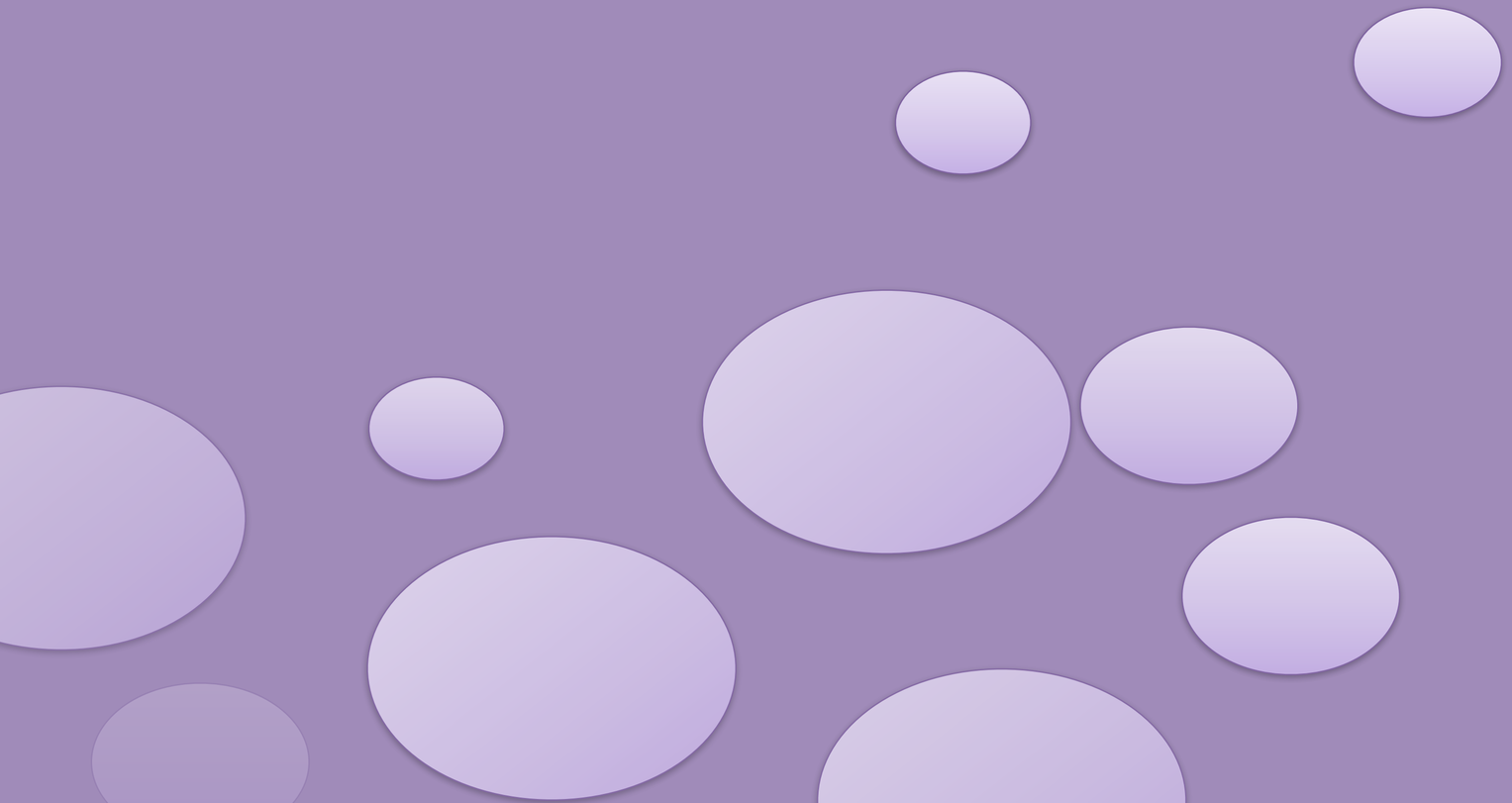
- For me, that gives:

```
$ git clone git@ssh.dev.azure.com:v3/
Unixerius-learning/ITVitae%20team%201/
ITVitae%20team%201%20JuiceShop ~/Team1JS
```

Checkpoint!

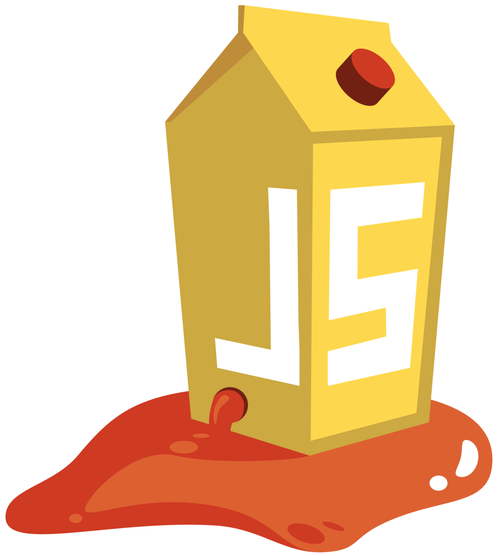
- Does everyone have:
  - Their DEV VM up and running?
  - A local clone of their team's repo?

