ICT-Start – Session 01

Module 1: Introduction to Programming

December 12, 2022

Let’s get to know each other!

- Name
- Place of work and current position
- Experience in the field of IT
- What do you except as an outcome of this training?

Course Introduction

ICT Start

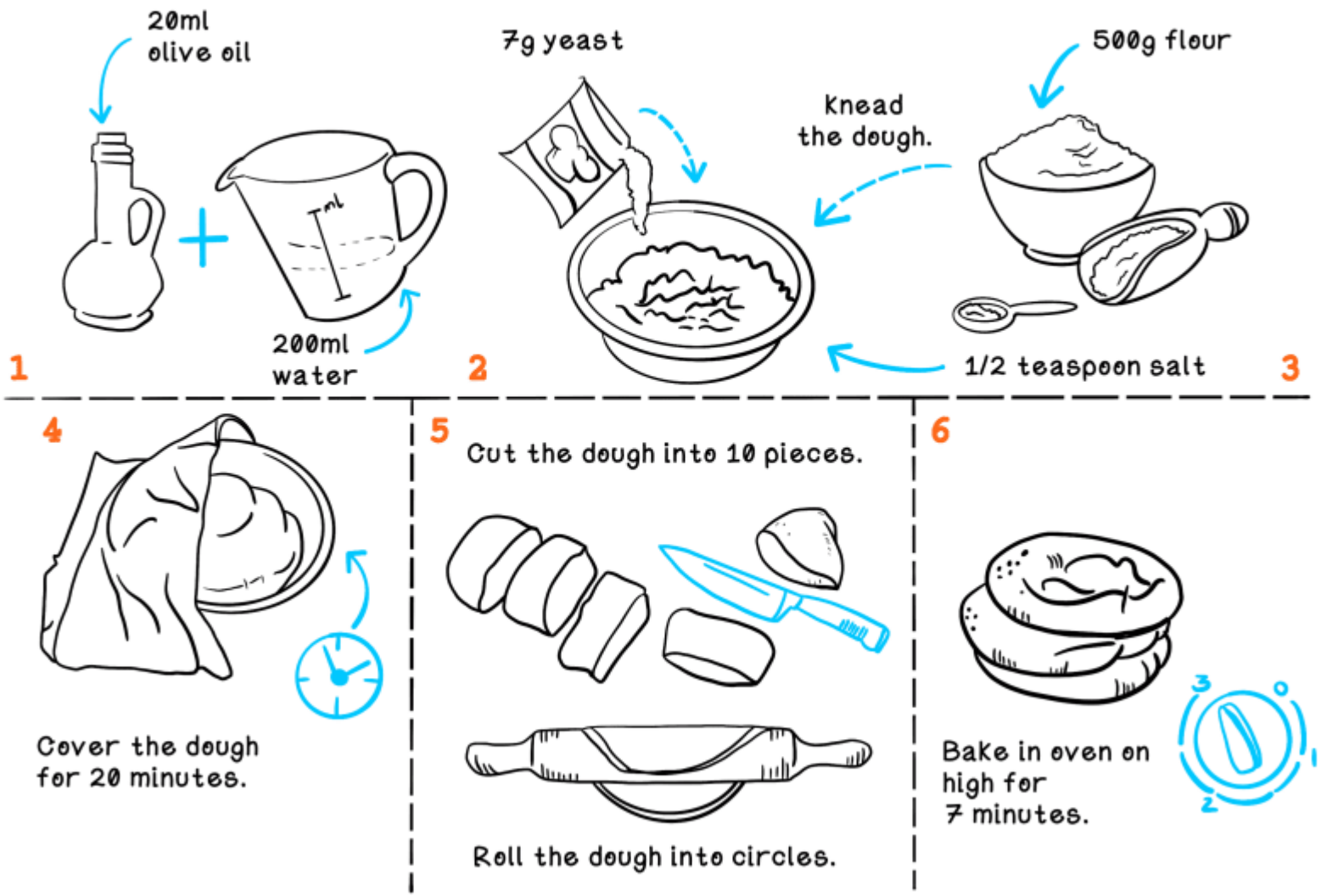
PROGRAMME DE FORMATION

> Module 1	Introduction to Programming	+-10h
> Module 2	Creating static web pages using HTML5 and CSS3	+-26h
> Module 3	Client-Side Scripting 1	+-24h
> Module 4	Client-Side Scripting 2	+-20h

Terms definition

- What is a program?
- What is a programming language?
- ***Q**: Why can't we use a natural language such as English to write programs?*
- ***A***: Natural languages are ambiguous. We need a **formal** language so that each and every program line is unambiguously understood by everyone.
  - Example: "*I saw Alice with a telescope*". Question: *Who has the telescope?*
- ***Q***: Do you know a formal language?
- What is an algorithm?
  - Analogy: recipe

Pita bread algorithm



rhurbans.com

Lightbot Activity

- Visit https://lightbot.lu

WHICH PROGRAMMING LANGUAGE

SHOULD I LEARN FIRST?

WHAT IS PROGRAMMING?

Writing very specific instructions to a very dumb, yet obedient machine.

LANGUAGES

PYTHON · JAVA · C · PHP · C++

JAVASCRIPT · C# · RUBY · OBJECTIVE-C

START

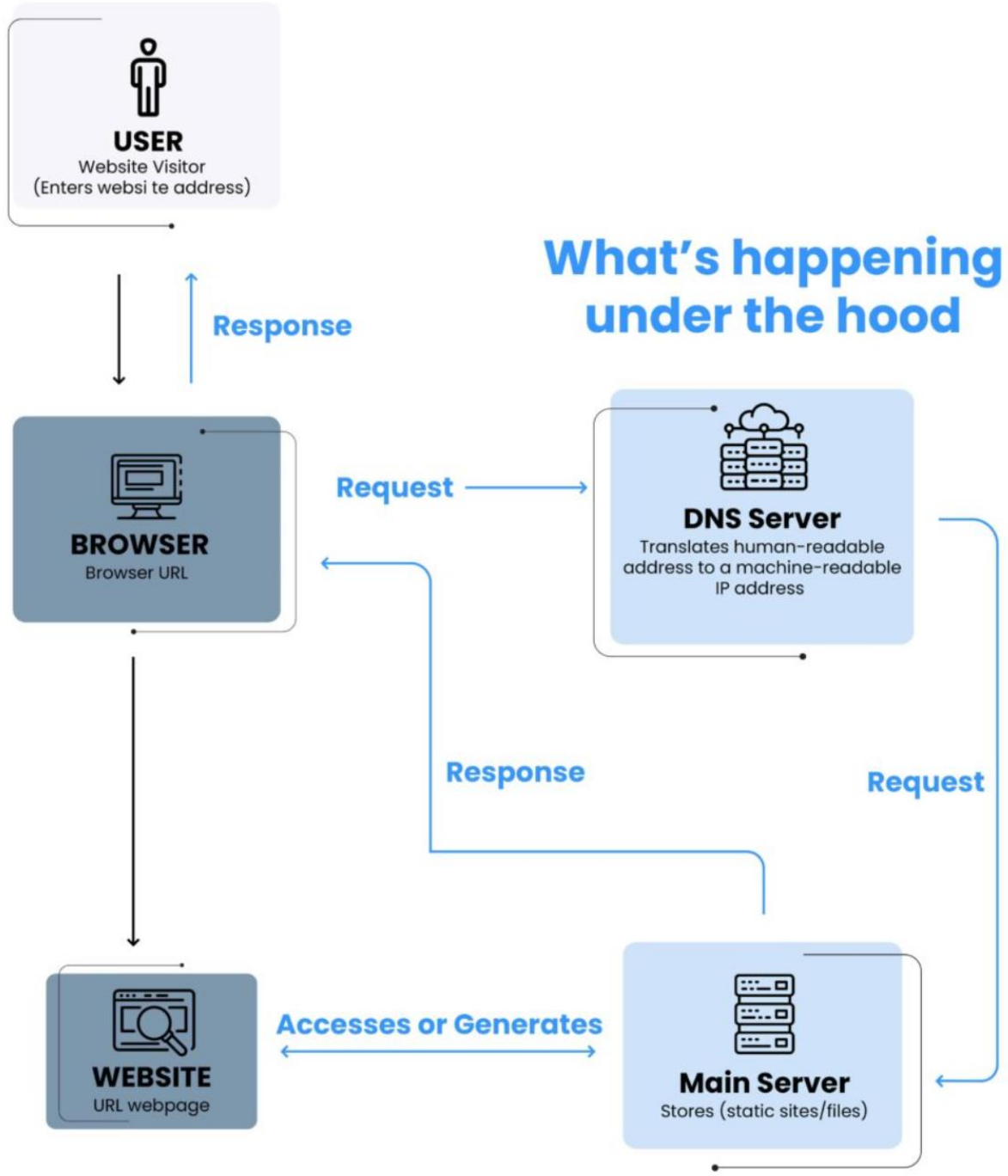
WHY DO YOU WANT TO LEARN PROGRAMMING?

