Academic Year: 2023-24 **Semester: II** **Class: FYMCA**

Course Code: MC506 **Course Name: Java Programming**

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Experiment No.1.2

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Aim: Fundamentals of Java Programming

CO Mapping – CO 1

Objective:

- To understand declaration of Classes, and Methods with its all features such as Constructors, Access Specifier
- To understand Classes, Instance variables, Methods, Constructors, Access
- Specifiers as basic fundamentals
- Implement Abstract Classes and Wrapper Classes for given problem statement
- Design and implement Inheritance, Polymorphism in JAVA
- Demonstrate Use of Static, final, super and this keyword
- Demonstrate creating user defined package, Access control protection,
- Defining interface, Implementing interface

Lab Exercise: Study the different Java frameworks (such as Spring, SpringBoot, Hibernate, Struts) and compare them according to their functionality, ease of use and some more points.

Output:

	Spring	SpringBoot	Hibernate	Struts
Release Year	2004	2014	2001	2001
Founded By	Rod Johnson	Spring Team at Pivotal Software	Gavin King	Apache Software
Application	BizFlow	MicroHub	PersistantPerse	ShopEase
Prerequisites	Strong JAVA foundation ,Basics of web development,Database knowledge ,XML fundementals	Strong JAVA foundation , Build ToolKnowledge, Basics of development,Database knowledge ,command line interface.	Strong JAVA foundation, Knowledge of Relational Databases, Experience with JDBC .OOP principles , Knowledge of Design pattern	Strong JAVA foundation, Familarity with servlet Programming , knowledge of JSP,XML fundementals ,experience with spring ,Database knowledge
Purpose	Web framework primarily based on the MVC design pattern.	Can create stand-alone, production-grade Spring based Applications that you can "just run".	Object-relational mapping (ORM) framework for mapping Java objects to relational database tables.	Web framework primarily based on the MVC design pattern.
Architecture	Offers various architectural patterns including MVC (via Spring MVC), dependency injection, aspect-oriented programming, etc.	Emphasizes convention over configuration, reducing the need for XML configuration and boilerplate code.	Object-relational mapping (ORM) framework for mapping Java objects to relational database tables.	MVC-based architecture for building web applications.

Configuration	Provides flexibility with options for XML configuration, Java annotations, and Java-based configuration.	Builds upon the Spring framework, offering a streamlined way to create standalone, production-grade Spring-based applications.	Typically configured using XML or annotations to define mappings between Java objects and database tables.	Typically configured using XML files.
Flexibility	Highly flexible, allowing developers to choose components, configure them easily, and integrate them seamlessly.	Balances flexibility with ease of use, offering a quick start for development while still allowing customization and extension.	Offers flexibility in managing database interactions and relationships, supporting various strategies for data access and manipulation.	Provides a structured approach for web development with less flexibility compared to other frameworks like Spring.
Ease Of Use	Provides extensive documentation, a wide range of community support, and is generally considered more user-friendly than Struts.	Provides auto-configuration, starter dependencies, and embedded servers, making it very easy to get started with Spring-based projects.	Simplifies database access and management by abstracting away SQL queries and providing higher-level APIs for data persistence.	Requires familiarity with XML configuration and adherence to Struts conventions.

Observation:

Every Java framework is built to address certain intuition of problem that has to be solved and every java framework has its own pros and cons therefore we should have more specific in out requirements in order to choose the right framework among Spring, SpringBoot, Struts, Hibernate.