

This is a guide we've put together with some helpful resources for learning about the tools and technologies you'll be using throughout the semester.

Spring

- **What it is**

Spring (aka Spring Framework) is an open source framework and inversion of control container for Java that was created to address the complexity of developing enterprise applications. Spring has layered architecture that allows developers to leverage certain components while not utilizing others that they may not care about. Spring's biggest features include:

1. Transaction management – Spring allows for pluggable transaction managers to deal with transactions
2. Inversion of control container – Spring allows for dependency injection, which helps with the configuration and management of Java objects
3. Data access – Easy integration with Hibernate and JDBC
4. Model-View-Controller (MVC) – Spring provides a framework for extending and customizing web applications
5. Messaging – Spring is able to leverage existing technologies, such as Java Messaging Service (JMS) for sending messages

Some of these technologies will be vital to your project, and Spring allows for easy integration with other useful technologies and frameworks.

- **Help**

<https://spring.io/guides>

Particularly these guides:

- Building a RESTful Web Service
- Consuming a RESTful Web Service
- Consuming a SOAP web service
- Consuming a RESTful Web Service with jQuery/AngularJS/Backbone.js
- Handling Form Submission
- Building Java Projects with Gradle
- Caching Data with Spring

Additional links:

- <http://www.springbyexample.org>
- <https://dzone.com/tutorials/java/spring/spring-example/spring-example.html>

React

- **What it is**

React is a JavaScript-based open-source web application framework for the application's front-end that allows you to create dynamic views for your single-page application. It is a very widely-used platform and is currently the fourth most popular project on GitHub.

- **Help**

<https://facebook.github.io/react/>



ElasticSearch

- **What it is**

Elasticsearch is REST based search tool and data store. It is very fast and reliable, has an API that will allow the service layer to access data easily, and works with many different languages. Elasticsearch is one of the top open-source search tools in the market right now, and has a wide variety of uses.

- **Help**

<https://www.elastic.co/guide/en/elasticsearch/reference/current/getting-started.html>

Heroku

- **What it is**

Heroku is a hosting platform for web applications. You will use Heroku to host your application so that it will be publicly accessible on the web. There are many useful integrations that allow you to connect databases, ElasticSearch instances, and other resources to your project, simplifying some common configuration challenges.

- **Help**

<https://devcenter.heroku.com/articles/getting-started-with-gradle-on-heroku#introduction>

GitLab

- **What it is**

GitLab is a source control hosting solution, which means it's the tool that will keep track of all the code and changes along the way in a web client. Your team will have its own group on GitLab to collaborate and monitor progress. We'll be using git for our source control.

- **Help**

<https://www.smashwords.com/books/view/498426>

<https://about.gitlab.com/>

FAQ

Q: To whom do we direct questions about deliverables?

A: Questions on deliverables required by Dr. Song must be asked to Dr. Song. If you want advice on a particular artifact we are happy to give it, but we have no say in the grading of the document. If it is a question about one of the coding deliverables, you can reach out to the mentors to address it.

Q: How should we contact you for the quickest response?

A: Piazza is the best medium to get ahold of us, we will try to respond in a timely manner.

Q: What do you want to see in our presentation and how will you be grading us?

A: We want to see your application meet all of the requirements outlined in the project document. Once those are met, we look at a number of factors including how good your presentation is, extra features that are added, level of innovation, and the overall quality of the project.

Q: What is the mentor's role in the project?

A: The mentors serve as the product owner, but also as guides. Think of us as a company that wants to launch a product but we need additional human capital (i.e. you) in order to make it a success. We have the technology expertise and an idea, but we need more manpower. We are looking to the project groups to expand on the existing scaffold.