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| --- | --- | --- | --- | --- |
| I. Dependencies:  Specifications (web profile)  Implementations: (Hibernate) | | III. Config web.xml  <welcome-file-list>  <welcome-file>hello-servlet</welcome-file>  </welcome-file-list> | |  |
| II. Add dependencies pom.xml   |  |  |  |  | | --- | --- | --- | --- | | <groupId/>jakarta.servlet.jsp.jstl  <artifactId/>jakarta.servlet.jsp.jstl-api  <version/>3.0.2 | <groupId/>org.glassfish.web  <artifactId/>jakarta.servlet.jsp.jstl  <version/>3.0.1 | <groupId/>org.mariadb.jdbc  <artifactId/>mariadb-java-client  <version/>3.5.6</version> | <groupId/>org.projectlombok  <artifactId/>lombok  <version/>1.18.42 | | | | |  |
| IV. Config persistence.xml  <persistence-unit name="mariadb">  <class>com.nvminh162.nguyenvanminh.model.? </class >  <properties>  <property name="jakarta.persistence.jdbc.driver" value="org.mariadb.jdbc.Driver"/>  <property name="jakarta.persistence.jdbc.url" value="jdbc:mariadb://localhost:3306/www\_midterm"/>  <property name="jakarta.persistence.jdbc.user" value="root"/>  <property name="jakarta.persistence.jdbc.password" value="root"/>  <property name="hibernate.dialect" value="org.hibernate.dialect.MariaDBDialect"/>  <property name="hibernate.hbm2ddl.auto" value="update"/>  <property name="hibernate.show\_sql" value="true"/>  <property name="hibernate.format\_sql" value="true"/>  </properties>  </persistence-unit> | | |  |
| V. Create JPA | | |
| *util -> JPAUtil.java*  @Getter  private static EntityManagerFactory emf;  public static void init() {  if (emf == null)  emf = Persistence.createEntityManagerFactory("mariadb”)  }  public static void close() {  if (emf != null && emf.isOpen()) emf.close();  } | | *JPAListener.java*  @WebListener  public class JPAListener implements ServletContextListener {  @Override  public void contextInitialized(ServletContextEvent sce) {JPAUtil.init(); }  @Override  public void contextDestroyed(ServletContextEvent sce) {JPAUtil.close(); }  } |