**Spring Framework – Assignments**

1. **Spring Basics**

Assignment 1:

* A Model class “Movie” has the below properties
  + movieId – String – E.g.: M001
  + movieName – String – E.g.: The Firm
  + movieActor – String – E.g.: Tom Cruise
* Create a spring xml configuration file to create a bean entry for the Movie object with some sample property values
* The client program should be able to display all the details of the Movie object on the console.

Assignment 2:

* Re-write the solution of Assignment 2 but this time use Annotations to configure your application instead of xml configurations.

1. **Dependency Injection and Inversion of Control**

**Assignment 1:**

* There are two Model classes as below:
  + Student
    - studentId -> String -> S001
    - studentName -> String -> Steve
    - studentTest -> Object of type Test (could be a collection variety also if you need to store more than 1 test details)
  + Test
    - testId -> String -> T001
    - testTitle -> String -> “Core Java Test”
    - testMarks -> int -> 80
* Create a spring program to create 2 student instances. First student has taken up only one test and the Second student has taken up 2 tests.
* In the client program display all the details of both the students along with their test details as well.

**Assignment 2:**

* There are two Model classes as below:
  + Player
    - playerId -> String -> P001
    - playerName -> String -> Sachin
    - country -> Object -> of type ‘Country’
  + Country
    - countryId -> String -> C001
    - countryName -> String -> ‘India’
  + Every player belongs to a particular country. Create a spring program to create 5 players and 2 countries. 2 players belong to one country and the other 3 players belong to another country.
  + The client program should display the details of all players and their corresponding country details. If given a country name, it should also display all the player names who belong to that country.

1. **Aspect Oriented Programming**

* **Assignment 1:** 
  + Create a Spring application that maintains a list of 100 student objects with details like studentId, studentName, studentAddress in a collection (array, list, map etc.,)
  + It also has methods as below:
    - getAllDetails() 🡪 That displays all the details of all 100 students.
    - getDetails(studentId) -> That displays the details of a particular student by taking studentId as an input
  + I would want to log a message in the format ‘<MethodName> invoked at <date-time>’ in the console whenever the method successfully completes and would also want to display the total time taken by each of these methods for their execution.

1. **Spring Database Access**

* **Assignment 1:**
  + Re-write the solution of ‘Assignment 1’ of the topic ‘Aspect Oriented Programming’ above but instead of storing the student details in a collection maintain the student details in a table in a database and access it whenever required.
  + Use ‘JDBCTemplate’ for this solution.
* **Assignment 2:**
  + Re-write the previous assignment solution but this time use Hibernate as your ORM layer and accordingly use the ‘HibernateTemplate’ for this solution

1. **Spring MVC**

* **Assignment 1:**
  + Create a form which takes three inputs from the User -> Science marks , Maths marks and English marks
  + After entering the data, when the user clicks on the submit button, it has to calculate the sum of these numbers and show the total marks back to the user.
  + Use Spring MVC for this solution and use XML configuration
* **Assignment 2:**
  + Rewrite the above solution but this time instead of XML configuration, use Spring Annotations