

# TECHNOLOGY



## Caltech Coding Bootcamp Capstone Project

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**Domain: Entertainment**

## Objectives

To create a dynamic and responsive web application for booking movie tickets online for different genres and languages





## Problem Statement and Motivation

### Problem Statement:

In this project, you should be able to develop a front-end web app using Angular and a Java backend using Spring Boot, configure the applications using Docker containers, deploy the project on AWS using CI CD Pipeline

### Real-World Scenario:

NMS Cinemas is a chain of single screen theatres that screen movie shows of different genres and languages at very genuine prices. They found out that the online booking of movie tickets from apps, such as BookMyShow and Paytm were gaining more profit by eliminating middlemen from the equation. As a result, the team decided to hire a Full Stack developer to develop an online movie ticket booking web application with a rich and user-friendly interface.



## Industry Relevance

The following are the DevOps tools and their corresponding AWS services used in this project. These skills are widely used in the industry:

- **Angular** - Platform for building mobile and desktop web applications
- **Java and SpringBoot** - Leading technology to develop backend
- **Docker** - Deliver Software as Containers
- **AWS** - Host and Deploy your Apps in World's leading Cloud Platform
- **Jenkins** - Use Jenkins to build CI CD Pipelines





The following tasks outline the CI/CD pipeline creation process:

1. Develop the Front End with Angular for the Admin to add Theatres and Movies that will be screened from the Interface with authentication for the Admin User.
2. Develop an End User Web Application listing the theatres and the movies using Angular.
3. Define the structure of a database and create necessary tables using SQL in MySQL Database or MongoDB as per your preference.
4. Develop a Java Backend using Spring Boot containing various microservices.



The following tasks outline the CI/CD pipeline creation process:

5. Perform the Front-End and Back-End communication using HTTP Client
6. Define Jenkinsfile for both Angular and Java Projects for the automated builds.
7. Define Dockerfile for both Angular and Java Projects to develop images and run them as containers.
8. Develop a CI CD Pipeline in Jenkins for both Angular and Java Backend Projects.
9. Using AWS Launch EC2 Instances and configure other required ServicesDeploy the Projects on EC2 Instance





## Project Reference



- **Task 1, 2:** Angular Components, Routing, Services and AuthGuard, Forms
- **Task 3:** SQL CRUD Commands, Primary and Foreign Key Relationship
- **Task 4:** Spring Boot Web Dependency, RestController, RequestMapping, Post and Get Requests
- **Task 5:** Angular HTTP Client Library, HTTP Request Response, JSON
- **Task 6:** Jenkinsfile stages and step declarations
- **Task 7:** Dockerfile and commands to assemble an image
- **Task 8:** Jenkins Pipeline Project Creation with git SCM
- **Task 9:** AWS, EC2, SSH/CloudShell Connection, Tool Configuration



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**Thank You**