

ClassCode

Progress

i-on project

Group 05

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i-on ClassCode

Initiative i-on

Systems for
academic use

Open Source
development

i-on ClassCode

Creation and
Management of
GitHub repositories

Improved user
experience and
increased productivity

Motivation

GitHub Classroom

Slow configuration
process for teachers

Difficulties in Student
identification

Slow Cloning Process

Other Projects

Missing cloning for
local computers

Security Gaps in
GitHub tokens
Storage

Functionalities

Web App

Easy Course/Class/
Assignment creation

Better way to
integrate Students
across Groups and
Assignments

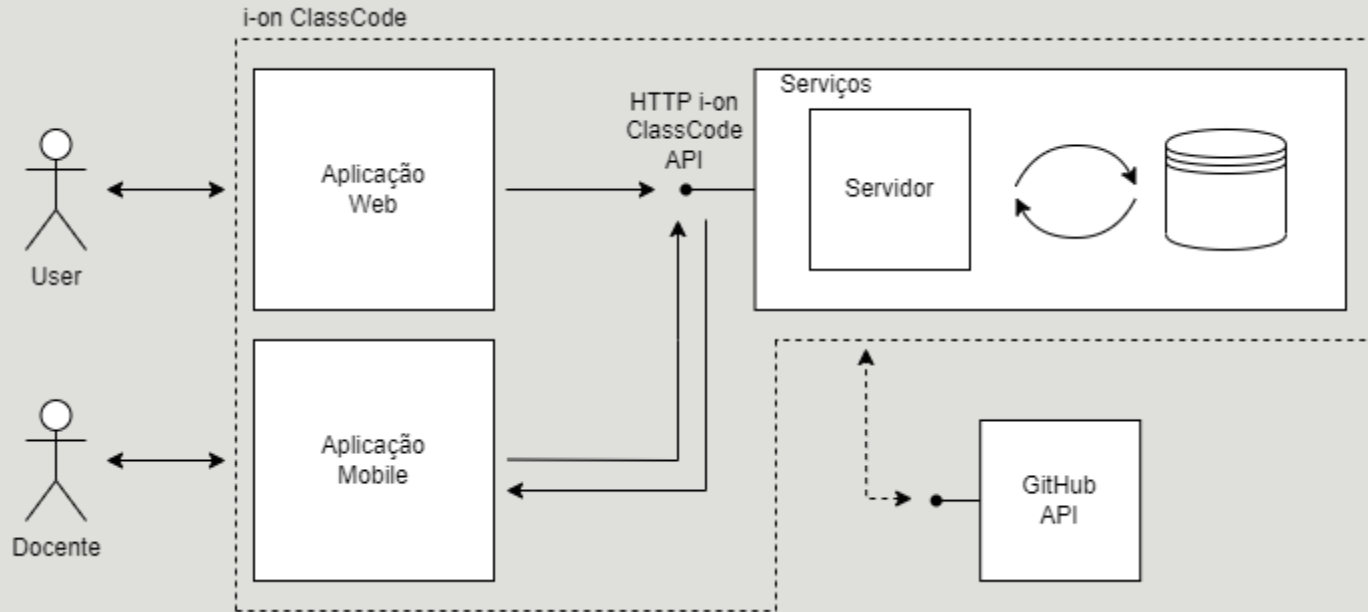
Possibility to create
local copies for
Teacher's

