# Message-Driven Bean (MDB) – Entity Bean

Trong bài này, ta thử làm 1 vị dụ về MDB cho phép nhận các MapMessage là gồm thông tin về 1 mẫu tin trong entity bean từ client và xử lý message này bằng cách chèn mẫu tin vào database và 1 vài phương thức khác.

Database:

Table - dbo.Lophoc		
Column Name	Data Type	Allow Nulls
msLop	nvarchar(15)	☐
tenLop	nvarchar(150)	☐
giaovienCN	nvarchar(100)	☐
		☐

Trong netbeans, tạo 1 JavaEE project có tên EJB21_MDB_Entity
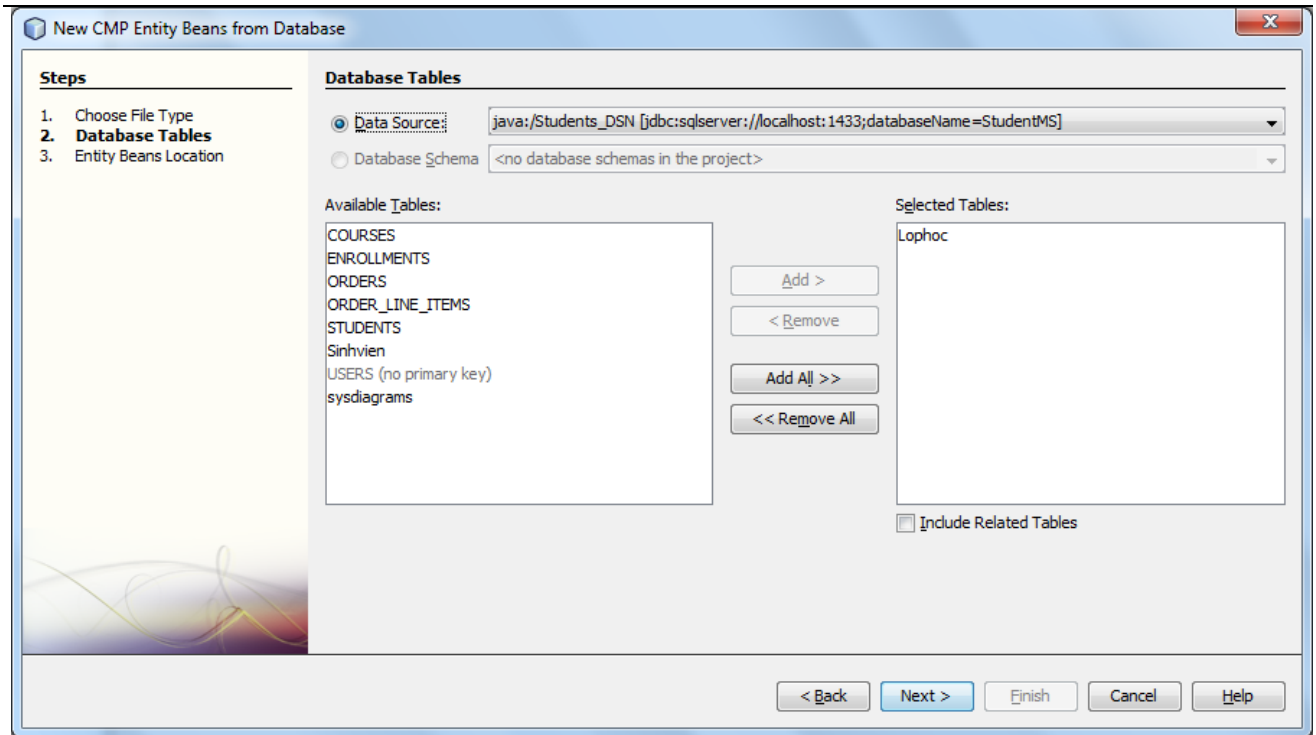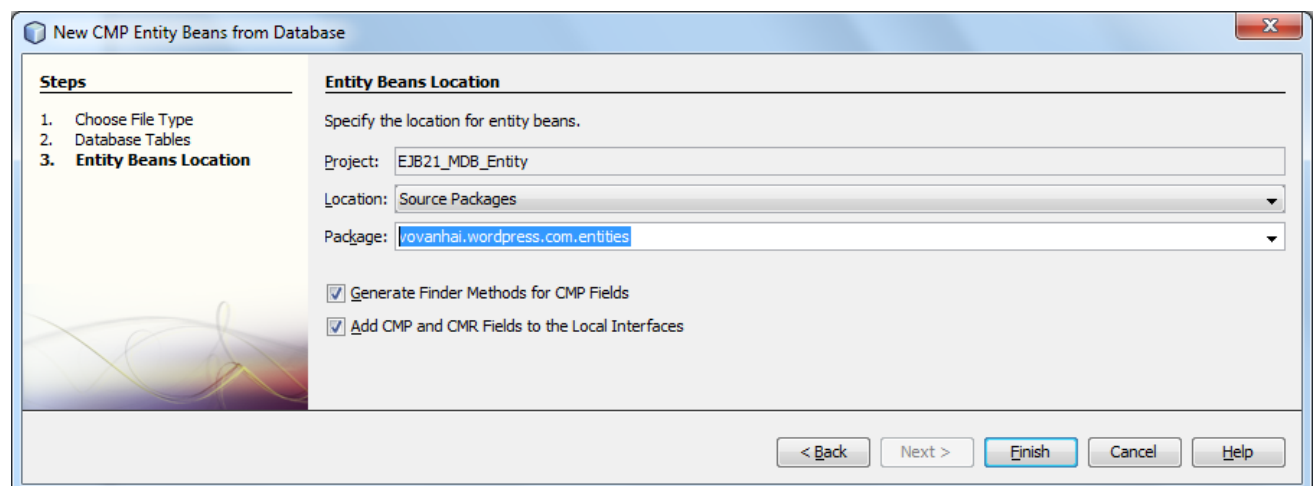

