**Lesson 1**

Introduction to Enterprise Architecture & Spring Core

***Purification leads to progress***

**WHOLENESS OF THE LESSON**

A good Enterprise [Software] framework makes use of Dependency Injection. Injecting object dependencies based on a system configuration makes the system very adaptable. ***Science of Consciousness:*** *The inward stroke during the practice of the Transcendental Meditation technique results in deep rest that provides the basis for the mind to act with greater adaptability.*

1. A software framework encapsulates the knowledge of experts, allowing the developers to take advantage of sound solutions and focus on the project qualities.***Science of Consciousness:*** *Through the practice of Transcendental Meditation, a person taps the value of Pure Consciousness which encapsulates knowledge of all the laws of nature..*
2. The Inversion of Control Container manages the lifecycle for the objects required by our application, allowing us to focus on the functionality of our logic and giving flexibility for future implementations. ***Science of Consciousness:*** *by taking the holistic field of life, the pure nature of creative intelligence, we can enrich all aspects of life.*
3. Dependency injection allows us to support better separation of concerns and creates more malleable applications. ***Science of Consciousness:*** *a person growing in creative intelligence experiences purification of the nervous system, thus producing a better quality of consciousness.*

**UNITY CHART**

**connecting the parts of the knowledge with the**

**wholeness of knowledge**

***Separation of concerns has to be applied on all levels of the architecture***

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| 1. The Inversion of Control container facilitates the integration of the system through dependency injection 2. Abstraction of the implementation is achieved on the classes, allowing the implementation to be changed over time. |
| 1. **Transcendental Consciousness:** is the foundation of integration & change. 2. **Wholeness moving within itself:** Unity [integration] and diversity [change] simultaneously. |

**Lesson 2**

**ORM & Basic Mapping**

***Outer depends on Inner***

**WHOLENESS OF THE LESSON**

A persistence framework, such as Hibernate, encapsulates the knowledge to make the storage and retrieval of any system object in an effortless way. ***Science of Consciousness:*** *The Transcendental Meditation technique, people effortlessly taps the pure field of creative intelligence, forming the basis for more efficient and rewarding actions.*

1. An Object Relational Mapping framework provides an Object-Oriented approach to data storage; simplifying the access to the database and effortlessly handling the persistence management for us. ***Science of Consciousness:*** *Transcendental Meditation is an effortless technique to bring us to the simple state of awareness.*
2. JPA is a specification not an implementation. It provides a consistent, reliable mechanism for data storage and retrieval that alleviates the application developer from the details involved in the persistence layer. ***Science of Consciousness:*** *The mechanism of transcending allows the individual to tap into the Home of all the Laws of Nature alleviating the stress of mundane day to day issues.*
3. The mapping of simple object structures to database is done through configuration files and/or annotations. This simple configuration is enough to instruct the framework about the objects it has to control and store. ***Science of Consciousness:*** *The simple mechanics of the TM technique allow [instruct] the mind to transcend to the home [store] of all knowledge.*
4. The persistence framework has a set of simple operations that are common to a database. These operations can help improve our development speed, and the overall accuracy and performance of the system. ***Science of Consciousness****: Research has found that participants in the Transcendental Meditation program showed greater activation of the appropriate hemisphere of the brain for both analytic tasks and for spatial tasks). This means that among those who practice Transcendental Meditation both hemispheres of the brain have improved response to tasks - more flexibly more dynamically and more accurately.*

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***Configuring the Persistence Framework with Simple Domain Objects***

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| 1. The Java Persistence API creates a common ground between all Java ORMs allowing for the configuration of data using both Java and xml configuration and annotations. 2. The persistence framework encapsulates the tasks that properly store data and then retrieve it in ways that supports the object oriented paradigm, so developers can focus on the business domain. |
| 1. **Transcendental Consciousness:** is the common base of all knowledge. 2. **Wholeness moving within itself:** I now have complete, reliable knowledge that is fully satisfying , unchanging and most importantly useful. |

**Lesson 3**

**Mapping Associations**

***Knowledge has organizing power***

**WHOLENESS OF THE LESSON**

Establishing the relationship between simple objects allows us to represent complex structures that empower systems with successful solutions. ***Science of Consciousness:*** *Practice of the TM technique, based on the natural movement of the mind toward greater happiness, results in development of full potential of the individual resulting in more success in daily life.*

