Training Tasks

1st Week tasks (13-05-2021 - 22-05-2021)

1- Oops concepts, constructors,modifiers,threading and exception handling which includes below topics-

- Encapsulation
- Inheritance, Is-A, Has-A
- Polymorphism
- JDK, JRE, JVM
- Garbage Collector working in Java
- Concrete Subclass
- Access Modifiers
- Nonaccess Member Modifiers
- Declaring Interface Constants
- Overridden Methods
- Overloaded Methods
- Reference Variable Casting
- Overloaded Constructors
- Static Variables and Methods
- Coupling and Cohesion
- Casting Primitives
- Using a Variable or Array Element That Is Uninitialized and Unassigned
- Local (Stack, Automatic) Primitives and Objects
- Does Java Use Pass-By-Value Semantics?
- Handling Exceptions
- Catching an Exception Using try and catch
- Using finally
- Propagating Uncaught Exceptions
- Defining Exceptions
- Exception Hierarchy

- Handling an Entire Class Hierarchy of Exceptions
- Exception Matching
- Exception Declaration and the Public Interface
- Rethrowing the Same Exception
- Common Exceptions and Errors
- Defining, Instantiating, and Starting Threads
- The Thread States and Transitions
- Preventing Thread Execution
- Thread Priorities and yield( )
- Synchronizing Code
- Synchronization and Locks
- Semaphores in JAVA
- Thread Deadlock
- Thread Interaction
- Using notifyAll( ) When Many Threads May Be Waiting
- File class
- ByteStream and Character Stream
- Serialization with Java IO
- Overriding hashCode() and equals()
- Collections(List,Set,Map,Queue) and sorting
- Architecture of JDBC
- Role of Driver Manager
- Understanding JDBC Driver Types

2- Spring core 5.0 with Hibernate

- Core container
- Introduction to IOC (Inversion of control)
- Dependency injection and its types
- Autowiring
- Factory methods and Beans
- Bean life cycle

- Controllers in Spring MVC

- Spring Security

- Hibernate queries with spring

- JPA queries

- ORM

- Hibernate configurations with Spring

- Persistent class or POJO

- Hibernate APIs(SessionFactory, Session, Transaction)

- Hibernate Join and Collection mapping

- Association mapping (one-to-one, one-to-many, many-to-one, many-to-many)

- Unidirectional and Bi-direction association mapping

- Criteria queries

- Design Patterns

2nd Week tasks(23-05-2021 - 01-06-2021)

1- Sql queries

- Indexing, Foreign keys, Constraints and Partitioning
- Joins
- Inbuilt mysql functions
- Cardinality in indexing
- Exploring queries with Explore
- Fetching data from multiple tables with joins
- Database Views
- Database Triggers
- Database Procedures and Functions
- User creation and Grant permissions in mysql
- Monitoring queries performance

2- Development tools and features
- git commands
- Managing multiple branches locally in git at a time
- Maven dependency management
- Maven with Spring configuration in project
- Spotbugs and checkstyles in build process

- Http methods with their proper usage
- AWS services like - ec2,load balancer, elastic beanstalk, SQS, Worker with SQS
- Debug tools and process in eclipse

3rd Week task(02-06-2021 - 06-06-2021)

Create a simple web application with limited features covering CRUD operations on your own which should include maximum topics , tools and features which we have covered in two weeks. Your idea should be innovative and your code should be clean and properly documented.

You will set up your project from scratch and it will be a Spring-Hibernate application with maven.

Also keep in mind whatever idea you decide to implement in your webapp must be related to our work in Countrydelight and it's business model. Overall it should be your contribution to your organisation.