

## Sprigboot: Dynamic Bean Initialization

Concept && Coding YT Notes

### Unsatisfied Dependency problem

```
@RestController
@RequestMapping(value = "/api")
public class User {

    @Autowired
    Order order;

    @PostMapping("/createOrder")
    public ResponseEntity<String> createOrder() {
        order.createOrder();
        return ResponseEntity.ok(body: "");
    }
}
```

```
public interface Order {
    public void createOrder();
}
```

```
@Component
public class OnlineOrder implements Order{
    public OnlineOrder(){
        System.out.println("Online Order Initialized");
    }

    public void createOrder(){
        System.out.println("created Online Order");
    }
}
```

```
@Component
public class OfflineOrder implements Order{
    public OfflineOrder(){
        System.out.println("Offline Order Initialized");
    }

    public void createOrder(){
        System.out.println("created Offline Order");
    }
}
```

\*\*\*\*\*  
APPLICATION FAILED TO START  
\*\*\*\*\*

UnsatisfiedDependencyException: Error creating bean with name 'user'

### @Qualifier

```
@RestController
@RequestMapping(value = "/api")
public class User {

    @Qualifier("onlineOrderObject")
    @Autowired
    Order order;

    @PostMapping("/createOrder")
    public ResponseEntity<String> createOrder() {
        order.createOrder();
        return ResponseEntity.ok(body: "");
    }
}
```

```
public interface Order {
    public void createOrder();
}
```

```
@Qualifier("onlineOrderObject")
@Component
public class OnlineOrder implements Order{
    public OnlineOrder(){
        System.out.println("Online Order Initialized");
    }

    public void createOrder(){
        System.out.println("created Online Order");
    }
}
```

```
@Qualifier("offlineOrderObject")
@Component
public class OfflineOrder implements Order{
    public OfflineOrder(){
        System.out.println("Offline Order Initialized");
    }

    public void createOrder(){
        System.out.println("created Offline Order");
    }
}
```

```
2024-05-07T16:41:14.520+05:30 INFO 19826 --- [main] o.s.l.SpringbootApplication
2024-05-07T16:41:14.521+05:30 INFO 19826 --- [main] o.s.l.SpringbootApplication
2024-05-07T16:41:14.953+05:30 INFO 19826 --- [main] o.s.b.w.embedded.tomcat.TomcatWebServer
2024-05-07T16:41:14.959+05:30 INFO 19826 --- [main] o.apache.catalina.core.StandardService
2024-05-07T16:41:14.959+05:30 INFO 19826 --- [main] o.apache.catalina.core.StandardEngine
2024-05-07T16:41:14.985+05:30 INFO 19826 --- [main] o.s.w.s.c.[Tomcat].[localhost].[/]
2024-05-07T16:41:14.985+05:30 INFO 19826 --- [main] w.s.c.ServletWebServerApplicationContext
Offline Order Initialized
2024-05-07T16:41:15.149+05:30 INFO 19826 --- [main] o.s.b.w.embedded.tomcat.TomcatWebServer
2024-05-07T16:41:15.154+05:30 INFO 19826 --- [main] o.s.l.SpringbootApplication
```

POST http://localhost:8080/api/createOrder

```
2024-05-07T16:41:14.939+05:30 INFO 19826 --- [main] o.apache.catalina.core.StandardEngine
2024-05-07T16:41:14.985+05:30 INFO 19826 --- [main] o.s.w.s.c.[Tomcat].[localhost].[/]
2024-05-07T16:41:14.985+05:30 INFO 19826 --- [main] w.s.c.ServletWebServerApplicationContext
Offline Order Initialized
2024-05-07T16:41:15.149+05:30 INFO 19826 --- [main] o.s.b.w.embedded.tomcat.TomcatWebServer
2024-05-07T16:41:15.154+05:30 INFO 19826 --- [main] o.s.l.SpringbootApplication
2024-05-07T16:41:15.579+05:30 INFO 19826 --- [info-8090-exec-2] o.s.w.s.c.[Tomcat].[localhost].[/]
2024-05-07T16:41:15.579+05:30 INFO 19826 --- [info-8090-exec-2] o.s.web.servlet.DispatcherServlet
2024-05-07T16:41:15.589+05:30 INFO 19826 --- [info-8090-exec-2] o.s.web.servlet.DispatcherServlet
created Online Order
```