1. A good ORM provides features that allow the developer to easily traverse object relationships. ***Science of Consciousness:*** *When we practice the TM Technique, we tap an inner reserve of energy and intelligence that make our life easier.*
2. Entities and objects relationships can be established through a specific set of associations, creating a rich foundation that can represent a real world domain. ***Science of Consciousness:*** *Seek the highest first, by starting with a good foundation and building upon that.*

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***Configuring the Persistence Framework with Elaborated Associations***

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| 1. Associations between objects can be represented by the persistence layer, allowing a seamless transformation between the application objects and the database storage. 2. More refined specifications can be achieved to represent the unique features of the target database. |
| 1. **Transcendental Consciousness**: provides for the frictionless[seamless] flow of energy and intelligence 2. **Wholeness moving within itself:** In unity consciousness, by maintaining unboundedness, brings out the more refined qualities of everyone and everything. |

**Lesson 4**

**Transactions and Concurrency, Java Persistence Query Language**

***Thought leads to action – achievement – fulfillment***

**WHOLENESS OF THE LESSON**

Defining the way the operations act on the database, allows us control to avoid concurrency effects. And using the persistence query language gives use the mechanism to interact with the entities beyond the API operations. ***Science of Consciousness:*** *The benefits of TM include a clearer understanding of deeper principles of life, allowing us to more easily take the right actions to achieve a desired result.*

1. The persistence query language operates over the defined entity mappings, allowing us to transverse the complex associations with the same object oriented paradigm of our programs. ***Science of Consciousness****: Enlivening Transcendental Consciousness empowers our mind with the ability to recognize complex interactions.*
2. A unit of work is a representation of a process that is only considered when all its parts are complete. ***Science of Consciousness:*** *Wholeness is greater than the sum of the parts.*

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***Using the persistence API and query language to manage the entities***

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| 1. The persistence API provides capability to control transactions, allowing us to comply with the core ACID principles. 2. The persistence query language extends the API to let the creation of custom searches and execute batch operations over the stored entities. |
| 1. **Transcendental Consciousness:** Makes it easy to comply with all the Laws of Nature. 2. **Wholeness moving within itself:** In Unity Consciousness, one fully experiences both the complete unity and diversity of life, and can truly appreciate their interaction. |

**Lesson 5**

**Integration & Optimization**

***Enjoy greater efficiency and accomplish more***

**WHOLENESS OF THE LESSON**

Although the entity manager default values on how to handle associations are good for most of the cases, things could become slow. Knowing how to solve common issues can improve the performance of the application. ***Science of Consciousness:*** *Action is most successful when it arises from a solid basis of thought that is supported by all the laws of nature.*

1. An eager fetch strategy often creates inefficient queries. To increase performance we can configure the entity associations with a lazy fetch strategy and fetch them in a more efficient manner. ***Science of Consciousness:*** *As we grow in creative intelligence we enjoy the advantage of increased* efficient *action.*
2. The second level cache can permit more scalability for the application, when the same entities are retrieved by multiple users they could be retained in memory to avoid subsequent accesses to the database, increasing efficiency. ***Science of Consciousness****: Through the constant practice of Transcendental Meditation, the reactions of mind and body are faster.*

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***Fine tuning the persistence to obtain better performance***

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| 1. Structuring the way to access the entities based on the business requirements can lead to increased performance compared to the default behavior. 2. A well-tuned application can increase speed and scalability with the usage of second level cache. |
| 1. **Transcendental Consciousness:** Thoughts and actions in accord with all the laws of nature that are structured at quiet levels of awareness are more performant. 2. **Wholeness moving within itself:** Advanced TM Techniques and the TM-Sidhi Programs are powerful tools accelerating efficiency and growth. |

**Lesson 6**

**Aspect Oriented Programming**

***Life is found in layers***

**WHOLENESS OF THE LESSON**

Do not Repeat Yourself. ***Science of Consciousness:*** *Creative intelligence automatically enriches all levels of life. Do Less Accomplish More.*

1. Aspect Oriented Programming allows us to consolidate in one place the repetitive code that is scattered out throughout an application, which improves the maintainability and clarity of the logic. ***Science of Consciousness****: Refining the function of the nervous system leads to improvement in physical health and mental clarity*
2. AOP applied judiciously can make an application more efficient and effective. ***Science of Consciousness****: Regular practice of the TM technique makes an individual more efficient and effective*

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**wholeness of knowledge**

***The whole is more than the sum of its parts***

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| 1. AOP organizes the flow of seemingly disparate functionality. 2. The underlying capability of AOP supports best practice principles in applications built on top of Spring. |
| 1. **Transcendental Consciousness:** infinite organizing power. 2. **Wholeness moving within itself:** The underlying unity of life is now on the surface of life. |