Mobile App

Only for Teachers

Ability to accept or
reject write Requests
from Web App

System Architecture



Progress done



User Flow

Defined web and mobile apps user navigation flow



Data Model

Definition of entities relations and restrictions



Authentication

Structuration of OAuth flow between web app and API



Web API

All the api for the web part - Spring and Kotlin



Repository

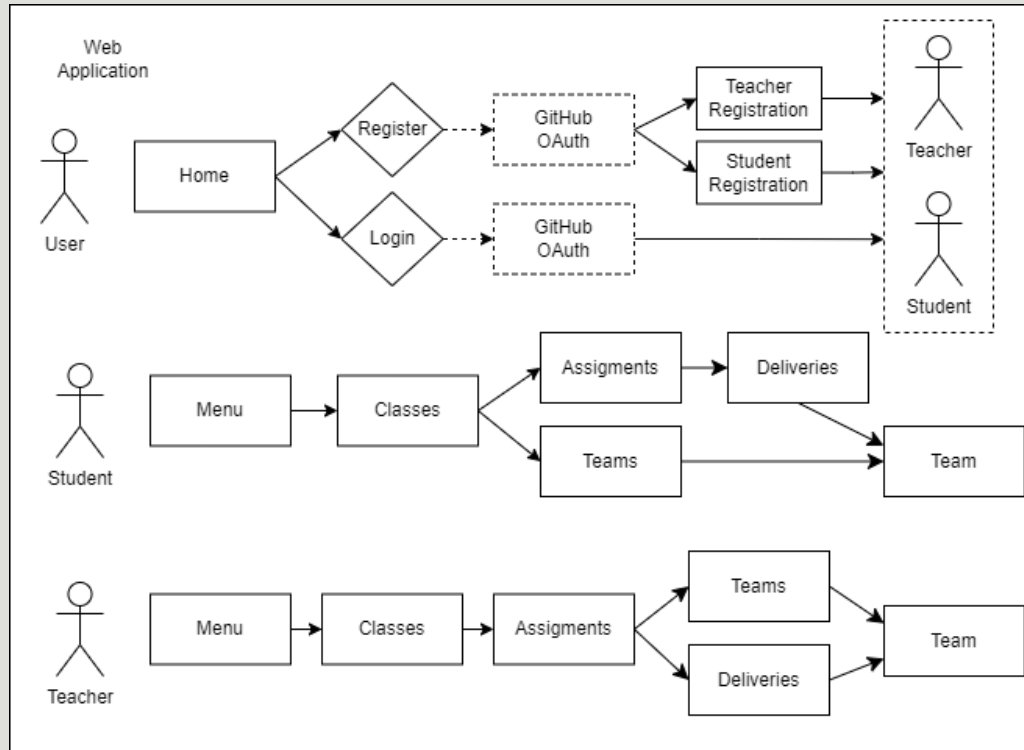
Tests to all repository functions - JDBI and Postgresql 15



