WRAPPER CLASS

Recap

Q1. Static block are used to

A Invoke static methods

B Initializing instance variable

C Initializing static variables

D Execute statements before main function

Recap

Why main method declared with static in java

- ✓ JVM can call it without creating an instance of the class

OBJECTIVES

On completion of this topic, you will be able to:

- Understand the purpose of Wrapper Class
- Create an instance for Wrapper Class
- Convert Primitive to Wrapper and Vice Versa
- Convert String to Primitive
- Understand the advantages of Autoboxing and Unboxing

STATIC

What are wrapper classes?

Java has eight primitive data types - byte, short, int, long, char, float, double, boolean.

These data types do not belong to any class and hence are not objects.

There is a class representation for each primitive data type. These classes are called wrapper class.

Why wrapper class?

Certain concepts in java, like Collection work on objects.

Primitives can be used in those concepts using wrapper classes.

Where are wrapper classes available?

The java.lang package contains wrapper classes that corresponds to each primitive type.

List of Wrapper classes

Primitive	Wrapper Class
byte	Byte
short	Short
int	Integer
long	Long
float	Float
double	Double
char	Character
boolean	Boolean

WRAPPER CLASS

- ✓ Convert primitive into objects.
- ✓ Convert string into primitive datatype

WRAPPER CLASS

INSTANTIATING WRAPPER CLASS USING CONSTRUCTOR

- All wrapper class, except Character class has 2 constructors, one takes primitive and other takes String as parameter.
- Character class has only one constructor that takes char as parameter.

```
//Takes primitive as argument
      Integer iobj=new Integer(10);
      Double dobj=new Double(8.2);
      Character cobj=new Character('e');
      Boolean isdone=new Boolean(false);

//Takes String as argument
      Integer intObj=new Integer("10");
      Double doubleObj=new Double("8.2");
```

INSTANTIATING WRAPPER CLASS USING PRIMITIVE

- All wrapper class can be instantiated by directly assigning the primitive.

```
//Using primitive
      Integer intObj=10;
```

⚠ If the Strings are not in the right format, they will cause a NumberFormatException.

INSTANTIATING WRAPPER CLASS

INSTANTIATING WRAPPER CLASS USING valueOf( ) METHOD

- public static Wrapper valueOf(primitive p) - This static method takes primitive data as parameter.
- public static Wrapper valueOf(String s) - This static method takes String as parameter.
  This method is not available for Character class.

```
Integer num1 = Integer.valueOf(10);
 Integer num2 =  Integer.valueOf("123");

 Double x = Double.valueOf(10.4);
 Double y = Double.valueOf("12.4");
```

If the Strings are not in the right format, they will cause a NumberFormatException.

INSTANTIATING WRAPPER CLASS

01

WRAPPING - CONVERTING PRIMITIVE TO WRAPPER CLASS

```
int a=10;

Integer it1=new Integer(a);
```

int datatype a is converted to object it1

02

UNWRAPPING - CONVERTING WRAPPER CLASS TO PRIMITIVE

Can get primitive for a given wrapper object using xxxValue() method.

```
Integer it1=new Integer(10);
// Data is unwrapped using the method intValue()
//in Integer class
int x = it1.intValue();
byte  y = it1.byteValue();
```

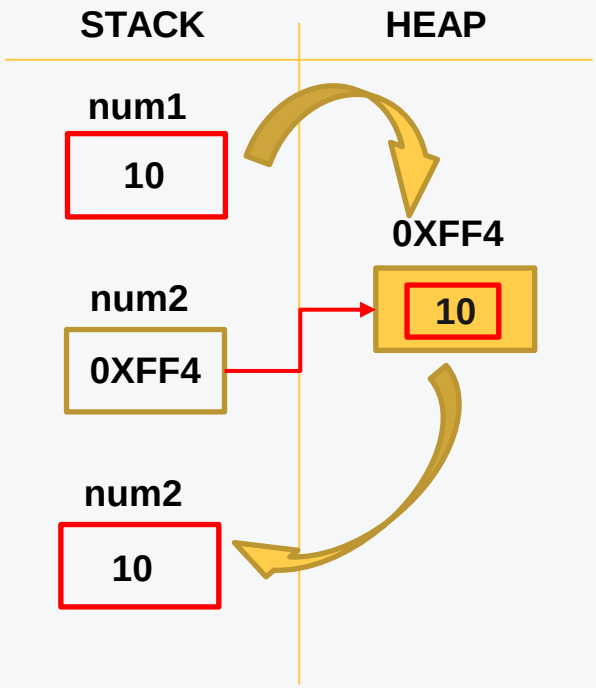
CONVERSION IN WRAPPER CLASS

WRAPPING
CONVERTING PRIMITIVE TYPE TO WRAPER CLASS

UN-WRAPPING
CONVERTING WRAPER CLASS TO PRIMITIVE TYPE

```
int num1 = 10;
//Wrapping
Integer num2 = new Integer(num1)

//Un-Wrapping
int num3 = num2.intValue(num2);
```



CONVERSION OF STRING TO PRIMITIVE

- EACH WRAPPER CLASS CONTAINS A STATIC METHOD TO CONVERT A REPRESENTATION IN A STRING TO THE ASSOCIATED PRIMITIVE.

```
public static primitive parseXXX(String s);
```

- EXAMPLE:

```
int num1 = Integer.parseInt("3");
double num2 = Double.parseDouble("4.2");

//In case of Character

String value = 'F’;
char gender = value.charAt(0);
```

AUTO BOXING & UN-BOXING

Autoboxing and Unboxing features are introduced from Java 5

AUTOBOXING

- Converting a primitive value into an object of the corresponding wrapper class.
- Example:

```
Integer intObj = 10;  //Autoboxing
```

UNBOXING

- Converting an object of a wrapper type to its corresponding primitive value.
- Example:

```
Integer intObj=10;  // boxing
int y = intObj;     //  unboxing
```

HANDS ON TRAINING

Doubts Time

QUIZ TIME

Quiz Time

Q1. Static block are used to

A Invoke static methods

B Initializing instance variable

C Initializing static variables

D Execute statements before main function

Quiz Time

Why main method declared with static in java

- ✓ JVM can call it without creating an instance of the class

SUMMARY

SUMMARY

Having completed this module, you should be able to:

- Create Static Variable and Methods
- Access Static members using class name
- Use Static Block and Initialization Block
- List the types of Variables