6. Lab: Juice Shop



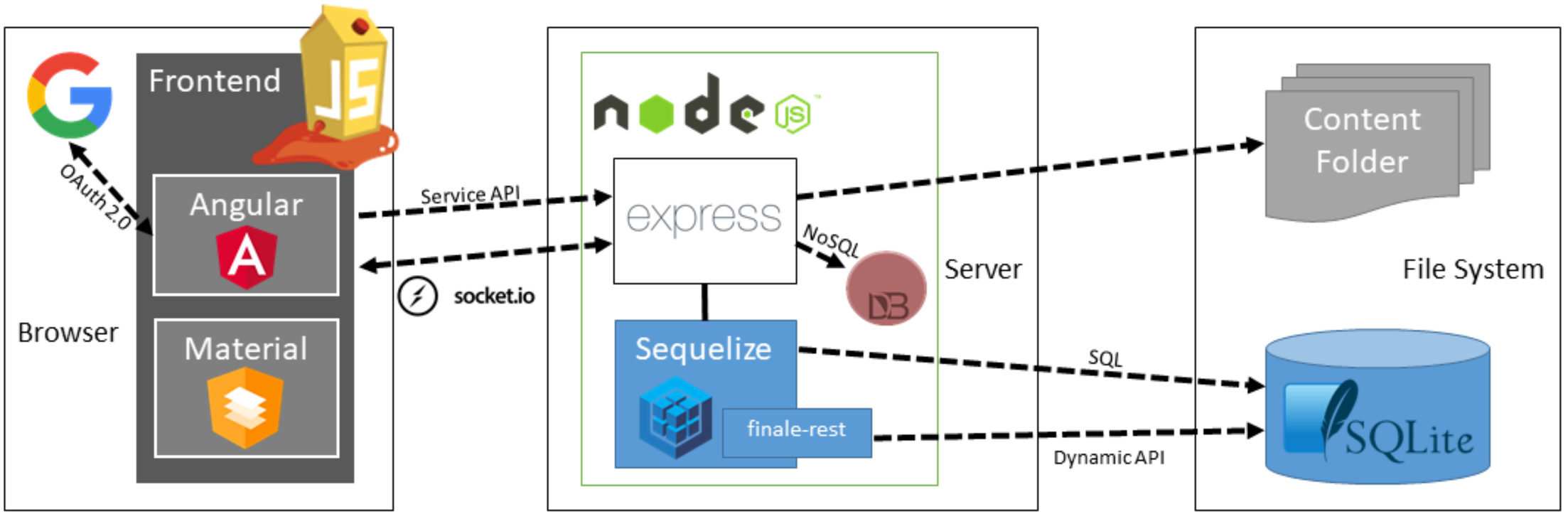
What is Juice Shop?

- An OWASP flagship project.
  - A demo webshop, that works!
  - Built in TypeScript and NodeJS.
  - Frontend, backend, APIs.
- Learning tool for security!



See: [OWASP's most broken flagship]

From the manual



See: [JS Codebase 101]

Why is it useful for us?

- Training tool for pen-testers.
- Testing tool for DevSecOps.
- Teaching tool for developers.
- Demo tool for business people.

What will we do?

- We will build and run it on the DEV VM.
- We will run the project's test cases.
- We will build a Docker container.

But how?? RTFM

- Every project should have proper documentation.
  - We already saw the architecture docu.

- The project includes instructions for building.
  - The developer guide has test instructions.

Assignment: build locally

```
$ cd ~/Team1JS

$ npm install
```

Fetching dependencies takes *long*. 6 to 20 minutes.

See: Juice Shop README.md

Assignment: build locally

- This shows a lot of warnings!
  - We'll talk about this on day 3.

```
added 2074 packages, and audited 2075 packages in 11m

146 packages are looking for funding
  run `npm fund` for details

27 vulnerabilities (12 moderate, 7 high, 8 critical)
```

Assignment: run locally

- The following starts the web app services.
  - Access it on http://localhost:3000

```
$ cd ~/Team1JS

$ npm start
```

See: Juice Shop README.md

Assignment: run locally

- Either use your host OS' browser.
  - Or test with *curl* on the DEV VM.