**Lesson 7**

**Spring Enterprise Framework & Security**

***Avoid the danger which has not yet come.***

**WHOLENESS OF THE LESSON**

Including only declarative notations and configuration, we can integrate functionality into our code to easily make it secure and connect to data stores. ***Science of Consciousness:*** *Capture the tree in the seed.*

1. An N Tier Architecture separates an application into layers thereby supporting a separation of concerns making any application more efficient, modular and scalable. ***Science of Consciousness***: Life is structured in layers. It is a structure that is both stable and flexible, consistent yet variable and it encompasses an infinite range of possibilities
2. Frameworks make development easier and more effective by providing a secure and reliable foundation on which to build upon. ***Science of Consciousness:*** *The simplest form of awareness, Transcendental Consciousness, provides a strong foundation for a rewarding and successful life*
3. Security underlies an entire application. They provide a shield that makes the application invulnerable. ***Science of Consciousness:*** *Transcendental consciousness is characterized by the quality of invincibility, which means one cannot be overcome or overpowered.*
4. Spring Security allows for authentication and authorization of system users. It gives access to resources “appropriately”. It works as a stabilizing factor in the enterprise infrastructure. ***Science of Consciousness:*** *Secure life at its basis - at the underlying field of Creative Intelligence – guarantees stability and success at all levels*

**UNITY CHART**

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***Powerful and Secure***

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| 1. Spring Security simplifies an important common functionality used in the enterprise. 2. Spring Security can help protect all aspects of the enterprise. |
| 1. **Transcendental Consciousness:** Complete security at the foundation of the unified field 2. **Wholeness moving within itself:** Harmony and unity dominating perception of difference and diversity securing the dynamic nature of life |

**Lesson 8**

**Enterprise Batch & Validation  
Avoid the Danger that has not yet come**

Validation is a necessary & important effort. The Spring MVC Validation makes this easy by providing tools to take care of it automatically.

**MAIN POINTS**

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| 1. Spring Batch provides a systematic, repeatable process for managing the “group dynamics” of large data sets. *The**Unified Field and its relative correlate the quantum field enhance group dynamics [1% effect].* 2. Validation checks the correctness of data against business rules. This prevents problems in the business model from arising. *In Cosmic Consciousness, life is lived stress- free; problem-free.* 3. JSR 349 validation allows for handling more complex, extraordinary verification issues with such features as Groups and Constraint Composition. *A quality of Cosmic Consciousness is the ability to know what is true and right in every situation.* |

**CONNECTING THE PARTS OF KNOWLEDGE WITH**

**THE WHOLENESS OF KNOWLEDGE**

1. Validation is an important and powerful feature of the Spring MVC framework

2. Validation capability assists in the development of a well-structured application.

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| 3. **Transcendental consciousness** naturally eliminates stresses and strains.  4. **Wholeness moving within itself:** In unity consciousness one directly appreciates the underlying silence of pure consciousness and the resulting structure of nature. |

**Lesson 9**

**Spring Remote Application Technologies**

***Knowledge is present everywhere***

**WHOLENESS OF THE LESSON**

Communication between distributed systems can be easily implemented in a secure and reliable way. ***Science of Consciousness:*** *The development and practical application of the full range of creative intelligence is open to everyone everywhere and anywhere through the knowledge and practice of the Science of Creative Intelligence.*

1. Distribution of work makes possible better organized more specialized and scalable systems. ***Science of Consciousness****: Pure Consciousness has infinite organizing power.*
2. Messaging oriented services guarantee a reliable communication and simplify the complexity of the applications. ***Science of Consciousness:*** *Pure Consciousness is simple, reliable, efficient and precise.*
3. AMQP integrates heterogeneous systems through the introduction of a basic wire protocol. ***Science of Consciousness:***  *Acting from the level of Transcendental Consciousness, thoughts and actions are more integrated and harmonious*

**UNITY CHART**

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**wholeness of knowledge**

***The junction point is the gap between boundaries and the unbounded***

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| 1. Distributing an application in different specialized components that communicate through a common medium allows great flexibility and scalability. 2. Messaging queue systems establish a platform to ensure reliable communications between applications. |
| 1. **Transcendental Consciousness:** is unbounded. It is the unified field, it is [distributed] everywhere. 2. **Wholeness moving within itself:** The ability to reliably know and understand anything and everything…everywhere. |

