HW#2

1. Inversion of Control (IoC) enables the framework to take control of the program rather than a library does in standard scripting. Dependency Injection (DI) is one way of implementing IoC to our custom codes by injecting objects into other objects.
2. To create a bean instance once in a session or per request rather than a singleton, Spring Bean Scopes are used. Usage of Spring Bean Scopes allow more specific control of the bean instances creation.
3. SpringBootApplication annotation is a placeholder declaration for the standard @Configuration annotation where a class triggers self configuration, component scanning and declares more than one Bean methods.
4. Aspect-Oriented Programming (AOP) allows us to add cross-cutting concerns dynamically. Spring AOP provides AOP in Spring applications and is used to divide the logic of the program as concerns. Spring AOP is applied by first importing Spring AOP dependencies then enabling AOP configuration in Spring applications. After enabling, aspect class is annotated and point-cut expressions are written to match joint-point methods.
5. Singletons help us manage access to resources shared by the whole program, rendering the program pristine as having multiple instances of a class wouldn't be ideal. Using a singleton allows the avoidance of such complications.
6. Spring Boot Actuator includes features that allow us to manage and monitor the Spring Boot application. It has three main features called Endpoints, Metrics and Audit. Spring Boot Actuator should be used when we want production-ready features in an application.
7. Spring Boot is built on a spring framework and is automatically configured where Spring is a framework itself.
8. VCS is preferred for its safety of code storage, back-up services and mediation between developers or versions.
9. SOLID principles are multiple design concepts that help make codes easier to manage and understand. For example; Single Responsibility Principle is the division of a class into separate responsibilities. Open-closed Principle is when an open class needs

closed subclasses, allowing more subclasses to be added and existing subclasses to avoid further modifications. Liskov Substitution Principle is the substitutability of derived classes for their base classes, meaning they shouldn't have constraints their base classes don't. Interface Segregation Principle is about avoiding unnecessary methods to be implemented by interfaces by breaking interfaces down to multiple smaller interfaces. Dependency Inversion Principle is one way of implementing IoC to our custom codes by injecting objects into other objects.

10. Rapid Application Development (RAD) model is developing software prototypes without any specific planning.
11. Spring Boot starters gather all dependencies under a single name by being added under the dependencies section. They provide auto-configuration and logging support that can be useful.
12. Caching is storing relevant data then serving it when requested. It can be done in Spring Boot by configuring dependencies, enabling caching, and serving back data by using proper annotations.
13. Logging is manifesting trackable reactions to actions that are otherwise untraceable. It is usually done by printing occurrences with data and explanation combined. Logging is an important part of debugging and used to better understand whether a program does what it was initially intended to do or not.
14. Swagger is an open-source API development software. I haven't implemented it using Spring Boot yet.