- For my kids → Start with Scratch, then move on to...
- I don't know, just pick one for me
- Just for fun
- I'm interested → Have a brilliant idea/platform in mind?
  - Nope. Just want to get started
  - I prefer to learn things...
    - The easy way
    - The best way
    - The slightly harder way → Auto or Manual car? → Auto / Manual
    - The really hard way (but easier to pick up other languages in the future)
- Improve myself → Have a brilliant idea/platform in mind?
- Get a job → Make money → Which platform/field?
- I have a startup idea! → Which platform/field?

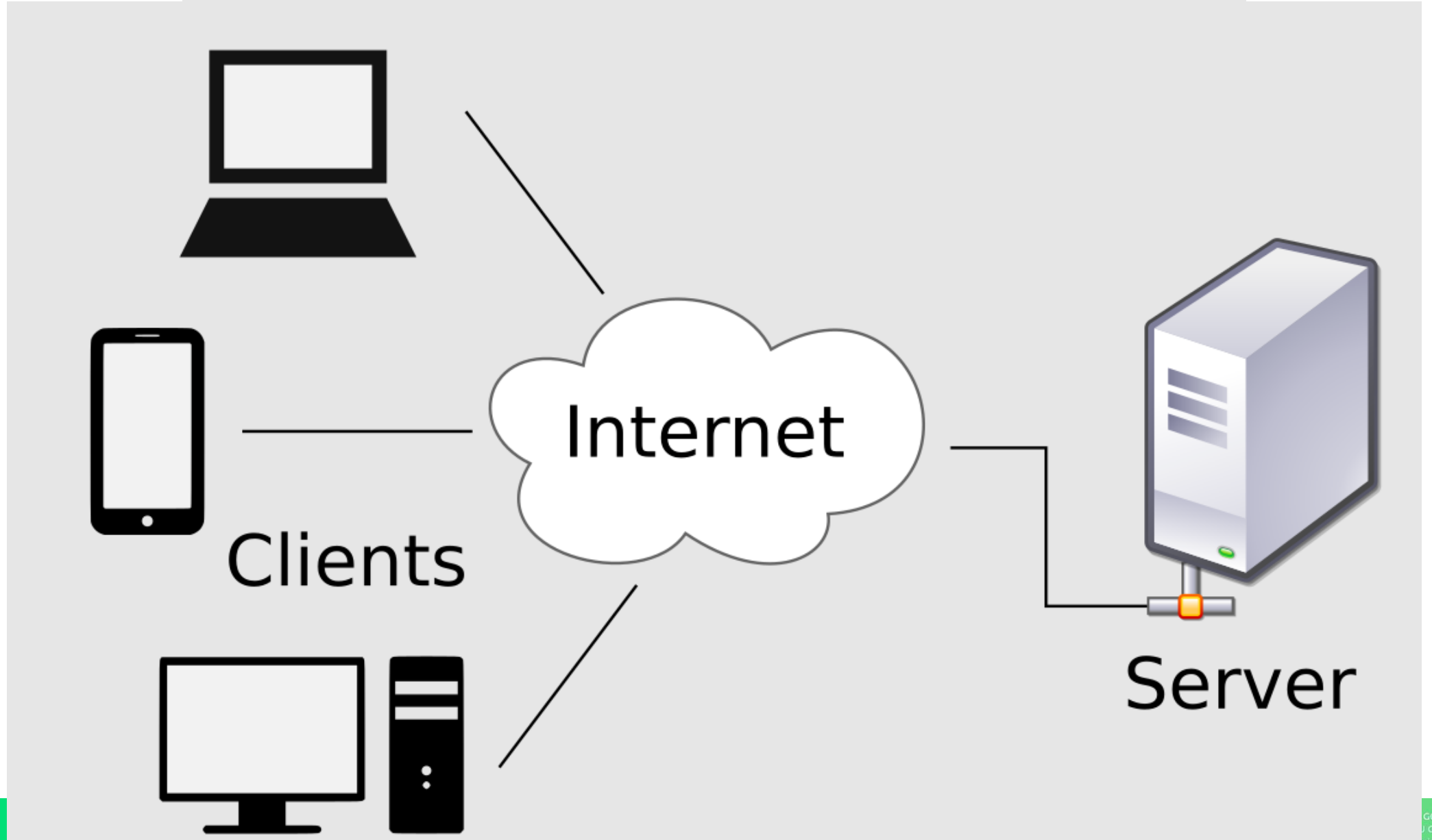
Which platform/field?

- I want to work for big tech companies
- Doesn't matter, I just want $$$
- Front-end (web interface) → Web → Back-end ("brain" behind a website) → I want to work for... → Corporate / Startup
  - Corporate → What do you think about Microsoft? → I'm a fan! / Not Bad / Suck
- 3D/Gaming
- Mobile → Which OS? → iOS / Android
- Enterprise
- Web → Do you want to try something new with huge potential, but less mature?
  - NOT SURE
  - NO → Which one is your favourite toy?
    - Lego
    - Play-Doh
    - I've an old & ugly toy, but i love it so much!
  - YES → Does your web app provides info in real-time, like twitter?
    - YES
    - NO

