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| **WEEK 2 – Logging using SLF4J** | **Superset Id : 6429486**  **Name : Akshaya V** |

**Logging using SLF4J**

**Exercise 1: Logging Error Messages and Warning Levels**

**Task:** Write a Java application that demonstrates logging error messages and warning levels using SLF4J.

**Step-by-Step Solution:**

1. Add SLF4J and Logback dependencies to your pom.xml file:

<dependency>

<groupId>org.slf4j</groupId>

<artifactId>slf4j-api</artifactId>

<version>1.7.30</version>

</dependency>

<dependency>

<groupId>ch.qos.logback</groupId>

<artifactId>logback-classic</artifactId>

<version>1.2.3</version>

</dependency>

2. Create a Java class that uses SLF4J for logging:

import org.slf4j.Logger;

import org.slf4j.LoggerFactory;

public class LoggingExample {

private static final Logger logger = LoggerFactory.getLogger(LoggingExample.class);

public static void main(String[] args) {

logger.error("This is an error message");

logger.warn("This is a warning message");

}

}

**Code:**

**LoginService.java:**

package org.example;  
import org.slf4j.Logger;  
import org.slf4j.LoggerFactory;  
import java.util.HashMap;  
import java.util.Map;  
public class LoginService{  
 private static final Logger *logger*=LoggerFactory.*getLogger*(LoginService.class);  
 private Map<String,String>users=new HashMap<>();  
 public LoginService(){  
 *logger*.debug("Initializing user database");  
 users.put("Akshaya","pass@123");  
 users.put("Aks","welcome");  
 *logger*.debug("User database initialized with {} users",users.size());  
 }  
 public void login(String username, String password){  
 *logger*.debug("Login attempt for user:'{}'",username);  
 if(!users.containsKey(username)){  
 *logger*.warn("Login failed: User '{}' not found",username);  
 }  
 else{  
 *logger*.debug("User '{}' found, validating password",username);  
 if(!users.get(username).equals(password)){  
 *logger*.error("Login failed: Incorrect password for user '{}'",username);  
 }  
 else{  
 *logger*.info("User '{}' logged in successfully",username);  
 }  
 }  
 }  
 public static void main(String[] args){  
 *logger*.debug("Application started.");  
 LoginService loginService = new LoginService();  
 loginService.login("Akshaya", "wrongpass");  
 loginService.login("john", "123");  
 loginService.login("Aks", "welcome");  
 *logger*.debug("Application ended");  
 }  
}

**logback.xml:**

<configuration>  
 <appender name="STDOUT" class="ch.qos.logback.core.ConsoleAppender">  
 <encoder>  
 <pattern>%d{HH:mm:ss.SSS} [%thread] %-5level %logger{36}-%msg%n</pattern>  
 </encoder>  
 </appender>  
  
 <root level="DEBUG">  
 <appender-ref ref="STDOUT"/>  
 </root>  
</configuration>

**Output:**