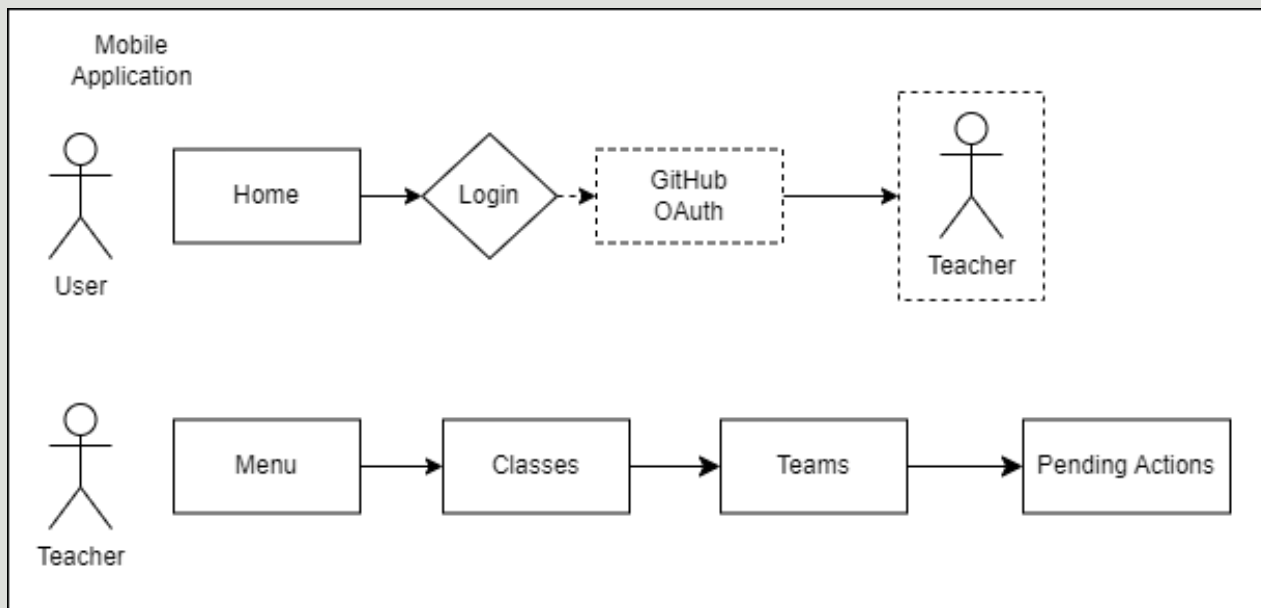
Services

Tests to all services functions - Kotlin

Web App Flow



Mobile App Flow



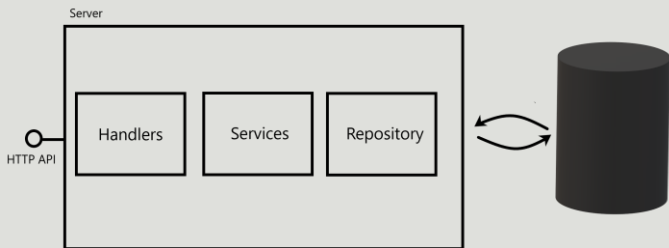
Web API Architecture

Handlers

- Only piece that knows HTTP
- Responses syntax supports Hypermedia

Services

- Validates data in request
- Maintains system integrity
- Uses repository to access data