How a website works



Client-Server Model



GOUVERNEMENT
U GRAND-DUCHÉ DE LUXEMBOURG
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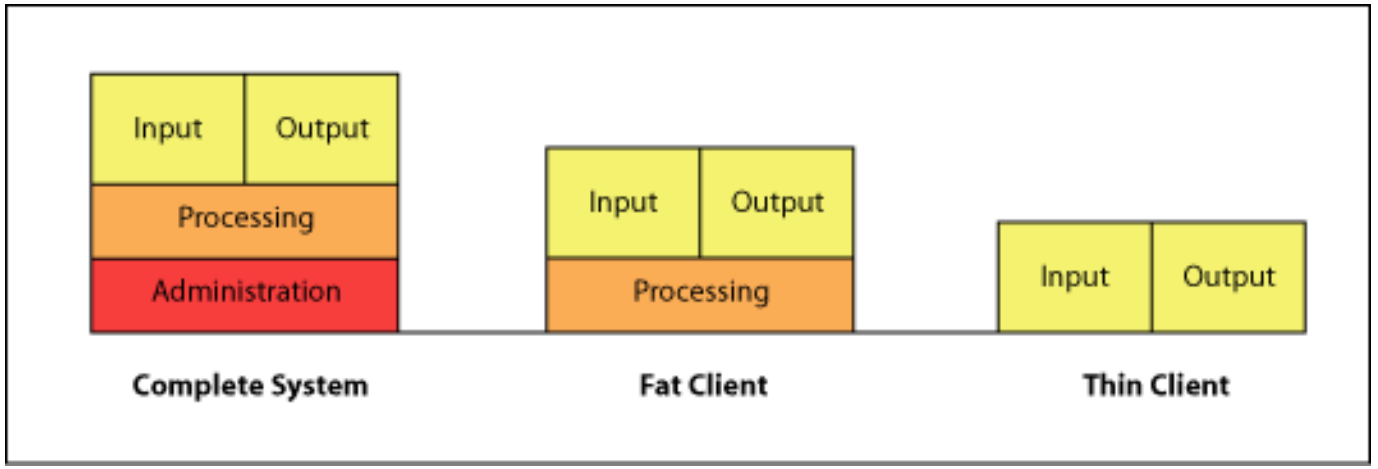
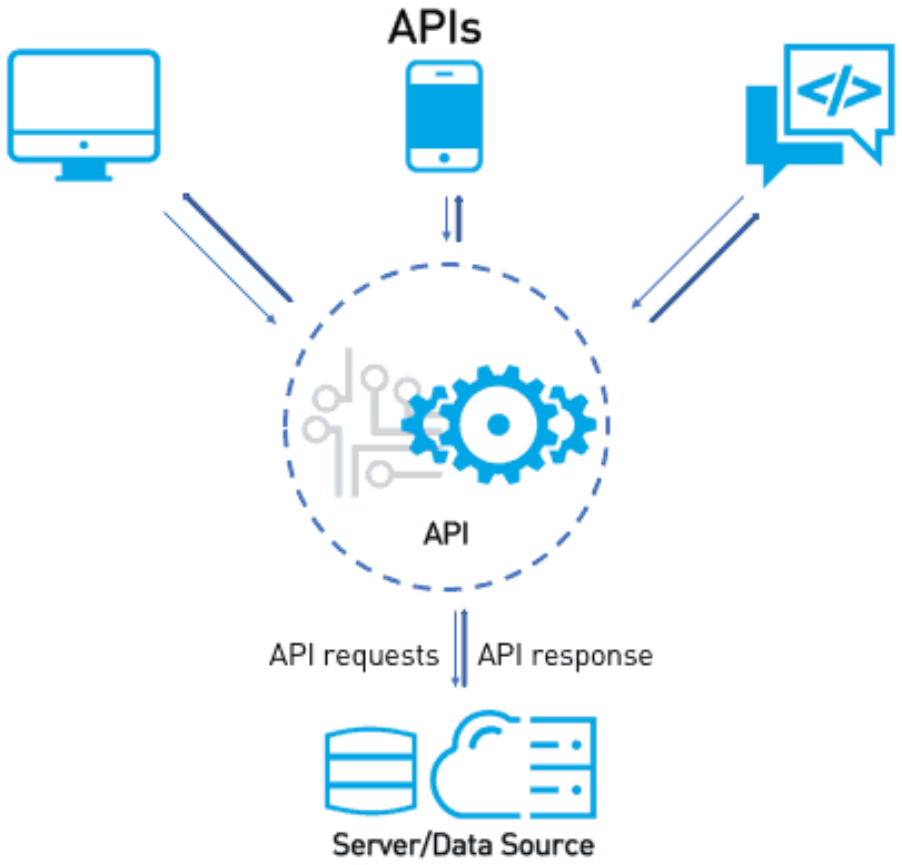
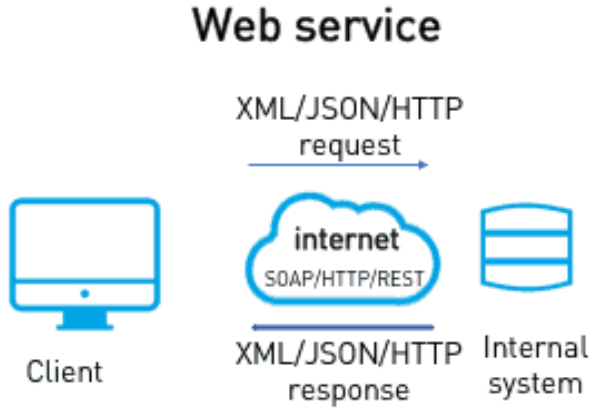
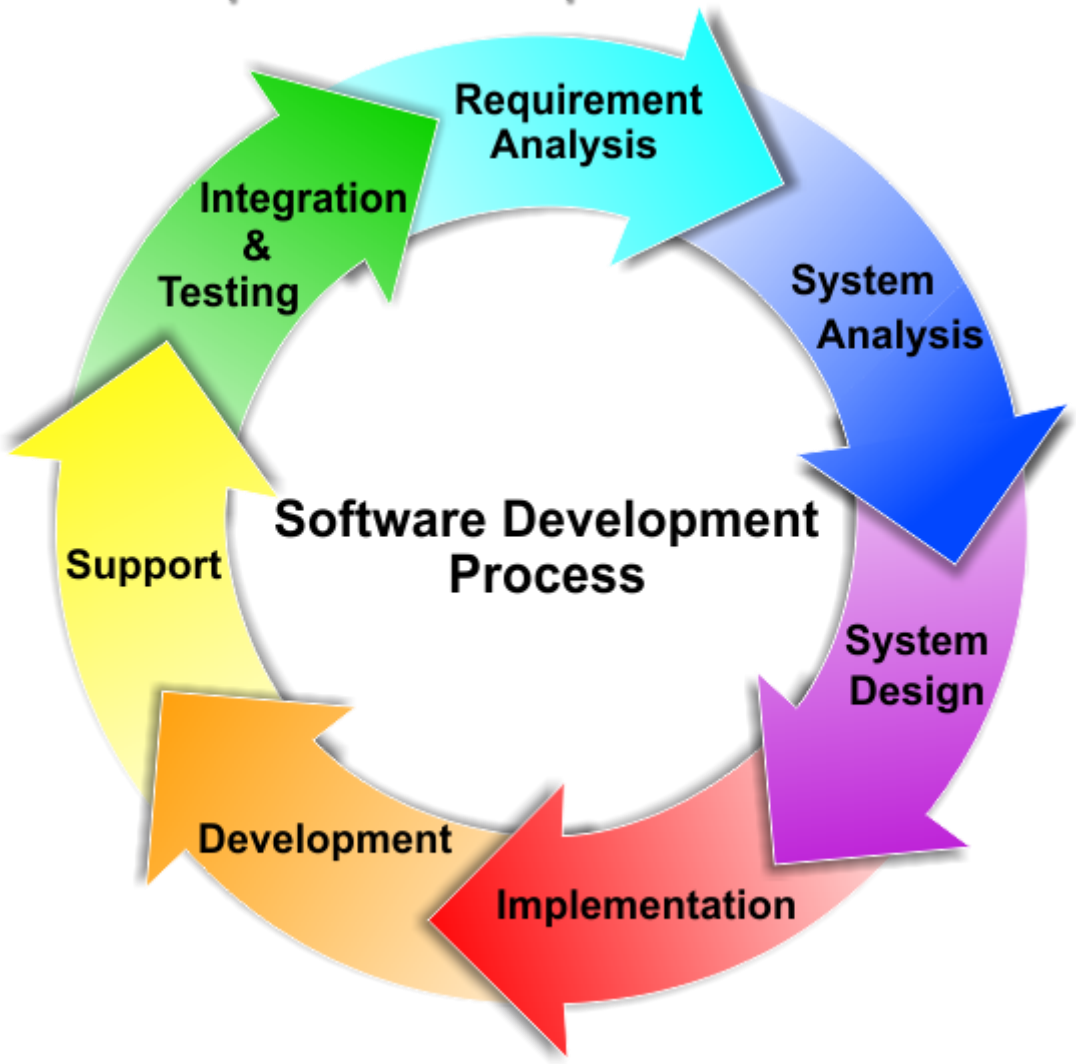

Input
Output
Processing
Administration
Complete System
Input
Output
Processing
Fat Client
Input
Output
Thin Client

Webservices and API's





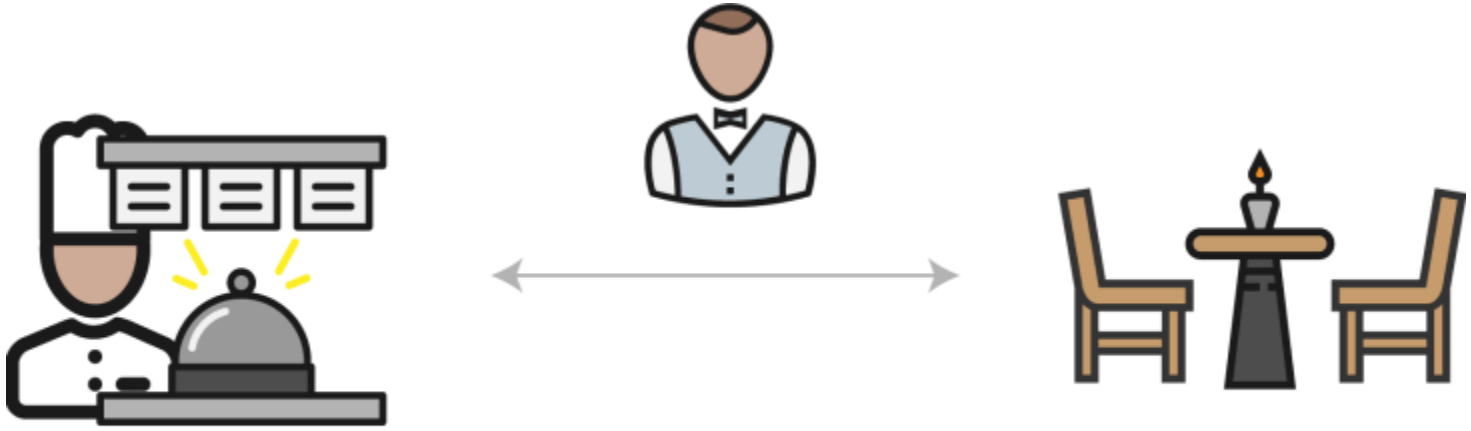
Software development process



Career perspective

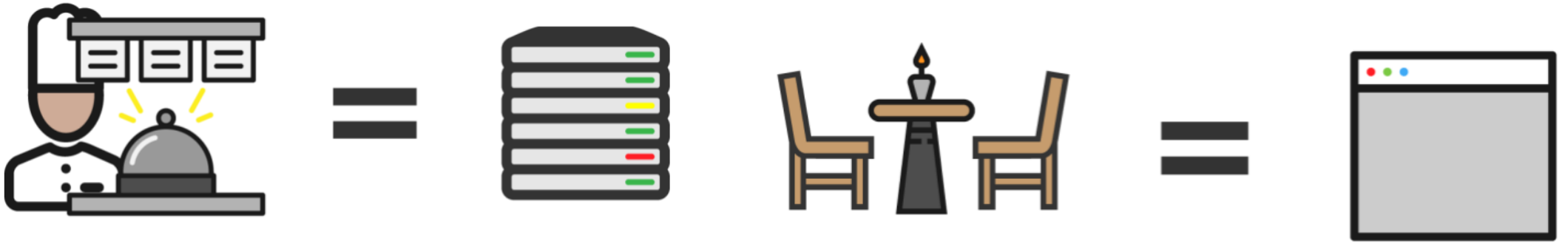
- Front-End Web Developer
- Back-End Web Developer
- Full-Stack Web Developer