**Lesson 10**

**Spring Enterprise Integration**

***Appreciating All Levels from the Surface to the Depth***

**WHOLENESS OF THE LESSON**

Spring Enterprise Integration provides an underlying structure that allows business data to be processed in a consistent and efficient way. ***Science of Consciousness:*** *The universe is tremendous in size and complexity, the underlying structure of the Unified Field makes the vast resources of the universe available to everyone..*

1. Spring Enterprise Integration provides for seamless operation of the enterprise by providing adaptive and structured resource coordination. ***Science of Consciousness:*** *Without a doubt, the structure and adaptive nature of finer levels of consciousness...ultimately, Pure Consciousness makes one’s everyday experience seamless and smooth.*
2. Enterprise Application Integration provides an “almost” endless variety of components.

***Science of Consciousness:*** *Life is characterized by an infinite range of possibilities*

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**wholeness of knowledge**

***Organizing on a large scale, to effectively use the individual details***

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| 1. Spring Enterprise Integration is a fundamental large company solution to complexity 2. Spring Enterprise Integration is a high level enterprise technology, based on the same design principles that charcterize all of Spring [Loosely coupled, SoC, DRY, etc…] |
| 1. **Transcendental Consciousness:** A fundamental aspect of life that simplifies complexity. 2. **Wholeness moving within itself:** The same principles are appreciated at all levels of life from the surface to the depths. |

**Lesson 11**

**Spring MVC**

*Knower Knowing & Known*

**WHOLENESS OF THE LESSON**

Spring MVC is a framework that enforces the Model 2 JSP architecture. It is built on top of servlets. It hides much of the complexity of those technologies and makes developing the presentation layer of web applications simpler and easier. *The great diversity of the universe is structured in layers starting from the most basic interactions of the unified field—awareness being aware of itself.*

**MAIN POINTS**

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| 1. The basic ingredients of a Spring MVC application include web pages for the view (the known), the back end domain logic and data (knower or underlying intelligence), and the Spring framework and Dispatcher Servlet and managed beans as the controller to connect the view and model*.* ***Science of Consciousness:*** *Complete* *Knowledge is the wholeness of knower, known, and process of knowing.*  2. Annotations are metadata that allow the knowledge about the creation of an object to reside with the object itself.  ***Science of Consciousness:*** *The self-referral[metdata] nature of Transcendental Consciousness makes all our actions clearer and more powerful* |

***UNITY CHART***

***CONNECTING THE PARTS OF KNOWLEDGE WITH***

**THE WHOLENESS OF KNOWLEDGE**

1. Spring MVC is a framework for building the presentation layer of a web application.
2. Spring MVC development is maximally effective and efficient by understanding the

underlying mechanics of web technologies.

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| 1. **Transcendental consciousness** is the unified state of awareness, a “framework” that all aspects   of life build upon.  4. **Wholeness moving within itself:** In unity consciousness, one appreciates the inherent underlying unity that underlies all the diversity of the universe. |

**Lesson 12**

**Restful Web Services  
Frictionless Flow of Information**

REST allows for information exchange through Uniform Resource Identifiers.

*At the level of the unified field there is universal flow of information.*

**MAIN POINTS**

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| 1. REST gets access to information on the web through the ubiquitous URI. Everything on the web is available through a URI*.*  ***Science of Consciousness:*** *Likewise, everything in creation is known through understanding and experience of the Unified Field of Consciousness.*  2. The Spring framework makes the transition to RESTful web services smooth though the flexible & adaptable design of Spring MVC controllers.  ***Science of Consciousness:*** *The Structure of Life is flexible & adaptable.*   1. REST fits into a well-designed N-tier application enterprise very easily.  ***Science of Consciousness:*** *Life is well designed and built in layers, accommodating change very easily.* 2. OAuth2 is a token based protocol for authorization. Tokens offer provides streamlined permission management and support for distributed and cloud-based infrastructure. ***Science of Consciousness:*** *Cosmic Consciousness is characterized by the right action at the right time for full effectiveness.* |
| **CONNECTING THE PARTS OF KNOWLEDGE WITH**  **THE WHOLENESS OF KNOWLEDGE**  1. REST requires no tools, is easy to learn and is fast and efficient.  2. It simplicity makes it attractive and universally utilized |

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| 3. **Transcendental consciousness** is experienced through TM which is easy to learn and leads  to greater efficiency.  4. **Wholeness moving within itself:** In unity consciousness one's perceptions and actions are  experienced in terms of the universal flow of pure bliss consciousness. |