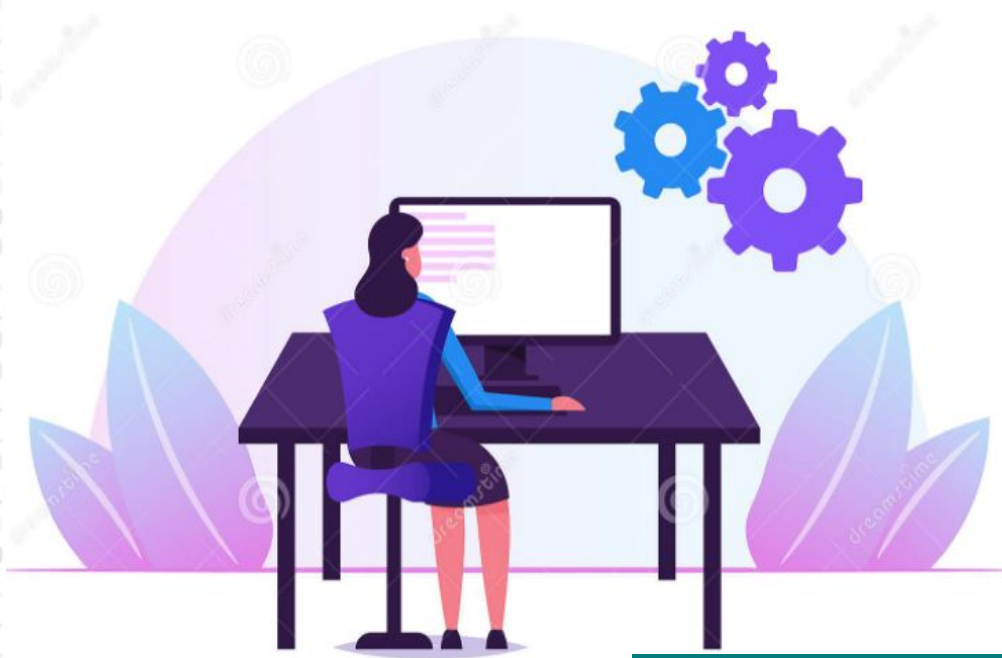# Welcome!

- We'll start in a moment :)
- We may record tonight's event and plan to take screenshots for social media.
    - ***If you want to remain anonymous***, use your first name & keep video off.
- We'll introduce the hosts and break in-between for Q/A.
- We will make some time for Q&A at the end of the presentation as well.
- Online event best practices:
    - Mute yourself when you aren't talking.
    - Turn on your video if you feel comfortable!

WOMEN WHO
CODE

WWCode Digital + **Backend**
Backend Study Group

April 08, 2021

- Welcome from WWCode!
- Our mission: Inspiring women to excel in technology careers.
- Our vision: A world where women are representative as technical executives, founders, VCs, board members and software engineers.

Prachi Shah
**| Senior Software Engineer
| Metromile**

Aditi
**Full Stack Engineer
| New Relic**

Elaine
**Student Assistant
| Lawrence Berkeley
National Lab**

CODE OF CONDUCT

WWCode is an inclusive community, dedicated to providing an empowering experience for everyone who participates in or supports our community, regardless of gender, gender identity and expression, sexual orientation, ability, physical appearance, body size, race, ethnicity, age, religion, socioeconomic status, caste, creed, political affiliation, or preferred programming language(s).

Our events are intended to inspire women to excel in technology careers, and anyone who is there for this purpose is welcome. We do not tolerate harassment of members in any form. Our Code of Conduct applies to all WWCode events and online communities.

Read the full version and access our incident report form at
womenwhocode.com/codeofconduct

WOMEN WHO
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Agenda

- Second ever Backend Study Group session!
- Resources:
  - GitHub
  - Upcoming session:
    - April 22, 2021
  - WWCode YouTube channel
    - March 25, 2021 session recording: Backend Study Group session 1
  - Technical Tracks
  - Digital Events
  - Get updates – join the Digital mailing list!

WOMEN WHO CODE

Backend Engineering

• What is Backend Engineering?

• Design, build and maintain server-side web applications.

• Common terms: Client-server architecture, networking, API, web frameworks, platform, micro-service, database engineering, web fundamentals, etc.

• Other domains: Front end engineering, full stack engineering, design & user experience, mobile development, devOps engineering, machine learning, etc. *

• Examples: Amazon Online Shopping, Instagram, Weather website.

* *Disclaimer: Roles and responsibilities can vary per company and industry.*

WOMEN WHO
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Backend Engineering

Where to start a demo project?

- Choose a language & framework: Java programming language, Spring Boot

- Learn to serve content to the client: MVC design pattern

- Basic APIs, HTTP verbs and third-party integration: REST API

- CRUD and connection to database: H2 database

- Testing: JUnit test framework

- Build an application/ product: Microservice and Maven build automation

- External Integration: APIs

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Backend Engineering

Java programming language:
- Class-based
- Object-oriented
- WORA (write-once-run-anywhere)

Spring framework:
- Java application development framework
- Develop loosely coupled applications
- Dependency Injection & Inversion of Control: objects created by Spring container

Spring Boot framework:
- To develop microservices
- To develop REST APIs
- Build stand-alone, production-ready application
- Reduces boilerplate code because auto-configuration
- Supports in-memory database

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Backend Engineering

MVC design pattern:
- Model-View-Controller
- Model: Objects carrying data
- View: Visualization and data representation
- Controller: Connects with model and view. Business rules and data manipulation

REST APIs:
- REST: REpresentational State Transfer. Standard for HTTP communication
- API: Application Programming Interface. Functions for data exchange
- HTTP Verbs: POST, GET, PUT, DELETE

Microservice:
- Loosely coupled applications. Easy to scale, deploy and monitor
- Independent application that serve one purpose
- Uses REST APIs for communication
- Supports database implementation and management

Backend Engineering

H2 Database:
- In-memory or file-based database
- Relational DBMS
- Does not scale much
- CRUD: Create, Read, Update, Delete

JUnit testing framework:
- TDD: Test-driven development and unit tests
- Mockito library: Mock services and repositories

Maven build automation:
- POM: Project Object Model
- Dependencies
- Set of commands

Backend Study Group

Backend Study Group

- Resources:
  - Backend Study Group: [GitHub](#)
  - Upcoming sessions:
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  - [Technical Tracks](#)
  - [Digital Events](#)
  - Get updates – join the [Digital mailing list](#)!
  - Have questions?
    - Contacts us at: contact@womenwhocode.com
    - Join our [Slack](#) channel!

Thank you and see you soon!