Some Analogy



Kitchen
Back-end

Table
Front-end



Kitchen
Back-end

Server
Back-end

Table
User interface

http://mysite.com
User interface

Some Analogy

Menu

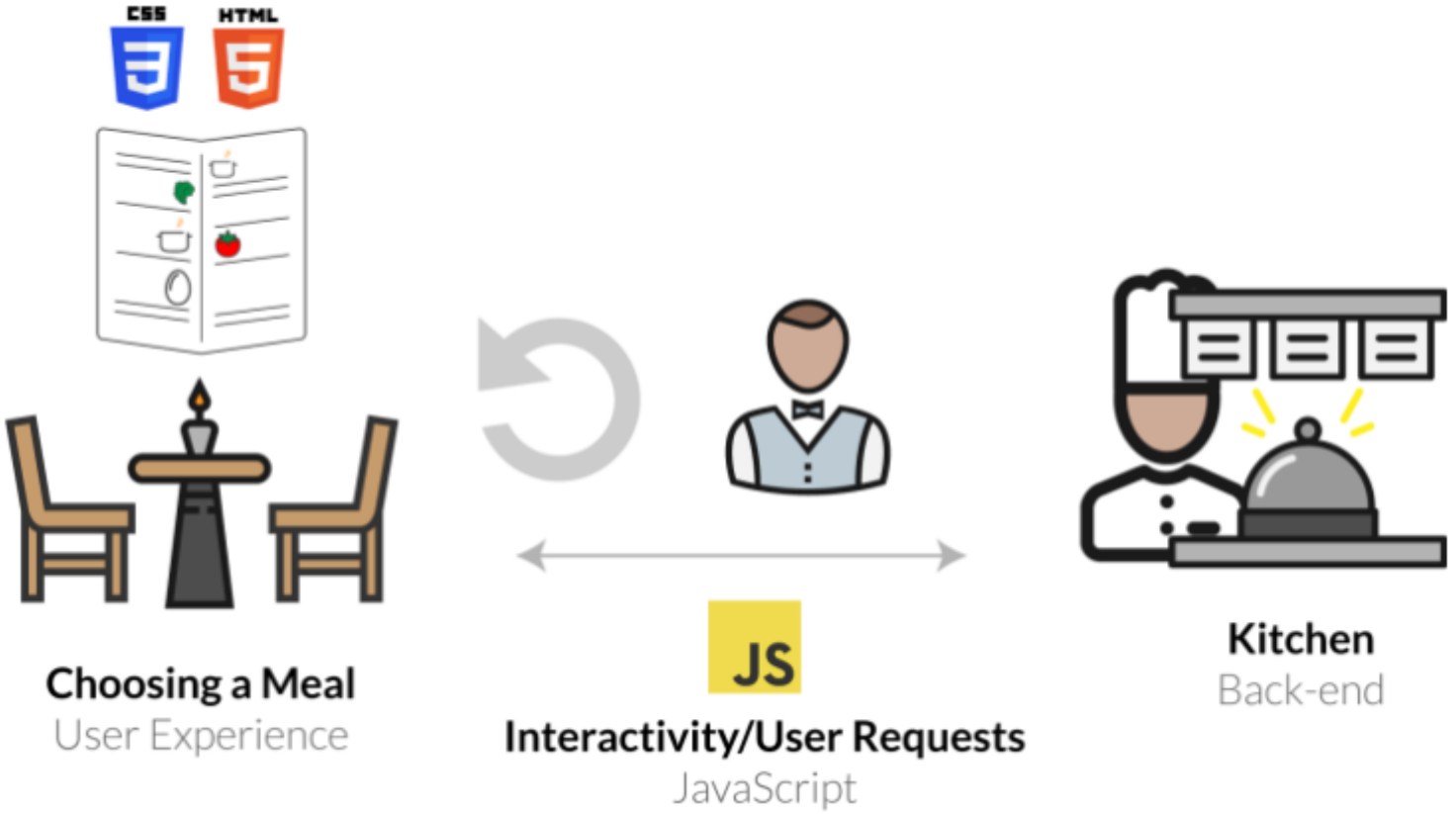
Website Content

=

HTML + CSS

Code for Static Content

Some Analogy



Ca

3 TYPES OF DEVELOPERS

Frontend

learn

HTML, CSS, Javascript, Bootstrap, Foundation, Backbone frameworks

do

The creation of user-friendly webpages, Master of screen visuals and functionality, able to creatively solve user-centered issues

are

Creative, imaginative, innovative and empathetic

Backend

learn

PHP, Python, Ruby, Server programme SQL/Oracle

do

The building and maintaining of the web server, application and database, ensuring frontend operations are smooth

are

Analytical, fast, composed, logical, detail oriented

Full-stack

learn

All of the languages for both frontend and backend

do

Mostly backend work, but are also adept at frontend languages to manipulate how the site looks on the user's end

are

Innovative, disciplined, multi-taskers

Discover coding using Scratch by MIT

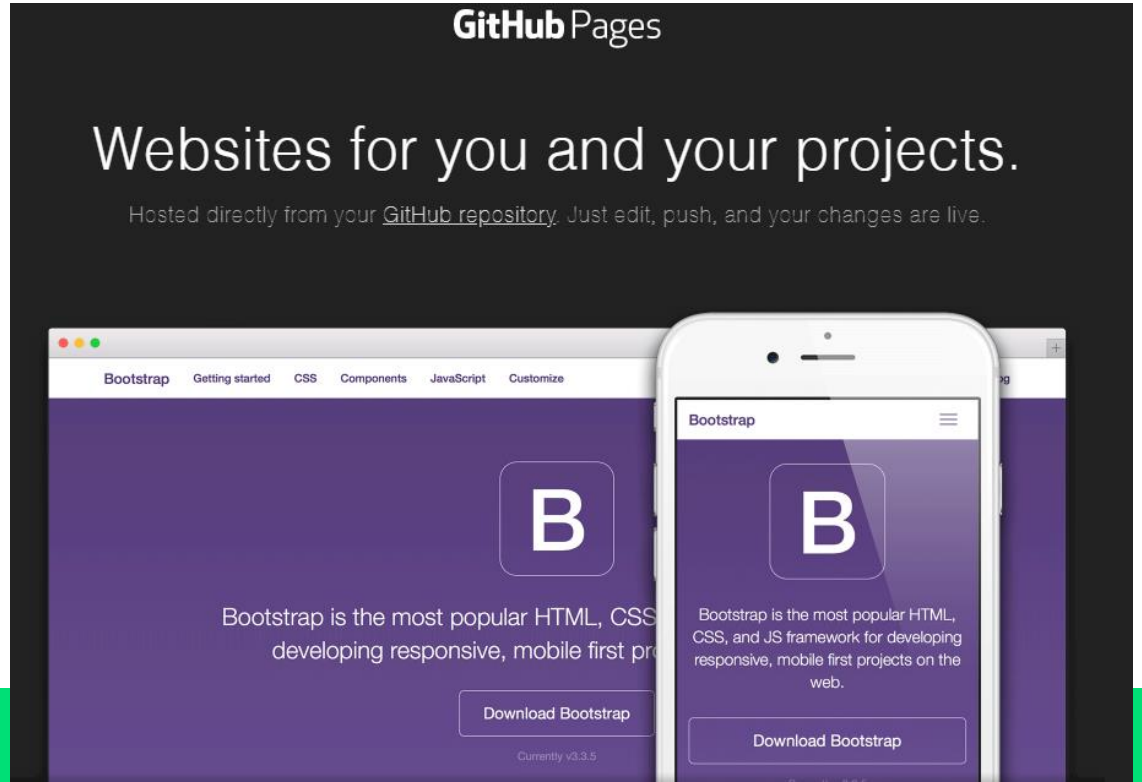
- Demo
- Exercices

Setup and Github Pages

- Environment (Atom)
- Folder structure (www)