### 1st Solution:

```
@RestController
@RequestMapping(value = "/api")
public class User {

    @Qualifier("onlineOrderObject")
    @Autowired
    Order order;

    @PostMapping("/createOrder")
    public ResponseEntity<String> createOrder() {
        order.createOrder();
        return ResponseEntity.ok(body: "");
    }
}
```

```
public interface Order {
    public void createOrder();
}
```

```
@Qualifier("onlineOrderObject")
@Component
public class OnlineOrder implements Order{
    public OnlineOrder(){
        System.out.println("Online Order Initialized");
    }

    public void createOrder(){
        System.out.println("created Online Order");
    }
}
```

```
@Qualifier("offlineOrderObject")
@Component
public class OfflineOrder implements Order{
    public OfflineOrder(){
        System.out.println("Offline Order Initialized");
    }

    public void createOrder(){
        System.out.println("created Offline Order");
    }
}
```

### 2nd Solution:

```
@RestController
@RequestMapping(value = "/api")
```

```

public class User {

    @Autowired
    Order order;

    @PostMapping("/createOrder")
    public ResponseEntity<String> createOrder() {

        order.createOrder();

        return ResponseEntity.ok( body: "");
    }
}

```

```

public interface Order {

    public void createOrder();
}

```

```

public class OnLineOrder implements Order{

    public OnLineOrder(){
        System.out.println("OnLine Order Initialized");
    }

    public void createOrder(){
        System.out.println("created OnLine Order");
    }
}

```

```

public class OffLineOrder implements Order{

    public OffLineOrder(){
        System.out.println("Offline Order initialized");
    }

    public void createOrder(){
        System.out.println("created OffLine Order");
    }
}

```

```

@Configuration
public class AppConfig {

    @Bean
    public Order createOrderBean(@Value("${isOnlineOrder}") boolean isOnlineOrder){
        if(isOnlineOrder) {
            return new OnLineOrder();
        } else {
            return new OffLineOrder();
        }
    }
}

```

application.properties

isOnlineOrder=false

```

2024-05-08T19:30:38.605+05:30 INFO 45167 --- [main] o.apache.catalina.core.StandardService :
2024-05-08T19:30:38.606+05:30 INFO 45167 --- [main] o.apache.catalina.core.StandardEngine :
2024-05-08T19:30:38.631+05:30 INFO 45167 --- [main] o.a.c.c.C.[Tomcat].[localhost].[/] :
2024-05-08T19:30:38.632+05:30 INFO 45167 --- [main] w.s.c.ServletWebServerApplicationContext :
Offline Order initialized
2024-05-08T19:30:38.793+05:30 INFO 45167 --- [main] o.s.b.w.embedded.tomcat.TomcatWebServer :
2024-05-08T19:30:38.798+05:30 INFO 45167 --- [main] c.c.l.SpringbootApplication :

```

POST http://localhost:8090/api/createOrder

```

2024-05-08T19:30:38.606+05:30 INFO 45167 --- [main] o.apache.catalina.core.StandardEngine :
2024-05-08T19:30:38.631+05:30 INFO 45167 --- [main] o.a.c.c.C.[Tomcat].[localhost].[/] :
2024-05-08T19:30:38.632+05:30 INFO 45167 --- [main] w.s.c.ServletWebServerApplicationContext :
Offline Order initialized
2024-05-08T19:30:38.793+05:30 INFO 45167 --- [main] o.s.b.w.embedded.tomcat.TomcatWebServer :
2024-05-08T19:30:38.798+05:30 INFO 45167 --- [main] c.c.l.SpringbootApplication :
2024-05-08T19:32:33.610+05:30 INFO 45167 --- [nio-8090-exec-2] o.a.c.c.C.[Tomcat].[localhost].[/] :
2024-05-08T19:32:33.610+05:30 INFO 45167 --- [nio-8090-exec-2] o.s.web.servlet.DispatcherServlet :
2024-05-08T19:32:33.611+05:30 INFO 45167 --- [nio-8090-exec-2] o.s.web.servlet.DispatcherServlet :
created OffLine Order

```

### @Value :

it is used to inject values from various sources like property file, environment variables or inline literals.

### Inline Literal Example

```

@Bean
public Order createOrderBean(@Value("false") boolean isOnlineOrder){
    if(isOnlineOrder) {
        return new OnLineOrder();
    } else {
        return new OffLineOrder();
    }
}

```