- ❖ Features of general-purpose languages such as variables, scopes, functions, classes, inheritance, fuzzy logic and nested classes

- ❖ Models the fuzzy logic operations from 0 to 1 logical values

  - ➢ 1 being the absolute truth

  - ➢ 0 being false

- ❖ FuzzyEval.eval processes all the operations

- ❖ Primary components:

  - ➢ VarType: defines variables data types

  - ➢ ClassVar: class variables defined in the class, variables can be assigned values using Assign

  - ➢ Parameter: parameters of methods

  - ➢ Methods: method definitions and its parameters and operations

  - ➢ FuzzyClass: class definitions with optional inheritance and nested classes

  - ➢ Scope: manages how scopes for variables are managed, can support nested scopes and variables which are stored in a mutable map

  - ➢ FuzzyInstance: instances of class and manages how variables and methods are accessed/invoked

  - ➢ FuzzyOperation: various operation and logic gates

  - ➢ TestGate: fuzzy logic gate operations, supports AND, OR, NOT operations, and works with FuzzyEval to evaluate the operations

  - ➢ Assign: accepts a FuzzyVariable and FuzzyOperation as the input, assigns variables to results

- Inheritance: Classes can inherit from other classes using superclass and all the inherited methods and variables are accessible in subclass, subclasses can override methods from their superclass
- Nested classes: classes can include nested classes and their instances have a reference to their parent instance

❖ FuzzyClass supports inheritance through superclass and supports class definitions, variable declarations, method definitions, nested class

❖ SBT:
  - Build.sbt specifies all the settings, versions and dependencies needed to run
  - Sbt compile and sbt test can be used to run the program

❖ System requirements:
  - Scala 3.3.0 or better
  - SBT
  - ScalaTest plugin
  - Git clone and compile
  - JDK 17
  - Compile: **sbt compile**
  - Run: **sbt run** or directly from IntelliJ **FuzzyUnitTest** file