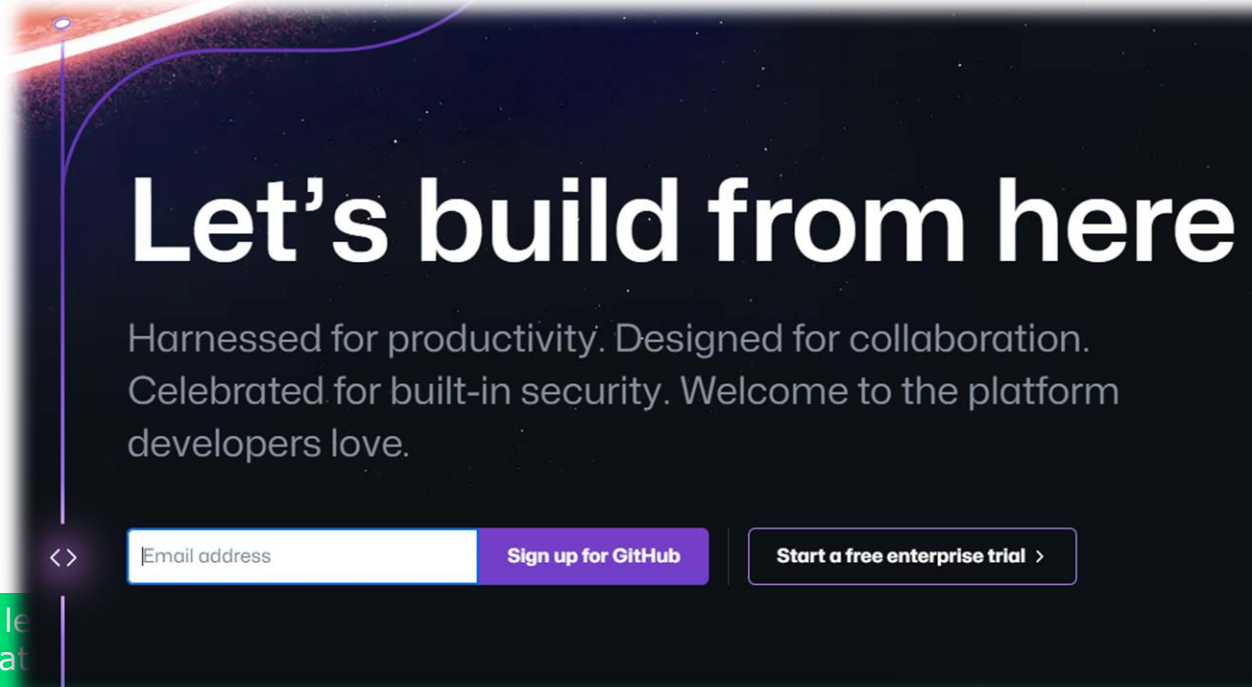
GitHub Pages

- There exist many ways to publish a website on the WWW
- A free and simple way is GitHub Pages



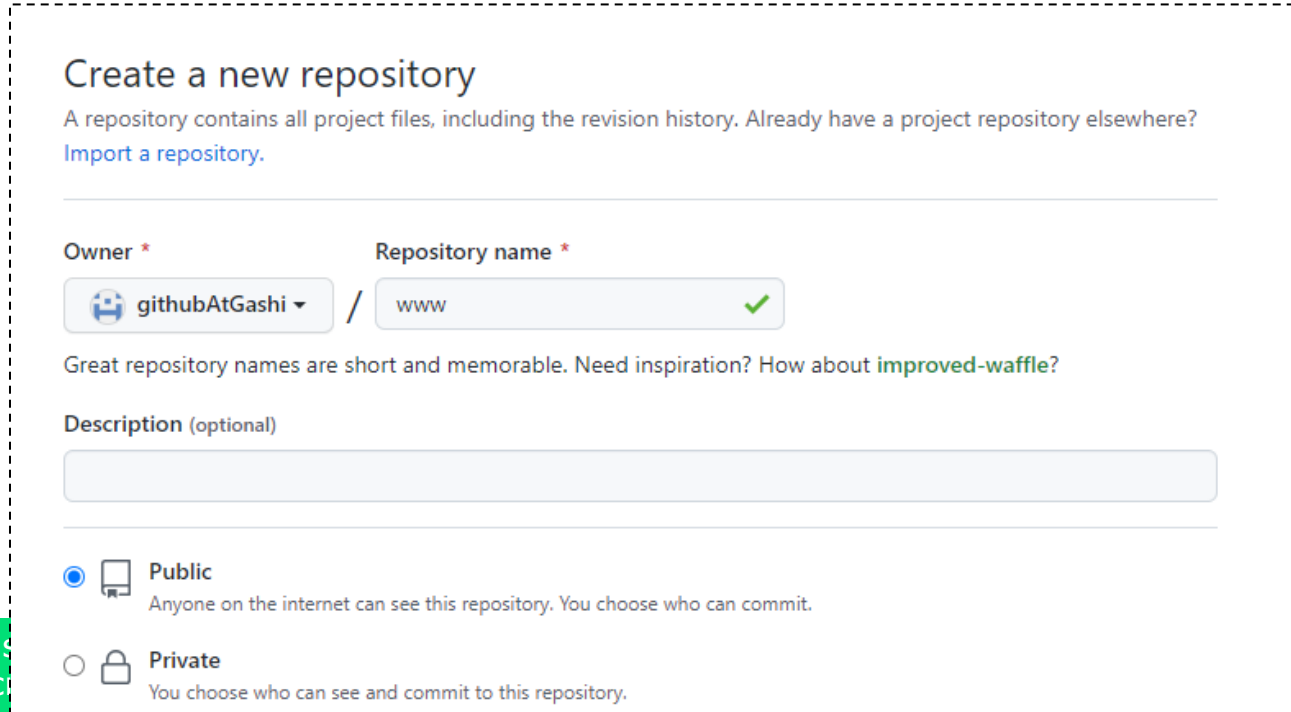
Step 1: Create a GitHub Account

- First go to https://github.com
- And create a free account (you will need an email)
- Verify the mail using the Launch Code you will receive
- Answer the boring questions
- Choose “Continue for free”



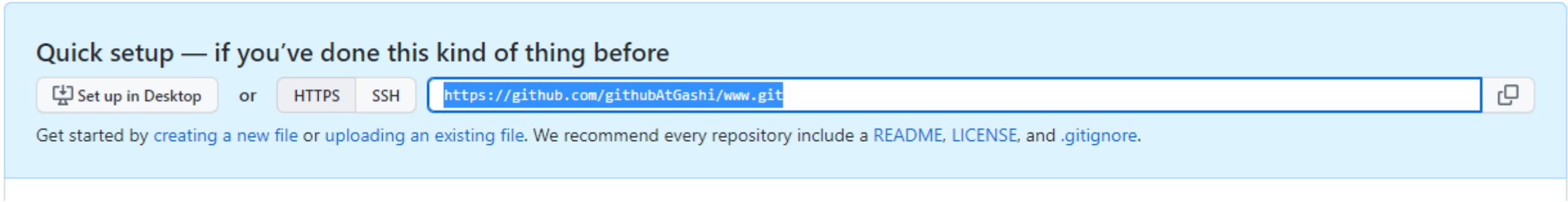
Step 2: Configure GitHub Pages

- First we need to create a repository
- Visit: https://github.com/new
- Choose “www” as repository name
- Leave everything else as it is (Public must be selected) and click Create repository