Handler Interceptor

- Used in authentication process
- Validates session cookie

Repository

- Interaction with database
- Atomic operations
- Transaction per request

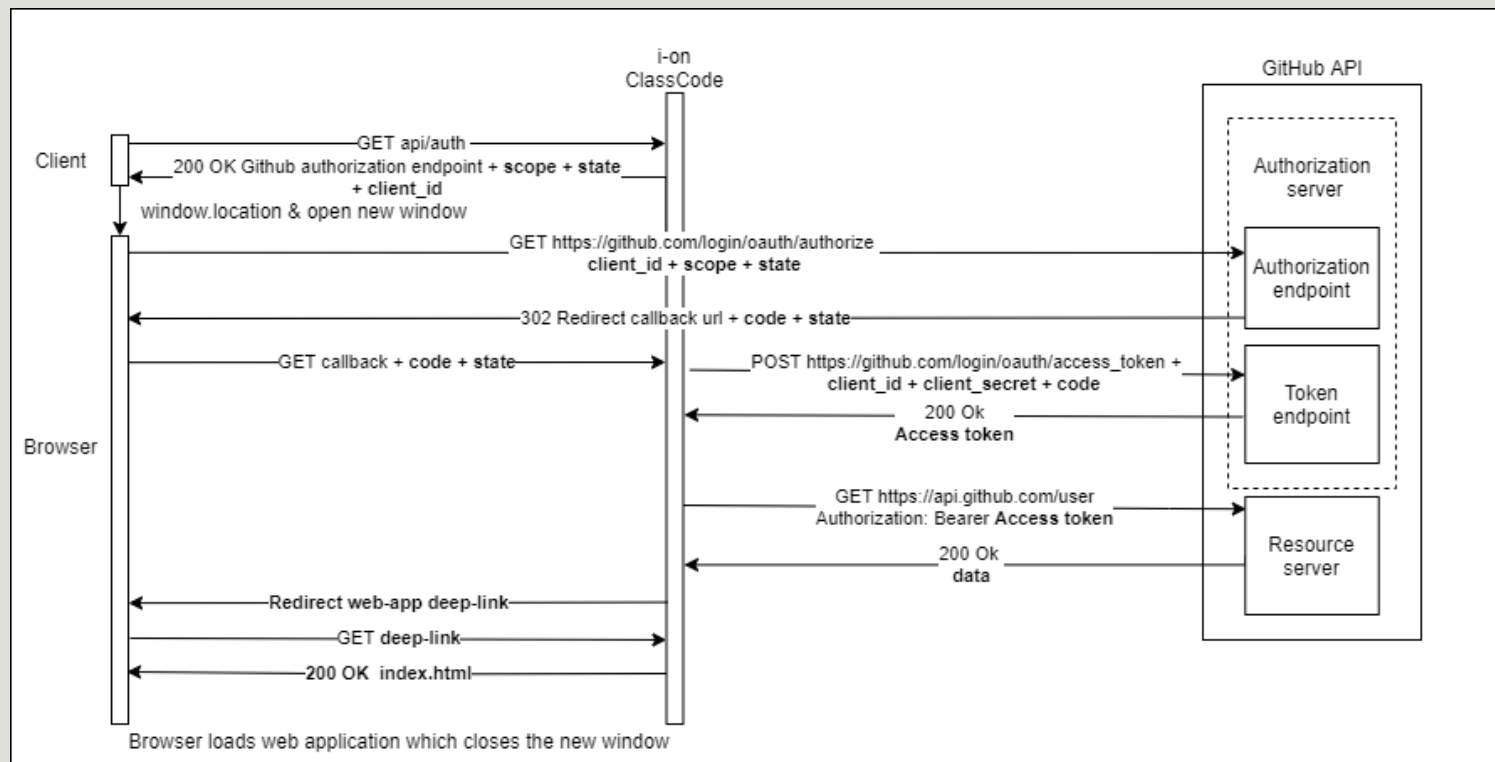
RFC JsonHome and Hypermedia

- Web SPA development using hypermedia led to difficulties regarding storage of hypermedia learned routes.
- Difficulties were solved by following RFC JsonHome specification.
- Instead of specific URL schemas (/courses/1) hypermedia returns URL templates (/courses/{id}).
- All hypermedia routes returned in home endpoint.
- Hypermedia follows Siren representation specification.

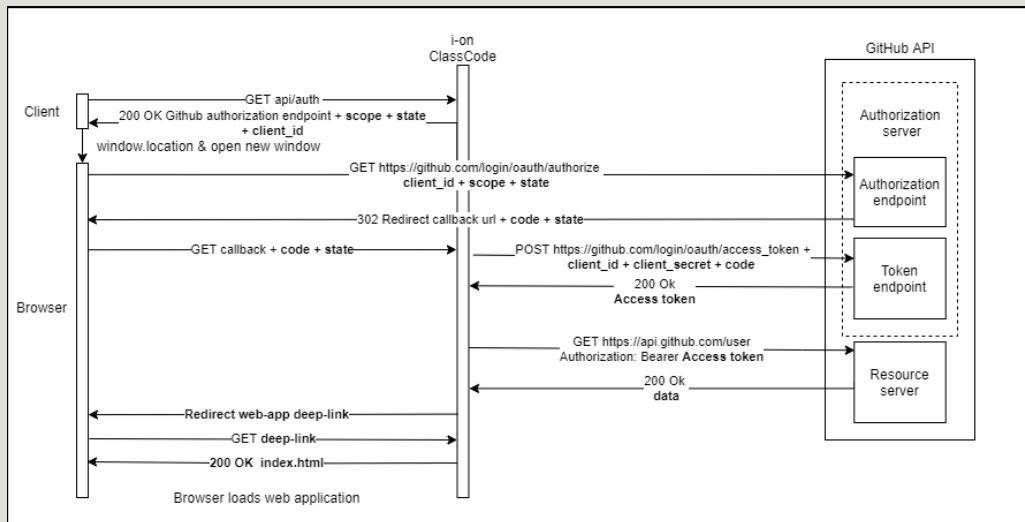
```
{
  "class": [],
  "properties": {
    "title": "i-on ClassCode",
    "description": "The web application from student",
    "est": "2023"
  },
  "links": [
    {
      "rel": [
        "home"
      ],
      "href": "/api/home",
      "needAuthentication": false
    },
    {
      "rel": [
        "credits"
      ],
      "href": "/api/credits",
      "needAuthentication": false
    }
  ],
}
```

```
"entities": [],
"actions": [
  {
    "title": "registerStudent",
    "href": "/api/auth/register/student",
    "method": "POST",
    "type": "application/json",
    "fields": [
      {
        "name": "schoolId",
        "type": "number",
        "value": null
      }
    ]
  },
  {
    "title": "registerTeacher",
    "href": "/api/auth/register/teacher",
    "method": "POST",
    "type": "application/json",
    "fields": [
    ],
  },
]
```

