**Installation Procedure**

**Step-by-Step Installation Guide for Fuzzy Logic and Bayesian Network Integration Project**

**Step 1: Clone the Repository**

First, you need to clone the repository from GitHub. Open your terminal or command prompt and run the following command:

git clone https://github.com/KhaledMashraqi/FuzzyLogicBNIntegration.git  
cd FuzzyLogicBNIntegration

**Step 2: Set Up the Environment**

Ensure you have the Java Development Kit (JDK) installed. The project is compatible with JDK 8 or later. You can download JDK from the [Oracle website](https://www.oracle.com/java/technologies/javase-downloads.html) or install it via a package manager.

**Step 3: Download and Include Required Libraries**

The project relies on the FuzzyLogic API and the UNBBayes API. Ensure you have these libraries downloaded and included in your project.

* **FuzzyLogic API**: [Download jFuzzyLogic](https://github.com/ferjorosa/fuzzylogic)
* **UNBBayes API**: [Download UNBBayes](https://sourceforge.net/projects/unbbayes/)

**Step 4: Project Directory Structure**

The project directory should look like this:

📁 Java-fuzzy project  
├── 📁 FuzzySet  
│ ├── 📁 bin  
│ ├── 📁 dep  
│ │ ├── 🍵 jFuzzyLogic\_core.jar  
│ │ └── 🍵 jFuzzyLogic.jar  
│ ├── 📁 lib  
│ ├── 📁 src  
│ │ └── 📁 cyse  
│ │ └── 📁 gmu  
│ │ └── 📁 edu  
│ │ └── 📄 TestFuzzyEngine.java  
│ ├── 📁 target  
│ └── 📄 pom.xml  
├── 📁 solution  
│ └── 📄 final.fcl

**Step 5: Compile the Source Code**

Navigate to the FuzzySet directory and compile the source code using the following command:

javac -cp dep/jFuzzyLogic\_core.jar;dep/jFuzzyLogic.jar src/cyse/gmu/edu/TestFuzzyEngine.java

**Step 6: Run the Application**

Run the application with the following command:

java -cp dep/jFuzzyLogic\_core.jar;dep/jFuzzyLogic.jar;src cyse.gmu.edu.TestFuzzyEngine

**Step 7: Verify the Setup**

Ensure everything is set up correctly by verifying the output of the example scenario. The application should process the input attributes of valves and pumps, evaluate the reliability using Fuzzy Logic, and set the values in the Bayesian Network using UNBBayes.