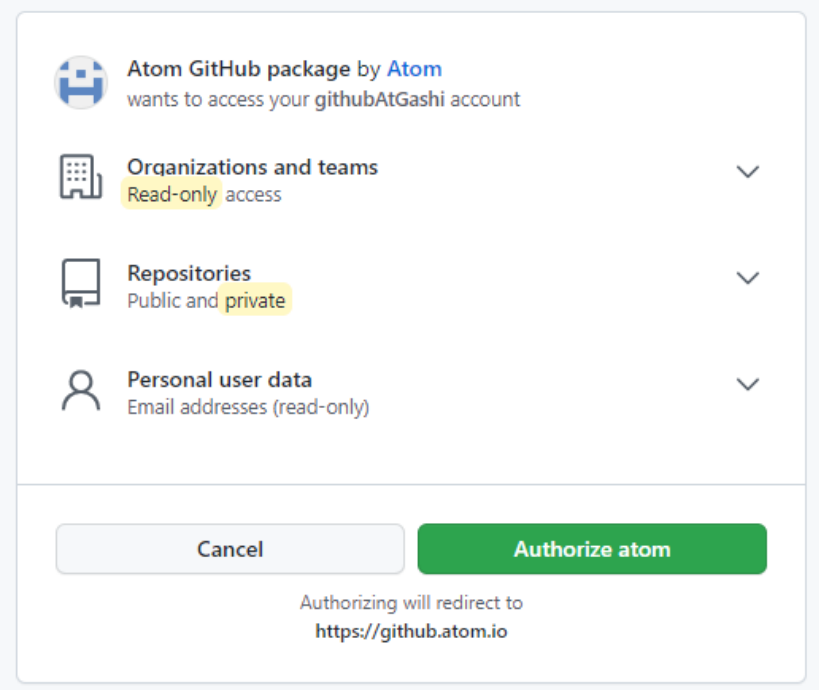
Step 2: Configure GitHub Pages

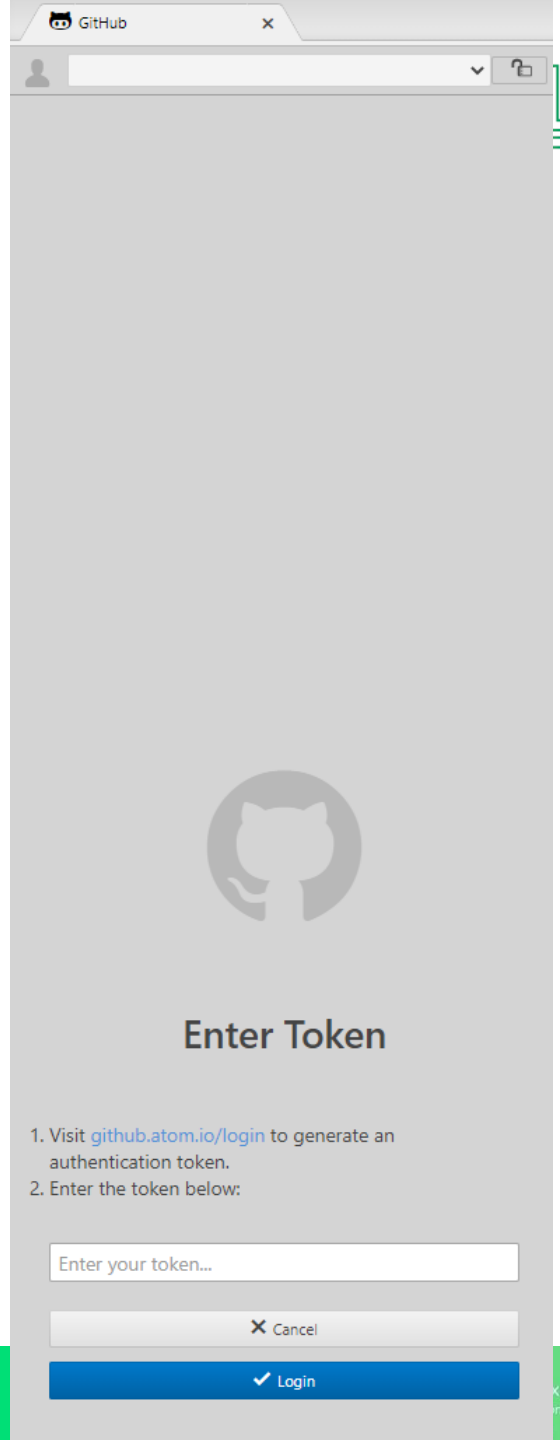
- Leave the next site open as we need the URL later



Step 3: Link with Atom

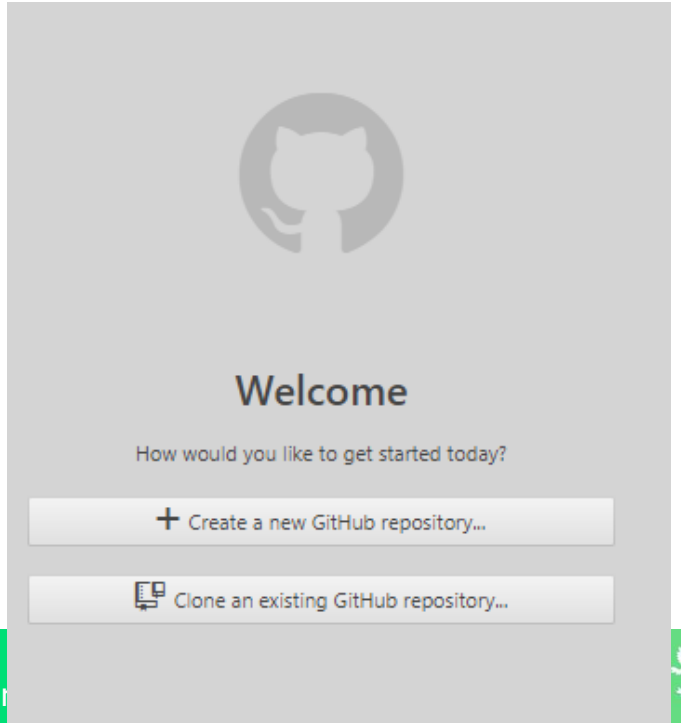
- In Atom, click on the bottom right at the Github
- Visit https://github.atom.io/login
- And authorize atom





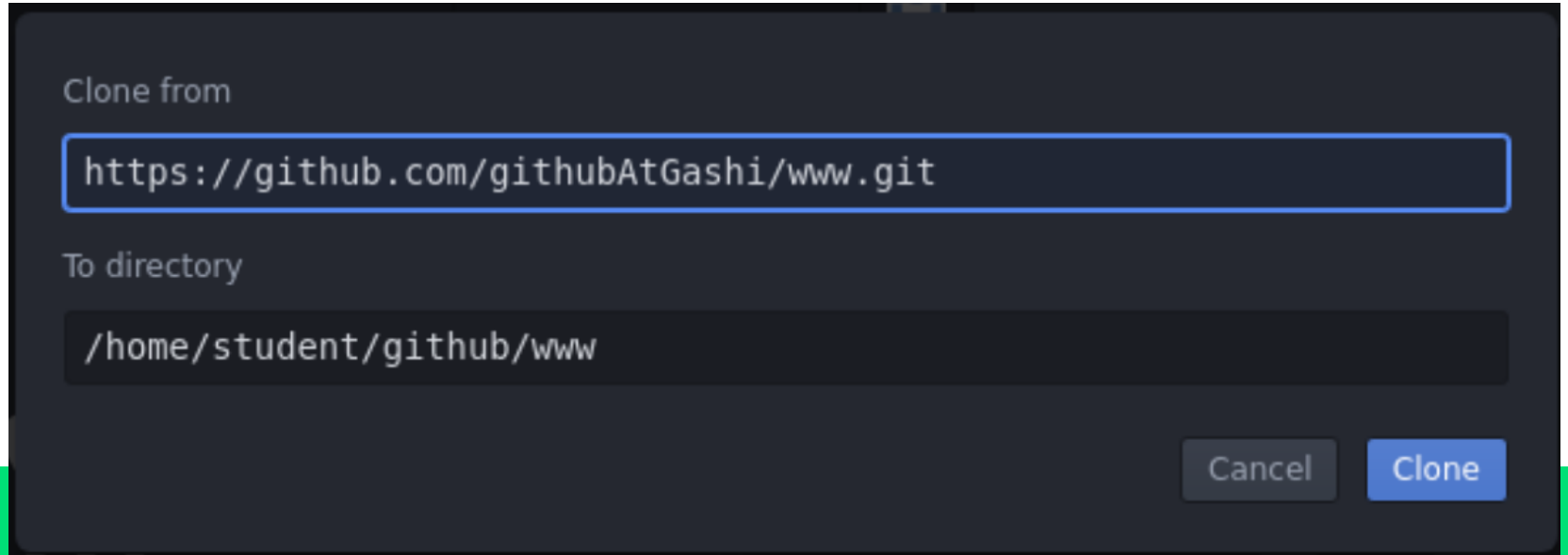
Step 3: Link with Atom

- You will get a token, copy it and go back to Atom and paste the token in the dedicated Text field
- Press login, and you should see a Welcome message



