**Lab Exercise 22- Functions in KieBase with Drools**

**Objective:**

Learn how to define functions, use them within rules, and interact with global objects in Drools.

**Prerequisites:**

* Basic understanding of Drools and rule-based systems.
* Java development environment set up with Drools.

**Steps:**

**1. Set Up Your Project**

* Create a new Maven or Gradle project in your preferred IDE.
* Add Drools dependencies to your pom.xml (for Maven) or build.gradle (for Gradle).

**2. Define Your Model Classes**

Create a Java class representing the data model used in your rules.

public class Customer {

private String name;

private double purchaseAmount;

// Constructors, getters, and setters

public Customer(String name, double purchaseAmount) {

this.name = name;

this.purchaseAmount = purchaseAmount;

}

public String getName() { return name; }

public void setName(String name) { this.name = name; }

public double getPurchaseAmount() { return purchaseAmount; }

public void setPurchaseAmount(double purchaseAmount) { this.purchaseAmount = purchaseAmount; }

}

**3. Define Functions in a DRL File**

Create a DRL file named discountRules.drl in your resources directory.

package com.example.rules;

import com.example.Customer;

function boolean isEligibleForDiscount(Customer customer) {

return customer.getPurchaseAmount() > 100;

}

rule "Apply Discount"

when

$customer : Customer()

then

if (isEligibleForDiscount($customer)) {

System.out.println($customer.getName() + " is eligible for a discount.");

} else {

System.out.println($customer.getName() + " is not eligible for a discount.");

}

end

**4. Create a Test Class**

Create a test class to load the KieBase, execute the rules, and observe the output.

import org.drools.core.impl.KnowledgeBaseFactory;

import org.drools.core.impl.KieBaseImpl;

import org.kie.api.KieServices;

import org.kie.api.runtime.KieContainer;

import org.kie.api.runtime.KieSession;

public class DroolsTest {

public static void main(String[] args) {

try {

KieServices kieServices = KieServices.Factory.get();

KieContainer kieContainer = kieServices.getKieClasspathContainer();

KieSession kieSession = kieContainer.newKieSession();

// Create test data

Customer customer1 = new Customer("Alice", 150.0);

Customer customer2 = new Customer("Bob", 90.0);

// Insert data into session

kieSession.insert(customer1);

kieSession.insert(customer2);

// Fire rules

kieSession.fireAllRules();

kieSession.dispose();

} catch (Exception e) {

e.printStackTrace();

}

}

}

**5. Run the Test**

* Execute the DroolsTest class.
* Observe the output to see if the rules are correctly applied based on the defined functions.

**6. Verify and Document Results**

* Verify that the output matches your expectations based on the rules defined.
* Document any issues or observations.