

## Lab 10 Instructions

Create a class called “Name” with instance variables for the first name and last name. This class should follow the singleton design pattern and have the following methods:

- **Private Name(firstName, LastName):** A private constructor that throws an IllegalArgumentException if the first or last name is null.
- **GetInstance**
- **Accessor methods for instance variables (first name and last name)**

Create an abstract class called “NameUtils”. This class should follow the utility design pattern and have the following static methods:

- **getNameInitializer(Name name):** Returns a String containing the initials.
- **getNameUppercase(Name name):** Returns a String containing the full name in uppercase.
- **getNameLowercase(Name name):** Returns a String containing the full name in lowercase.
- **printNameFormal(Name name):** Prints a sentence that says “Hello, my name is” followed by the full name and the initials. Example: “Hello, my name is Albert Einstein (A.E.).”

In your Main class (via your Main method), create an instance of the Name class and call each of the methods from the NameUtils class.