Web Development

Session 1 - Quick Start

BY GDSC@KTH

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Event Info

- Four sessions
  - quick-start, backend, frontend, practice
- Fullstack
  - separation of frontend and backend
- Targeted for
  - intermediate programmers
  - beginners in web development

Possible Sessions with Specific Topics

- Flutter by Thameez
- Firebase
- **Call for more sessions**

What/How You Will Learn

- Start to develop your own web applications
  - Portfolio, blog, gallery, todo list...
- Avoid to be wordy and theoretic
- Really **hands-on**
- Django, React, PostgreSQL, MUI, ...

Outline for Today

Introduction to what you'd better know; prepare yourself before something more practical comes in

- Git
- Web Application Architecture
- Basics of Frontend
- Basics of Backend

Get Started with Git

- Install Git if you haven't: https://git-scm.com/
- Check out our repository: web-dev-sessions

How many git commands you've used

https://www.menti.com/65j3f6ph9q

Follow the steps to warm up!

If it's your first time to use git

```
git config --global core.name "YOUR NAME"
git config --global core.email "YOUR@EMAIL.com"
```

Then choose your working directory `cd MY_DIR`

```
git clone git@github.com:GDSC-KTH/web-dev-series.git
cd web-dev-series
git switch session1/playground
git log --oneline
```

Clean up commits history!

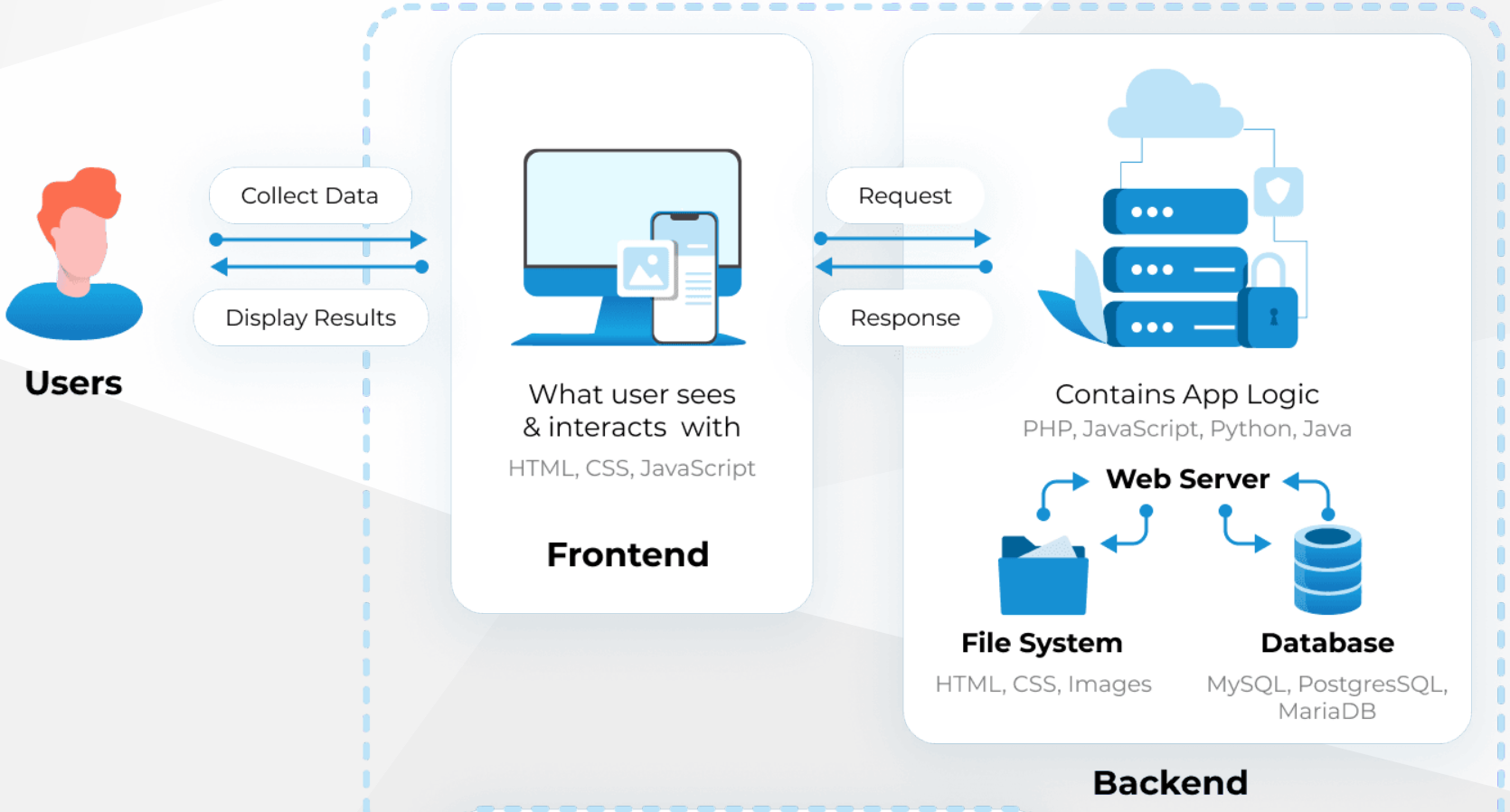
1. Check out commits of branches `session1/playground1` and `session1/playground2`
2. Organnize commits in order and eliminate DUMMY commits and TRASH files

