Critical Path

CPAN 228: **Web Application Development for CPAN diploma**

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| Week | Topics | Activities | | | Weight |
| 1 | * **Spring Boot Project Setup, Maven, Spring core** * Spring Boot as a Java tool to build fullstack projects fast and hassle-free * Dependency injection in Spring * Maven as a build system, goals, descriptors   Using Spring Initalizr to streamline correct dependency management  Diving into project structure, annotations and components  Running project, understanding project is deployed to application server |  | | |  |
| 2 | * **Spring Web**   Building first simple controller  Thymeleaf as a template engine  Building pages and integrating them with controllers  Using Spring Devtools | Lab 1 | | | 4% |
| 3 | **Spring Web**  Creating domain model to pass it to the template  Using Lombok to reduce boilerplate code  Building design template and using ModelAttribute to pass java objects | Lab 2  Assignment 1 | | | 4%  10% |
| 4 | **Spring JDBC**  Reading and Writing Data with JDBC  Using JDBC Template to perform database operations  Setting up H2 database and customizing data source  Implementing JDBC Repository to provide interface to interact with database | Lab 3 | | | 4% |
| 5 | * **Spring Data JDBC**   Creating schema sql file to populate DB on startup  Working with H2 Console to debug database  Using CrudRepository to interact with DB  Preparing domains to work with data | Lab 4 | | | 4% |
| 6 | * **Spring Data JPA**   Understanding JPA and JPA Implementations  Setting up models to work with JPA  Creating Custom Queries using semantic keywords  Implementing Paging and Sorting Repository to support pagination | Lab 5  Assignment 2 | | | 4%  10% |
| 6 | **Midterm** |  | | |  |
| 7 | **Spring Security**  Spring Security basics  Diving into initial security provided by Spring  Using Password Encoder  User Details Service in Spring  User Management through data stores | Lab 6 | | | 4% |
| 8 | **Spring Security**  Securing Web Requests  Patterns in Security Filter Chain  Different options to secure  Creating custom login page  LoginController through WebConfig  Implementing third-party security | Lab 7  Assignment 3 | | | 4%  10% |
| 9 | **Spring REST**  REST breakdown and rationale behind using it in modern applications  HTTP Methods  RestController in Spring  Testing GET Requests using Postman  JsonIgnore to prevent recursive referencing | Lab 8 | | | 4 % |
| 10 | **Spring REST Template**  Using Spring Data REST  HATEOAS Protocol  Spring Data Rest Customization  Consuming REST Services with REST Template  Working with models in REST Template | Lab 9 | | | 4% |
| 11 | **Spring Profile and Configuration**  Different ways to create configuration  Spring Environment Abstraction  Tuning configuration for application  Spring Profiles in configuration files  Conditional beans based on profiles | Lab 10 | | | 4% |
| 12 | **Final Project** | Final Project | | | 30% |
| Summary | | |  |
| Labs | | | 40% |
| Assignments | | | 30% |
| Final Project | | | 30% |
| TOTAL | | | 100% |