Autoboxing

1. What is Autoboxing and Auto-unboxing?

2. Fundamental facts?

3. Simple example for Illustration.

4. Autoboxing in Methods

5. Autoboxing in Expression

6. Autoboxing Boolean,Character values

7.When to use Autoboxing.

Autoboxing

1. Autoboxing is the process of automatically encapsulating(boxing) the primitive type to the corresponding Wrapper objects.

2. Autounboxing is the process of automatically extracting(unboxing) the Wrapper type object to the corresponding primitive type.

Fundamental Facts

1. It was introduced in JDk5
2. Addition of boxing and unboxing greatly streamlines the coding and removes the manual boxing and unboxing of the values.
3. no more Usage of **new** keywords for boxing and **intValue(),doubleValue()** for unboxing.
4. Always Autoboxing creates proper Object and unboxing create proper value thus prevents error.

Example

```
Integer i=100;
```

-- The Above line code assigns 10 value to Integer wrapper Objects.
-- It is Autoboxing an int.

```
int x=i;
```

-- This line of code auto un-boxes Object value to corresponding primitive type.

Complete Example

```
Integer i=100;//Autobxing
int x=i;//unboxing
s.o.p(x);//Display x which is int value
```

Autoboxing in Methods

1. Autoboxing/Unboxing occurs automatically when we want to convert a primitive type to object and Object type to primitive type.

2. In method when a argument is passed and value is returned.

```
Integer iob=m1(100);

s.o.p(iob);

public int m1(Integer i){
	return i;//autounboxing
}
```

--> m1(100) , m1 method is expecting Integer hence Autoboxing takes places.
--> it returns a int value hence Autounboxing occurs.
--> the Return value is assigned to Integer it is Autoboxed again and display in S.O.P

Autoboxing in Expression

1. This applies to expressions where autoboxing occurs then unboxing and then again reboxing.

```
Integer i1;
int i;

i1=100;
i1++;
i=i1+2;
```

--> when i1 is assigned 100 it is autoboxing

--> Next it increments and assign it back to i1 which is unboxing.

--> i1 is unboxed and 2 is added but the result is not reboxed.

Autoboxing Boolean & Character

```
Boolean b=true;

if(b){
s.o.p("this is true");
}
```

--> In the above example the true assigned to b - autoboxing takes place.
--> in the If condition it is expecting a boolean value hence autounboxing takes place.

```
Character ch='x'
char ch1=ch;

s.o.p(ch1);
```

--> In the above example the charcter "x" is assigned to ch - autoboxing takes place.
--> when "ch assigned to "ch1" autounboxing takes place.

Warning

When to use Autoboxing/AutoUnboxing and when to use as a primitive types?

P.S when we use autoboxing and autounboxing it add overhead each time and this is not present when used primitive types.

Bad Usage of Autoboxing/unboxing

```
Double d1,d2,d3;

d1=10.0;
d2=20.0;

d3=(d1*d1+d2*d2);
SOP(d3)
```

In this scenario we can use primitive type which is more efficient than Wrapper types.