Final results

```
E:.
│   LICENSE
│   README.md
│
└─session-1
        mentimeter_qr_code.png
        playground
        slides.md
```

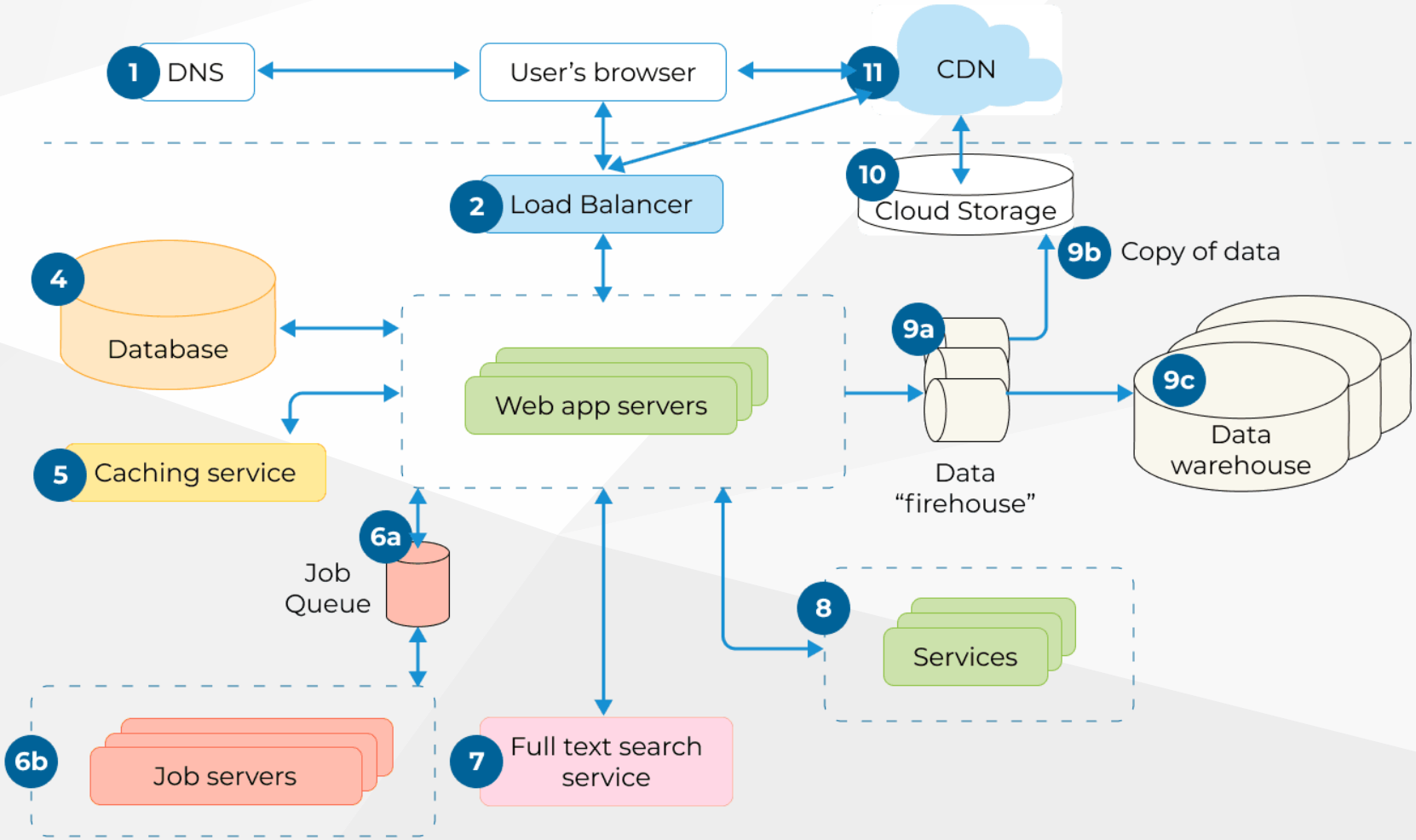
```
ecc0c05 (HEAD -> session1/playground) Useful commit #3
89ac79a Useful commit #2
15565ab Useful commit #1
```

