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# Selenium Java Training - Session 8 - Java (Part 6) - Constructors, this keyword, Overloading and Packages

## Java (Part 6) - Constructors, this keyword, Overloading and Packages

### Constructors

Constructors are similar to methods, but have the below differences:

- Demonstrate the constructors having the below qualities [here](#)
  - Constructors have the same name as Class name
  - Constructors are automatically called when an object is created for the Class
  - Constructors won't have any return type - Return types like void, int etc won't be available for constructors
  - Empty hidden Constructor will be called, when an object is created for the Class not specified with explicit constructors
- Constructors simplify the initialization of variables
  - Demonstrate initialization of variables without using constructors - Demonstrate [here](#)
  - Demonstrate initialization of variables with constructors - Demonstrate [here](#)

### this keyword

The purpose of the this keyword is to differentiate the instance variable with the parameterized variables of methods/constructors.

- Using this keyword with **Methods**
  - Demonstrate the program which don't use this keyword - Demonstrate [here](#)
  - Demonstrate the advantage of using this keyword with methods - Demonstrate [here](#)
- Using this keyword with **Constructors**
  - Generally required for constructors, as constructors are automatically called when objects are created and thereby all the required variables will be initialized automatically
  - Similar to methods.

### Overloading

Duplicate methods/constructor names are allowed inside the same class, as long as their parameters count or declaration or order of parameters are different.

- In this case, methods having the same name can be created inside a class as long as their parameters count or declaration are different.

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- In this case, the methods are said to be overloaded and the concept is known as Method overloading
  - Compiler error will be displayed when more than one method has the same name - Demonstrate [here](#)
  - Demonstrate how method overloading concept can avoid compiler error - Demonstrate [here](#)
- **constructor overloading**
  - The same concept of method overloading when applied to constructors is known as constructor overloading
    - In this case, the constructors are said to be overloaded and the concept is known as Constructor overloading

## Packages

Packages are created to group related classes/interfaces/other files.

- We generally group things to organize them better for locating them easily.
- Default package - Create a new Java project say Facebook and Create a new Java Class say 'FacebookLogin' and observed that a default package will be created. - view [here](#)
- Package creation - Create a new Java project say Facebook and group the Classes under various packages - view [here](#)
- Demonstrate - Accessing instances variables and methods from other class which is under the same package
- Demonstrate - Importing the Classes in the other packages while accessing the instance variables and methods created in the Classes which are under other packages
- Demonstrate - Using \* in the import statements to import all the classes in the package instead of importing a single class every time

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