# Guided LAB - 303.11.1 - Generic Method and Class

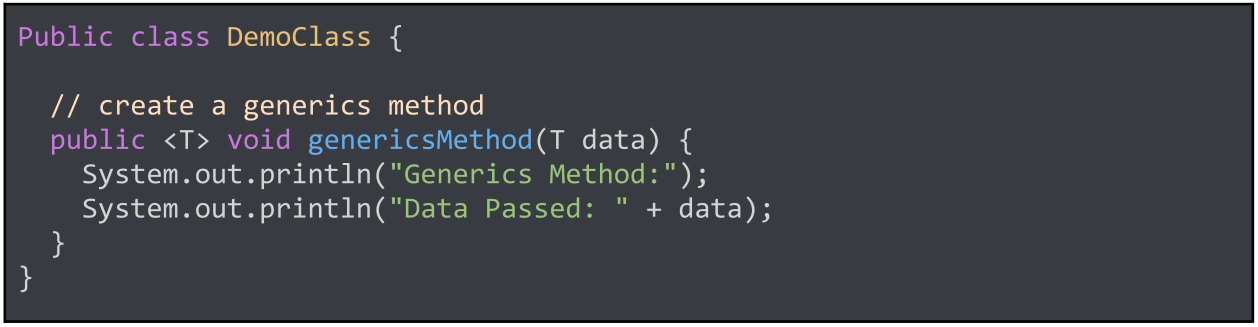
## Lab Objective:

In this lab, we will demonstrate a generic method and class. By the end of this lab, learners will be able to utilize the generic method and class.

## Example: Java Generics Method

We can create a method that can be used with any type of data. That method is known as the ***Generics Method***.

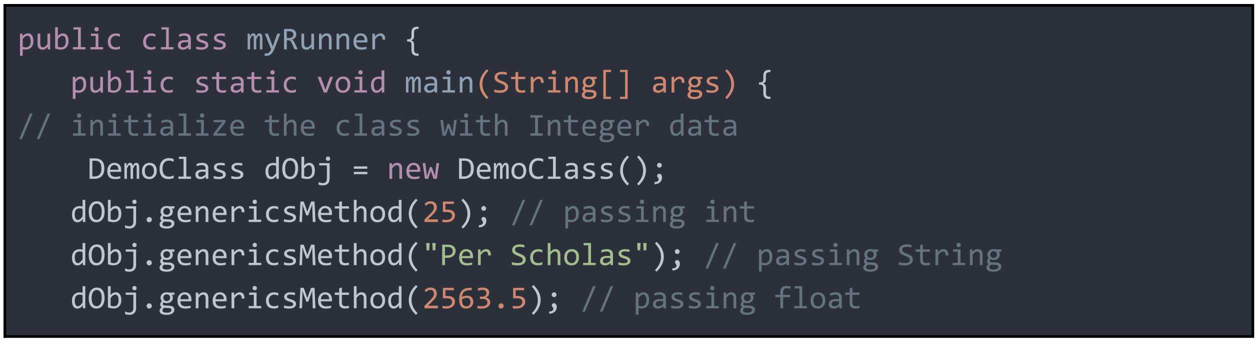
Create a class named **DemoClass**. As shown below, we will create a generic method in this class:



```
Public class DemoClass {

  // create a generics method
  public <T> void genericsMethod(T data) {
    System.out.println("Generics Method:");
    System.out.println("Data Passed: " + data);
  }
}
```

Create a class named ***myRunner***. In this class, we will invoke the generic method.



```
public class myRunner {
   public static void main(String[] args) {
// initialize the class with Integer data
    DemoClass dObj = new DemoClass();
   dObj.genericsMethod(25); // passing int
   dObj.genericsMethod("Per Scholas"); // passing String
   dObj.genericsMethod(2563.5); // passing float
```

```
    dObj.genericsMethod('H'); // passing Char
  }
}
```

## Run your program:

**Output:**

```
Generics Method:
Data Passed: 25
Generics Method:
Data Passed: Per Scholas
Generics Method:
Data Passed: 2563.5
Generics Method:
Data Passed: H
```

In the above example, we have created a generic method named genericsMethod.

```
public <T> void genericMethod(T data) {...}
```

Here, the type parameter `<T>` is inserted after the public modifier and before the return type void.

We can call the generics method by placing the actual type `<String>` and `<Integer>` inside the bracket before the method name.

## Example: Generic Class

A class can have more than one **type parameter**. In this case, the type parameters are separated by a comma.

For the demonstration, we will initialize two **type parameters** in the Generic class. The names of the parameter types will be `Datatypeone` and `DatatypeTwo,` but these are only names. You are free to use “X” or “Z,” or any other identifier to name parameters.

Create a class named **`GMultipleDatatype`**: Write the below code.

```
public class GMultipleDatatype  <Datatypeone, DatatypeTwo>  {
   Datatypeone valueOne;
   DatatypeTwo valueTwo;

   public GMultipleDatatype(Datatypeone v1, DatatypeTwo v2)
   {
       this.valueOne = v1;
       this.valueTwo = v2;
   }

   public Datatypeone getValueOne() {
       return valueOne;
   }

   public void setValueOne(Datatypeone valueOne) {
       this.valueOne = valueOne;
   }

   public DatatypeTwo getValueTwo() {
       return valueTwo;
   }

   public void setValueTwo(DatatypeTwo valueTwo) {
       this.valueTwo = valueTwo;
   }
}
```

Create a class named **MyRunner** as shown below:

```java
public class MyRunner {
   public static void main(String[] args) {
       // initialize generic class
       // with String and Integer data

       GMultipleDatatype<String, Integer> mobj = new GMultipleDatatype("Per Scholas", 11025);

       System.out.println(mobj.getValueOne());
       System.out.println(mobj.getValueTwo());

         // initialize generic class
       // with String and String data
       GMultipleDatatype<String, String> mobj2 = new GMultipleDatatype("Per Scholas", "Non profit");
       System.out.println(mobj2.getValueOne());
       System.out.println(mobj2.getValueTwo());
   }
}
```

## Run your program:

**Output:**

```
Per Scholas
11025
Per Scholas
Non profit
```

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**Submission Instructions:**

Include the following deliverables in your submission -

- Submit your source code using the Start Assignment button in the top-right corner of the assignment page in Canvas.

## CANVAS STAFF USE ONLY: Canvas Submission Guideline:

| Instructions for Canvas Assignment Creation |
|---|
| Assignment Name: GLAB - 303.11.1 -  Generic Method and Class<br><br>Points: 100<br>Assignment Group: Module 303: Java SE Review (Not Graded)<br>Display Grade As: Complete/Incomplete<br>Do not count this assignment towards the final grade: Checked<br>Submission Types: Files uploads<br><br>Everything else is the default. |