6. Optional Class

- **Optional is a container object** which may or may not contain a non-null value.
- **Purpose of Optional class** is to provide a type-level solution for representing optional values instead of null references.
- **Optional class** has the following methods.

```
static <T> Optional<T> empty();
static <T> Optional<T> of(T);
static <T> Optional<T> ofNullable(T);

T get();
boolean isPresent();
T orElse(T);

void ifPresent(Consumer<? super T>);
Optional<T> filter(Predicate<? super T>);

Optional<U> map(Function<? super T, ? extends U>);
Optional<U> flatMap(Function<? super T, Optional<U>>);

T orElseGet(Supplier<? extends T>);
T orElseThrow(Supplier<? extends X>) throws X;
```

Demo1.java

```
package com.jlcindia.demos;

import java.util.Optional;
/*
* @Author : Srinivas Dande
* @Company: Java Learning Center
* */

public class Demo1 {
public static void main(String[] args) {

// Optional<String> myopts = new Optional<String>();

//Optional.empty() method
Optional<String> myopts= Optional.empty();

System.out.println("1. "+myopts);
System.out.println("2. "+myopts.orElse("Hello Guys"));
System.out.println("3. "+myopts);
System.out.println("4. "+myopts.isPresent());

//System.out.println("5. "+myopts.get());

if(myopts.isPresent()) {
System.out.println("5. "+myopts.get());
}else {
System.out.println("6. No value Found");
}

}
}
```

Demo2.java

```
package com.jlcindia.demos;

import java.util.Optional;
/*
* @Author : Srinivas Dande
* @Company: Java Learning Center
* */
```

```
public class Demo2 {
public static void main(String[] args) {

//Optional.of() method
String str ="Srinivas";
Optional<String> myopts= Optional.of(str);

System.out.println("1. "+myopts);
System.out.println("2. "+myopts.orElse("Hello Guys"));
System.out.println("3. "+myopts);
System.out.println("4. "+myopts.isPresent());
//System.out.println("5. "+myopts.get());

if(myopts.isPresent()) {
System.out.println("5. "+myopts.get());
}else {
System.out.println("6. No value Found");
}

}
}
```

Demo3.java

```
package com.jlcindia.demos;

import java.util.Optional;
/*
* @Author : Srinivas Dande
* @Company: Java Learning Center
* */
public class Demo3 {

public static void main(String[] args) {

//Optional.of()  with null
String str =null;
Optional<String> myopts= Optional.of(str);
System.out.println(myopts);

}
}
```

Demo4.java

```
package com.jlcindia.demos;

import java.util.Optional;
/*
* @Author : Srinivas Dande
* @Company: Java Learning Center
* */

public class Demo4 {
public static void main(String[] args) {

//Optional. ofNullable () method
String str =null;
Optional<String> myopts= Optional.ofNullable(str);

System.out.println("1. "+myopts);
System.out.println("2. "+myopts.orElse("Hello Guys"));
System.out.println("3. "+myopts);
System.out.println("4. "+myopts.isPresent());

if(myopts.isPresent()) {
System.out.println("5. "+myopts.get());
}else {
System.out.println("6. No value Found");
}

}
}
```

Demo5.java

```
package com.jlcindia.demos;

import java.util.Optional;
/*
* @Author : Srinivas Dande
* @Company: Java Learning Center
* */

public class Demo5 {
public static void main(String[] args) {
```

```
//Optional. ofNullable() method
String str ="Srinivas";
Optional<String> myopts= Optional.ofNullable(str);

System.out.println("1. "+myopts);
System.out.println("2. "+myopts.orElse("Hello Guys"));
System.out.println("3. "+myopts);
System.out.println("4. "+myopts.isPresent());

if(myopts.isPresent()) {
System.out.println("5. "+myopts.get());
}else {
System.out.println("6. No value Found");
}

}
}
```

Demo6.java

```
package com.jlcindia.demos;

import java.util.Optional;
/*
* @Author : Srinivas Dande
* @Company: Java Learning Center
* */
public class Demo6 {
public static void main(String[] args) {

//isPresent() Vs ifPresent()
String str =null;
//String str ="Srinivas";
Optional<String> myopts= Optional.ofNullable(str);

if(myopts.isPresent()) {
System.out.println(myopts.get());
}

myopts.ifPresent(input -> System.out.println(input));

if(myopts.isPresent()) {
System.out.println(myopts.get().toUpperCase());
}
```

```
myopts.ifPresent(input -> System.out.println(input.toUpperCase()));

System.out.println("--------------------");

System.out.println("Done!!!");
}
}
```

Demo7.java

```
package com.jlcindia.demos;

import java.util.Optional;
/*
* @Author : Srinivas Dande
* @Company: Java Learning Center
* */
public class Demo7 {
public static void main(String[] args) {

//filter() method
String str1 =null;
Optional<String> myopts1 = Optional.ofNullable(str1);

Optional<String> myopts4= myopts1.filter(input -> input.contains("Sri"));
System.out.println("1 . "+myopts4);

String str2 ="Srinivas";
Optional<String> myopts2 = Optional.ofNullable(str2);

Optional<String> myopts5= myopts2.filter(input -> input.contains("Sri"));
System.out.println("2 . "+myopts5);

String str3 ="Hello Guys";
Optional<String> myopts3 = Optional.ofNullable(str3);

Optional<String> myopts6= myopts3.filter(input -> input.contains("Sri"));
System.out.println("3 . "+myopts6);

System.out.println("Done!!!");

}
}
```

Demo8.java

```
package com.jlcindia.demos;

import java.util.Optional;
/*
* @Author : Srinivas Dande
* @Company: Java Learning Center
* */
public class Demo8 {
public static void main(String[] args) {

//map() method
String str1 ="Srinivas";
Optional<String> myopts1 = Optional.ofNullable(str1);
System.out.println("1. "+myopts1);

Optional<String> myopts2 = myopts1.map(input -> input);
System.out.println("2. "+myopts2);

Optional<String> myopts3 = myopts1.map(input -> input.toUpperCase());
System.out.println("3. "+myopts3);

Optional<String> myopts4 = myopts3.map(input -> new
StringBuilder(input).reverse().toString());

System.out.println("4. "+myopts4);

String mystr = null;
Optional<String> myopts = Optional.ofNullable(mystr);
System.out.println("5. "+myopts);

Optional<String> myopts5 = myopts.map(input -> input.toUpperCase());
System.out.println("6. "+myopts5);

System.out.println("Done!!!");
}
}
```