Assignment: test locally

- Every application should include a full set of tests.
  - First ^C the running webapp. Then:

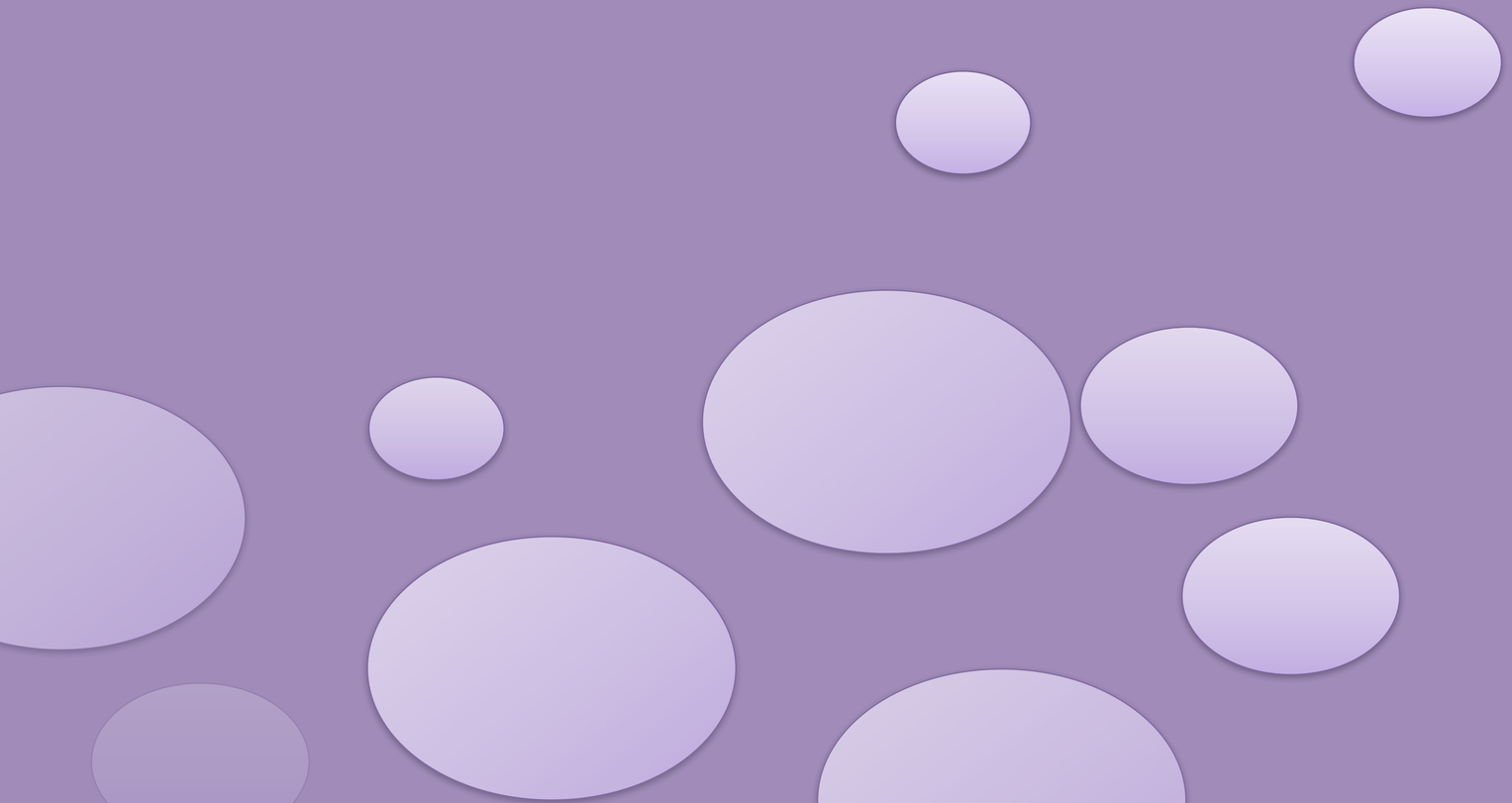
```
$ npm run lint                  # CQ compliance
$ npm test                      # functionality
$ npm run frisby                # integration
```

See: Juice Shop developer contributions

Checkpoint!

- Does everyone have:
  - Working tests?
  - A working running local app?

Closing



What have we achieved?

- We started work as DevOps engineer!
- We got access to our project.
- We setup our development workstation.
- We built, tested and ran the software locally.

Tomorrow

- We will freshen up our Git skills.
- Dive into virtualization and containers again.
- Get started on CI/CD.

Reference materials

Resources

- MIT 6.858 - Computer Systems Security
- PDSO Certified DevSecOps Professional
- "The Phoenix Project"
- "Make DevOps valuable" - Sasha Rosenbaum
- "Agile vs Scrum"
- "Agile, Waterfall, Kanban, Scrum"
- "Kanban vs Scrum"
- A threat modeling journey - B. Schoenfield

Resources

- https://dev.azure.com/Unixerius-learning/
- SchizoDuckie vs Belastingdienst
- FFFO, what it really means
- Juice Shop Codebase 101
- Juice Shop README.md
- Juice Shop developer contributions