Authentication Flow

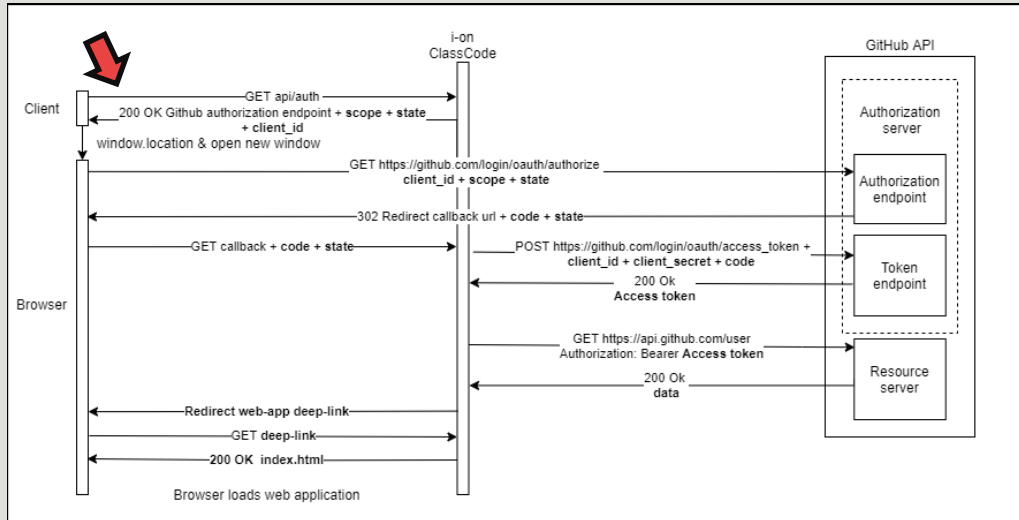


Authentication Challenges



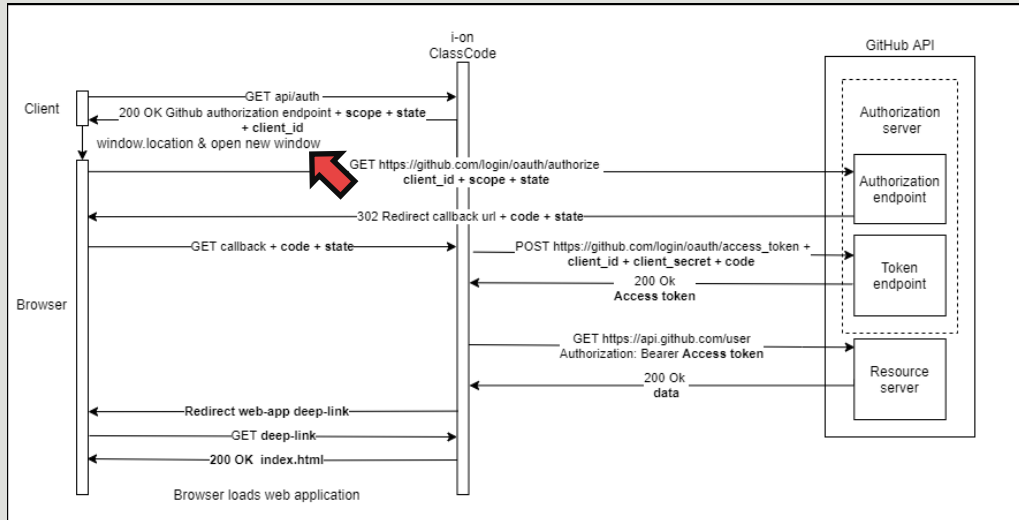
- Distinction between requests made by web app or the browser.
- Only browser requests can be redirected (status code 303).

