

# CS 310 : Scalable Software Architectures

*Class session on Tuesday, November 5<sup>th</sup>*



## NOVEMBER 2024

Sunday	Monday	Tuesday	Wednesday	Thursday	Friday	Saturday
					1	2
3	4	5	6	7	8	9
10	11	12	13	14	15	16
17	18	19	20	21	22	23
24	25	26	27	28	29	30

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## Notes:

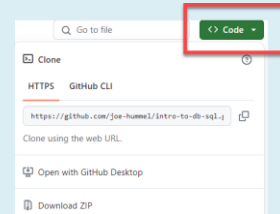
- *Focus this week:*
  - *Serverless, API Gateway + lambda, Docker*
- *Project 03 was released*
  - *Serverless, event-driven PDF analysis*
  - *Due Friday November 15<sup>th</sup>*



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# Getting the necessary software

1. Make sure Docker Desktop is running
2. Download files you need for today
  - <https://github.com/joe-hummel/serverless-demo>
3. Open a terminal window, navigate to repo:



## Linux/Mac/Windows WSL:

- 1) Open terminal, navigate to repo folder
- 2) `chmod 755 *.bash`
- 3) `./docker-build.bash`
- 4) `./docker-run.bash`

## Windows:

- 1) Open Powershell, navigate to repo folder
- 2) `.\docker-build.bat`
- 3) `.\docker-run.bat`

# Common docker errors

## 1. "docker" command not found

- *Uninstall and reinstall Docker Desktop*

## 2. When you try to build, you are not authorized

- *docker login -u docker-username*

## 3. When you try to run, you get errors like "bash: \$\r: command not found"

1. *If you see the **docker**> prompt, type **exit***
2. `((Get-Content .bashrc) -join "`n") + "`n" | Set-Content -NoNewLine .bashrc`

# New architectural concepts...

- **Introducing three design concepts...**

- 1. Event-driven design**

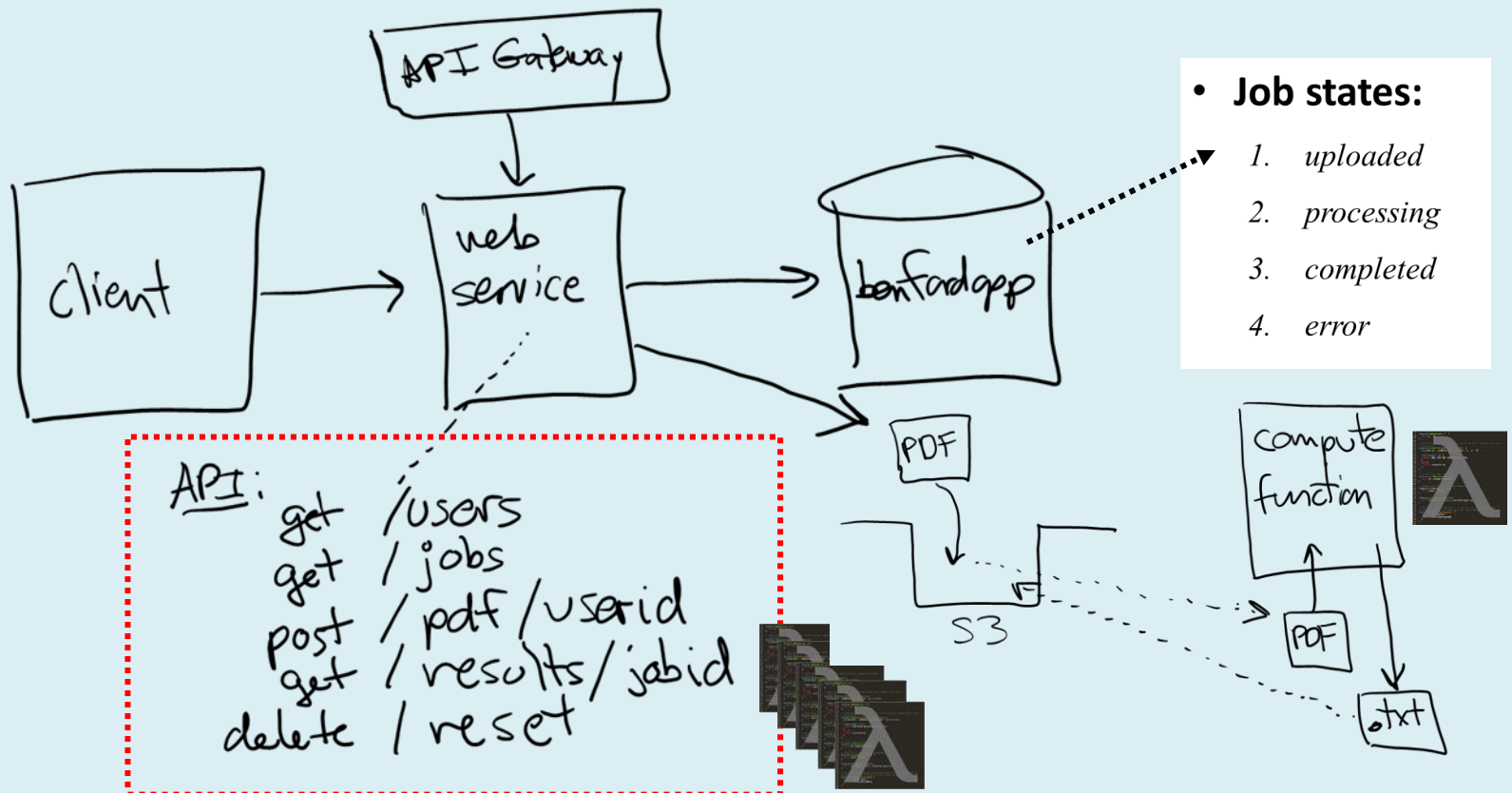
- 2. Serverless computing**

- 3. Asynchronous APIs**

# Project 03

- Project 03 uses a different architectural approach:

1. *Event-driven*
2. *Serverless*
3. *Asynchronous API*



# Serverless demo

- Let's build web service to access MovieLens DB using API Gateway and lambda...

```
serverless-client> python3 client.py
** client starting **

status code: 200
# of movies: 100

2 Ariel
3 Shadows in Paradise
5 Four Rooms
6 Judgment Night
11 Star Wars
12 Finding Nemo
13 Forrest Gump
14 American Beauty
15 Citizen Kane
16 Dancer in the Dark
17 The Dark
18 The Fifth Element
19 Metropolis
20 My Life Without Me
21 The Endless Summer
22 Pirates of the Caribbean: The Curse
24 Kill Bill: Vol. 1
25 Jarhead
26 Walk on Water
```

# Steps

1. **Write Lambda function, test – missing module...**
2. **Package import(s) as layer, configure, test**
3. **Configure API Gateway, test**
4. **Client-side test: browser / postman**
5. **Client-side app**

**That's it, thank you!**