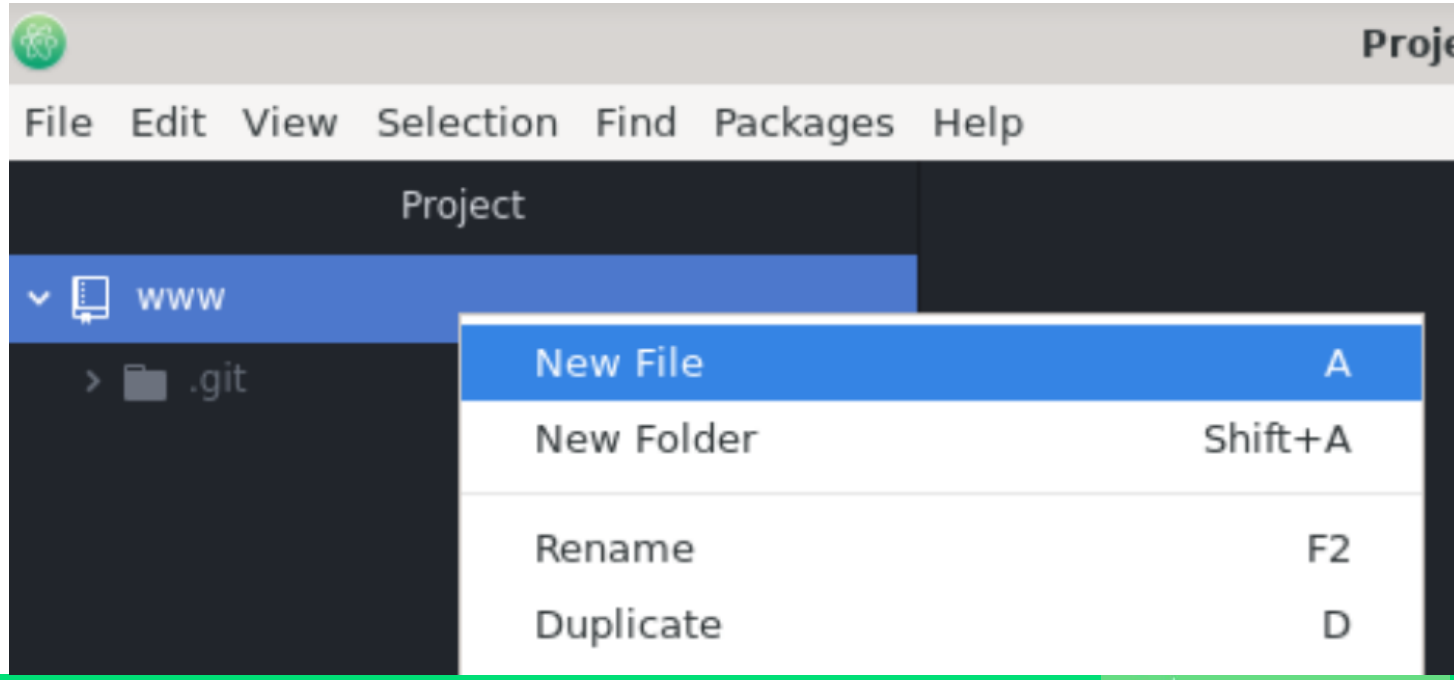
Step 4: Clone your repository

- We need to link our repository to Atom using the repository link
- Copy the link from the github page from Step 2 and click in Atom at “Clone an existing repository”
- In the popup window, paste the url of the www repository and click Clone



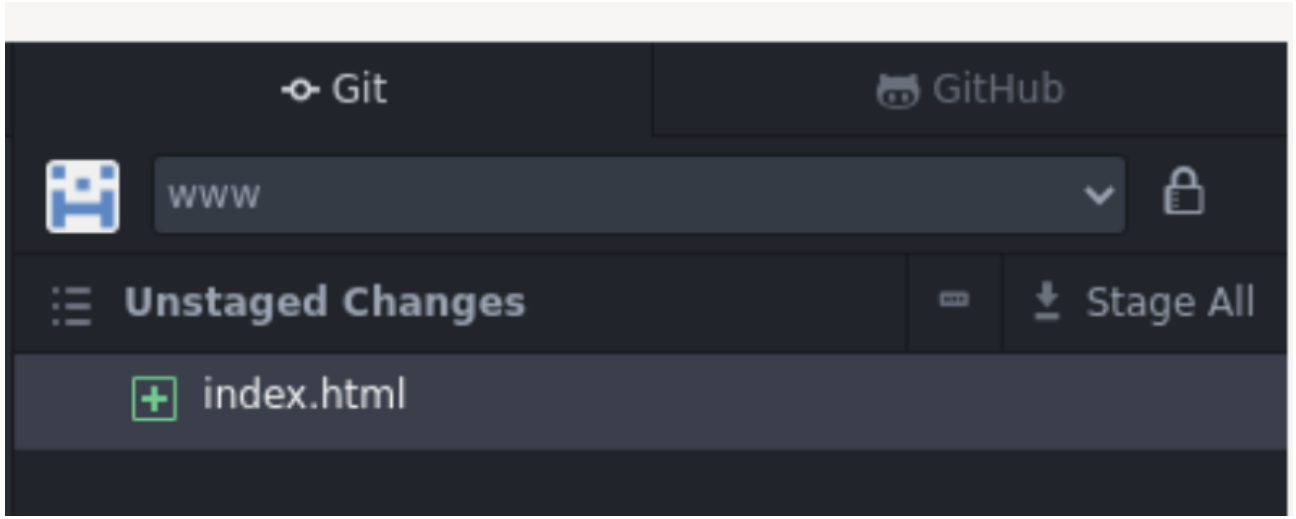
Step 5: Create a test file

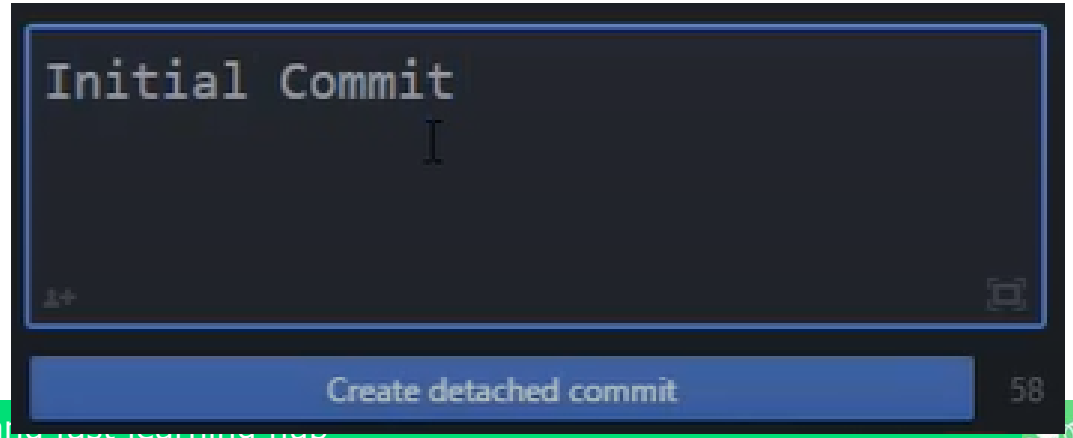
- In Atom on the left hand side right-click on the www folder and press new file
- Call it `index.html`
- Write “Hello world!”
- Save the file



Step 6: Initial commit

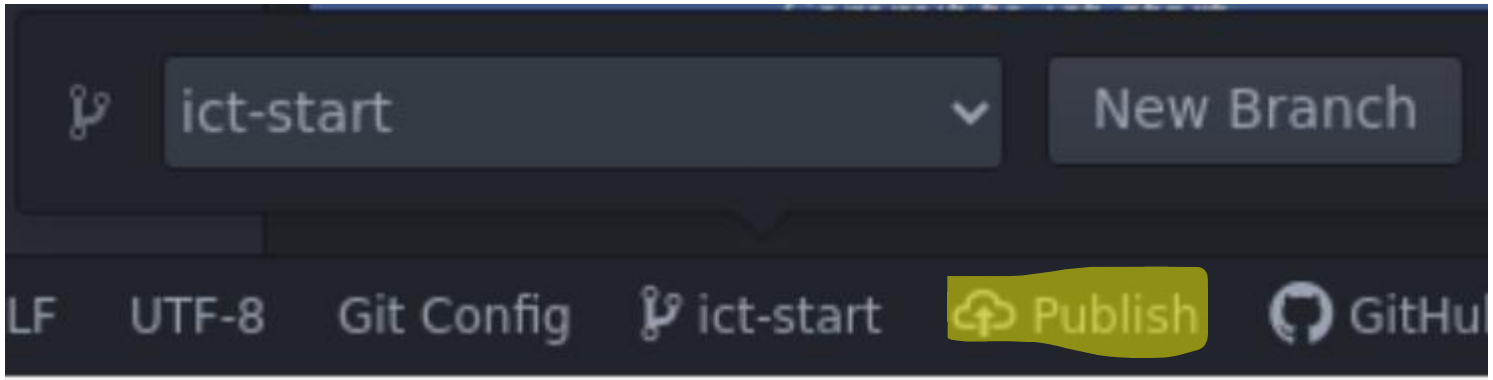
- On the top right you will see the index.html file
- Below type in a message such as “Initial Commit” and press “Create detached commit”