Authentication



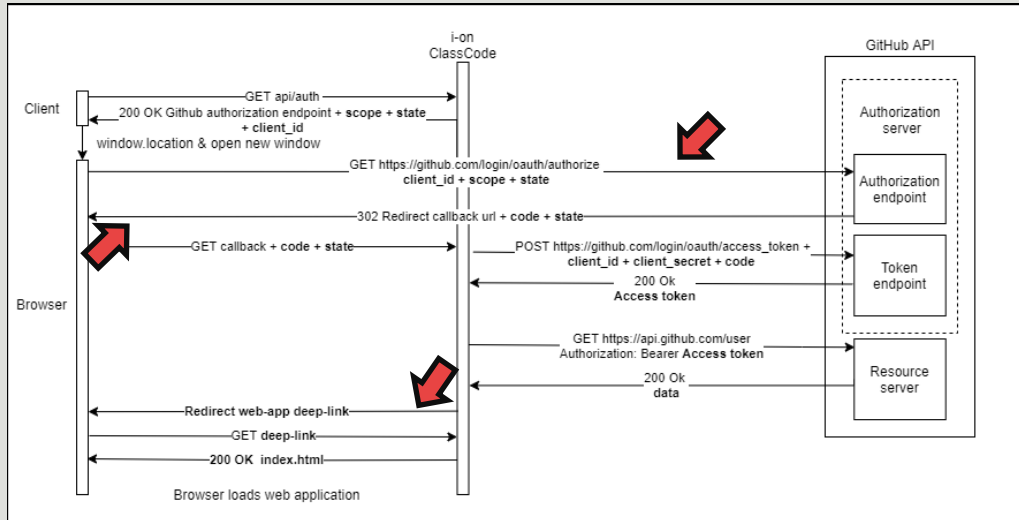
- The authentication process begins with a call to the API which returns the GitHub URL to begin OAuth flow (ClientID, Scope and state included) via browser request.

Authentication



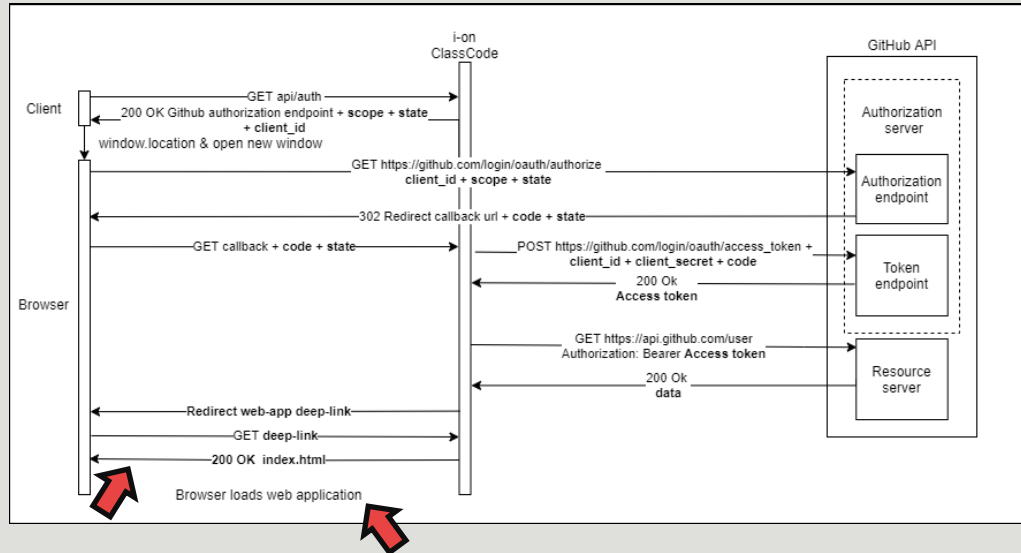
- The request made by the browser is made via `window.location` and normally would imply the loss of application state. To prevent this a new browser window is opened.

Authentication



- User authorizes I-on Classcode to use their Github user information.
- GitHub redirects to API callback endpoint.
- API fetches access token and user info and redirects the browser to a web-app deep-link.

Authentication



- The browser makes a request to the server which fallbacks and returns the index.html containing the web application.
- The web application react router resolves the deep-link and shows the appropriate UI component.

Being done..



**API
Integration
Tests**



Mobile App
with Jetpack
Compose



Web App
with React



Documentation

Reschedule

Delayed

Web Application start
date (1 week)

Mobile Application
start date (week and
a half)

Reason

Understanding and
implementation of
the Authorization
Process

Change

Reduce a week from
the time to correct
bugs (previous 2
weeks)