Architecture



https://litslink.com/blog/web-application-architecture

Fine-grained



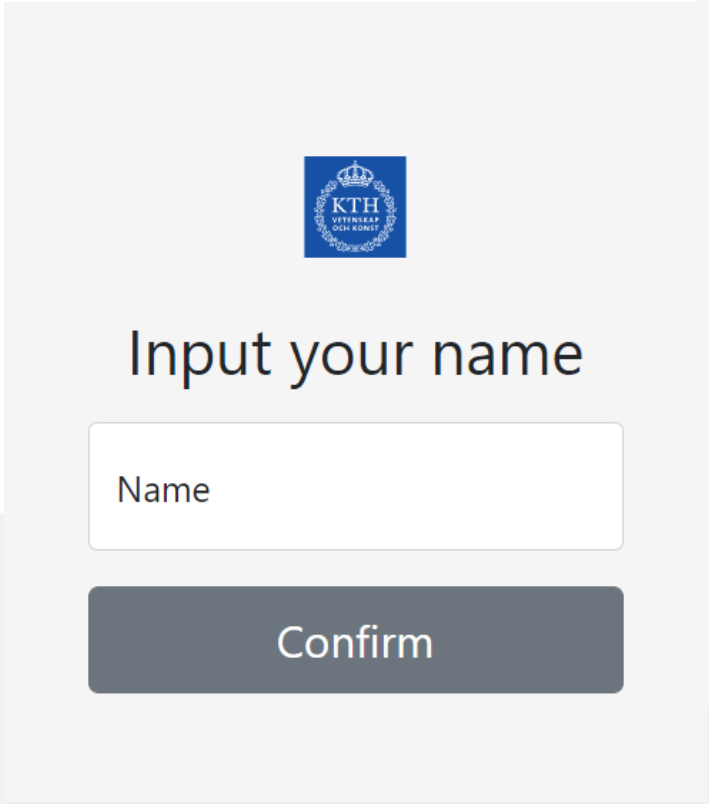
https://litslink.com/blog/web-application-architecture

Create a Static Page

What you probably already know

```
<html>
  <body>
    <div style="height:100%;display:flex;">
      <h1 style="margin:auto;text-align:center;width:100%;" id="content">
      </h1>
    </div>
    <script>
        document.getElementById("content").innerHTML="Hello, World!";
    </script>
  </body>
</html>
```

Check out the bootstrap example, and redesign it



Create a Simple Server

How Frontend and Backend Communicate

Mostly we use **HTTP APIs**

How a Persistent Server Handles API Requests

You might hear about

- Django
- Flask
- FastAPI

Here we use **Flask** as an example.

1. `pip install flask flask-cors`
2. Save as `app.py`:

```python
from flask import Flask
from flask_cors import CORS

app = Flask(__name__)
CORS(app)

@app.route("/<name>")
def hello_world(name):
    return {"name": name, "length": len(name)}

if __name__ == "__main__":
    app.run(debug=True)
```

3. Run it by `python app.py`

Request API from Frontend

1. Inject the script for HTTP requests

```
<script
src="https://unpkg.com/axios/dist/axios.min.js">
</script>
```

2. Request API and replace html content by response

```
axios.get(`http://127.0.0.1:5000/${name}`)
 .then(function (response) {
     const len = response.data.length;
     document.getElementById("content1")
         .innerHTML = `Hello, ${name}!`;
     document.getElementById("content2")
         .innerHTML = `The length of your name is: ${len}.`
 });
```

Input your name

Name
Tommy

Confirm

Hello, Tommy!

The length of your name is: 5.

More to Think About

- Data storage
- Security
- Hosting
- …

Prepare for Next Session

- Install PostgreSQL (involved in installation of django)
  - Better in docker
- Install Python libraries
  - django
  - django-rest-framework

Useful Links

- Repository for this session
  - https://github.com/GDSC-KTH/web-dev-series
- Explore more about Git
  - https://learngitbranching.js.org/
  - https://gitimmersion.com/index.html