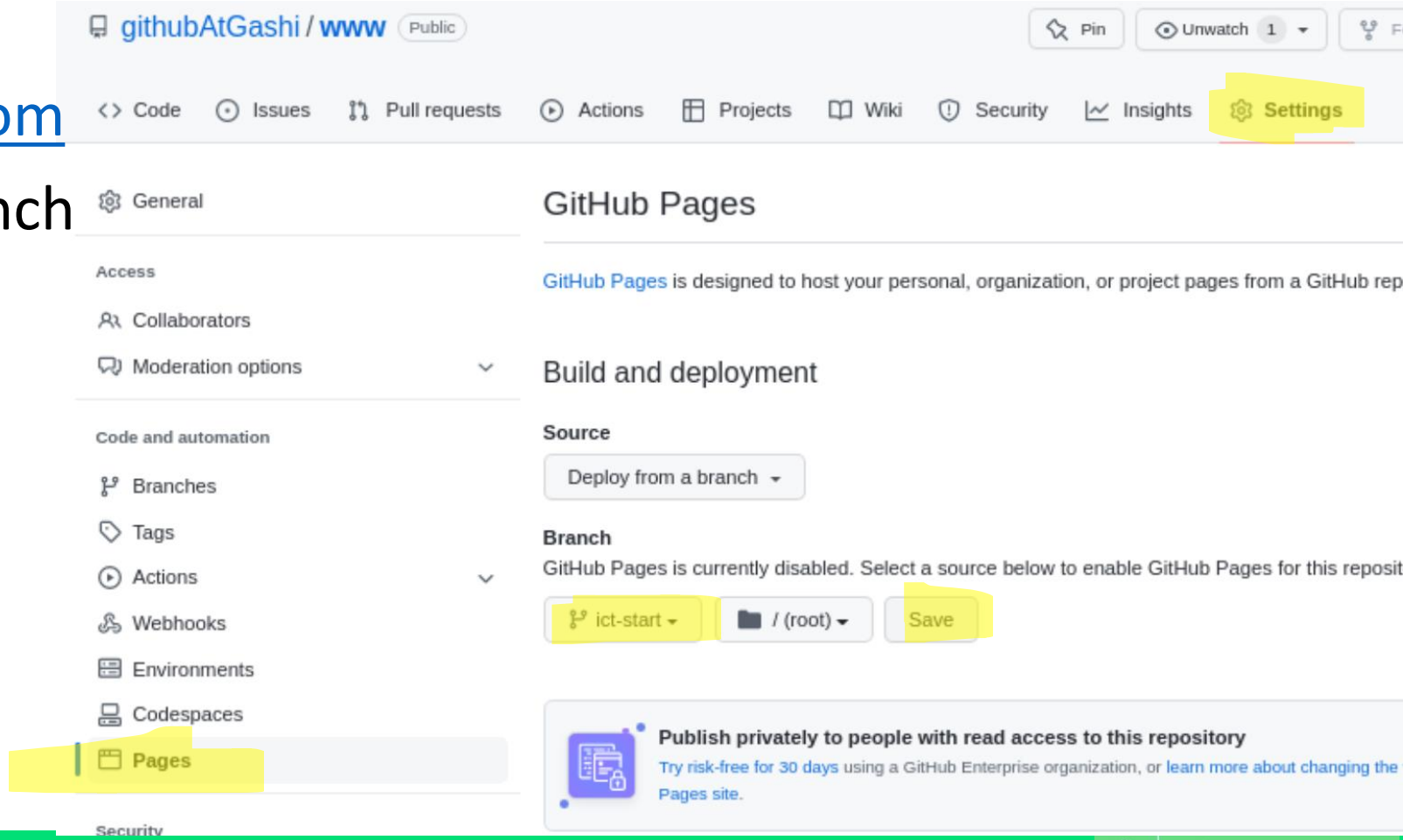
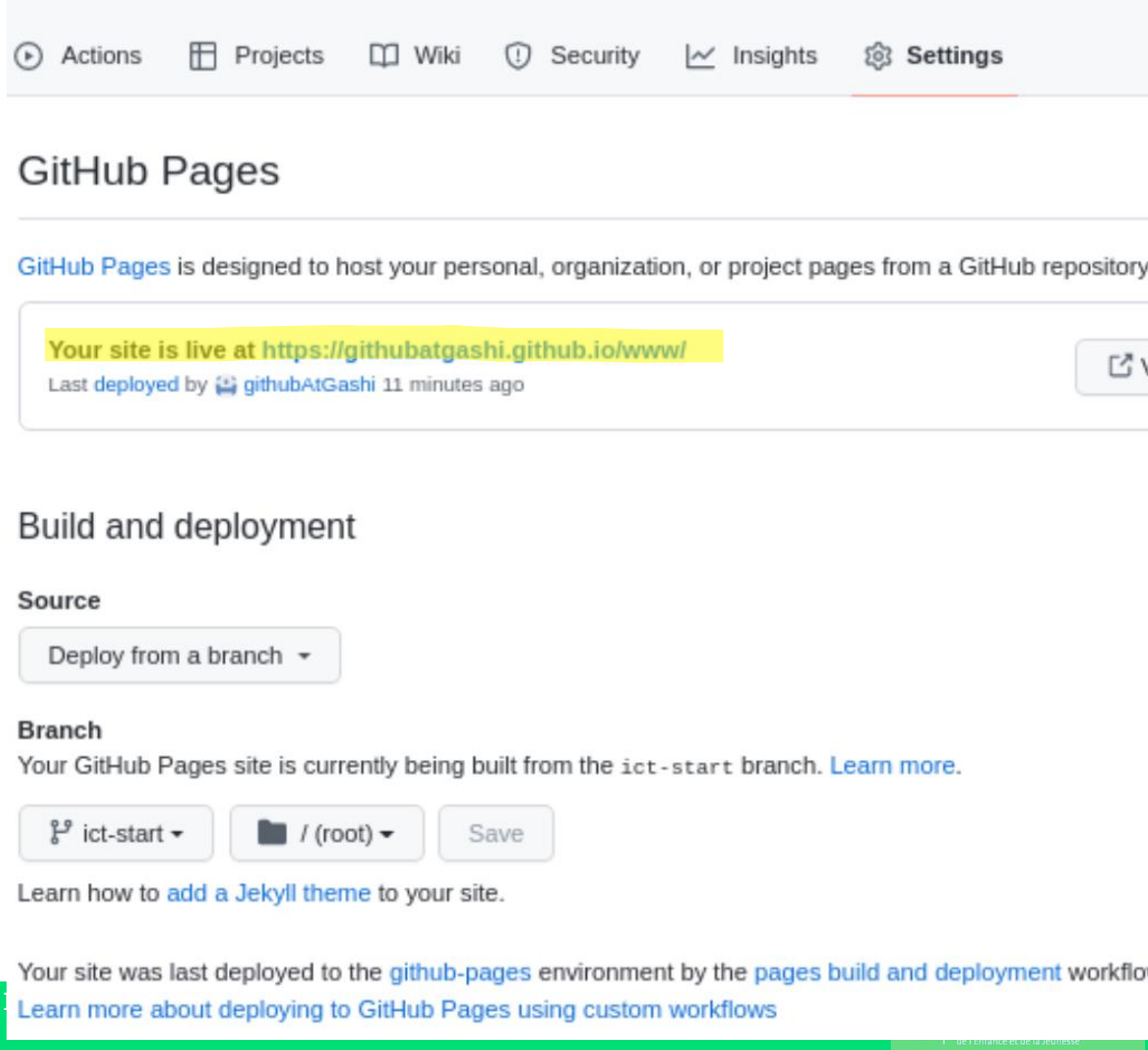
Step 7: Create branch

- At the bottom create a new branch such as “ict-start”
- Then you will see a cloud icon next to it with the description “Publish”
- Click on “Publish”



Final Step 8: Use branch for GitHub Pages

- Go back to https://github.com
- Click on the left at your branch
- Then click on the most right menu item “Settings”
- On the left menu click on “Pages”



- After few minutes, when refreshing the site you should see the URL of your site