

## Spring framework

- Spring framework developed by Rod Jonson in 2003.
- Spring framework makes the easy development of javaEE application.
- Spring is a lightweight framework.
- It can be thought of as a framework of frameworks because it provides support to various framework such as struct, Hibernnet,jsf etc.
- The spring framework several modules such as IOC,AOP,DAO,ORM,MVC, etc.

## Inversion of control (IOC)

These are the design pattern that are used to remove dependency from the programming code.

They make the code easier to test and maintain.

### For Exp:-

```
class student
{
    address addr;
    student()
    {
        addr = new Address();
        //body of student class
    }
    class Address
    {
        //body of Address class
    }
```

**Note:-** In such case there is dependency between the student and Address

(tight coupling). in the IOC scenario:-

```
class student
{
    Address adr;
    Student(Address adr)
    {
        this.address = address;
    }
}
```

Note:- thus IOC makes the code loosely coupled. In such case, there is no need to modify

the code if our logic is moved to new environment. In spring framework, IOC container is

responsible to inject the dependency. we provide metadata to the IOC container either

by XML file or annotation.

## Advantages of spring framework

### 1> Loose Coupling

The Spring application are loosely coupled because of dependency injection.

### 2> Predefine Templates

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Spring framework provides templates for Jdbc,Hibernate,JPA etc. so there is no need

to write too much code. it hides the basic step of these technologies.

Exp - JdbcTemplate.

### **3> Easy to test**

The Dependency injection makes easier to test the application

### **4> LightweightPeer**

Spring framework is lightweight because of its POJO implementation.

The Spring framework doesn't force the programmer to inherit any class

or implement any interface.

<https://bushansirgur.in/spring-boot-and-mongodb-rest-api-crud-tutorial/>