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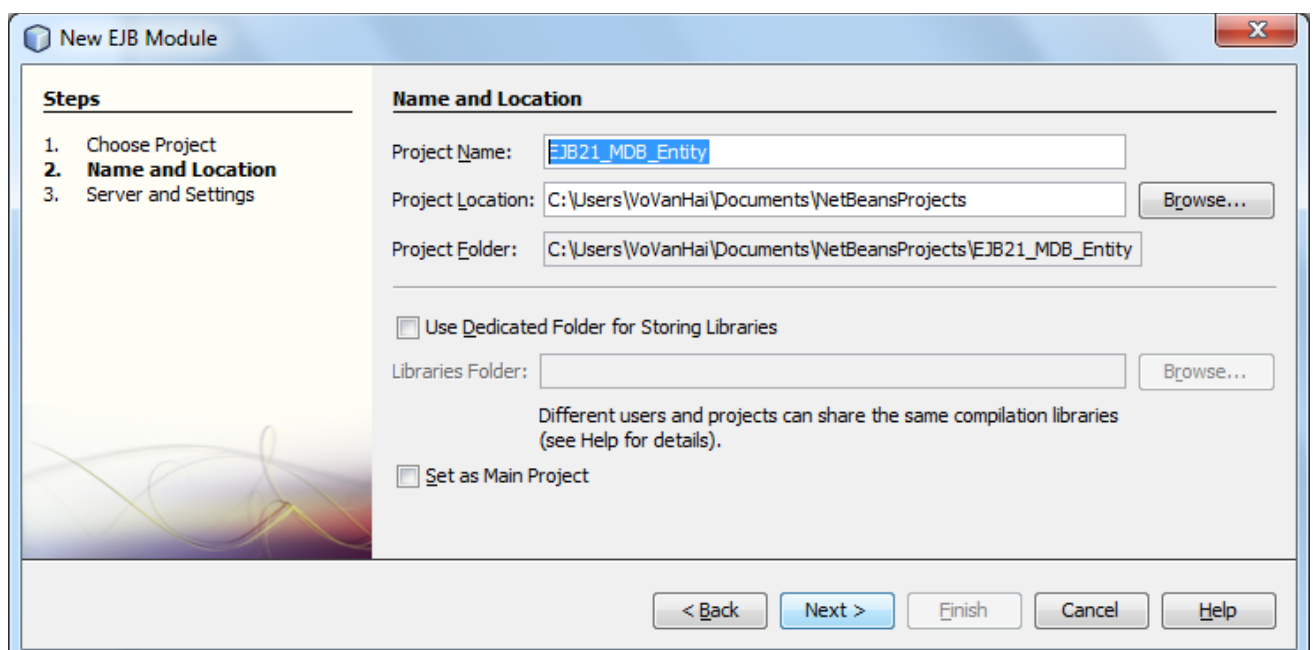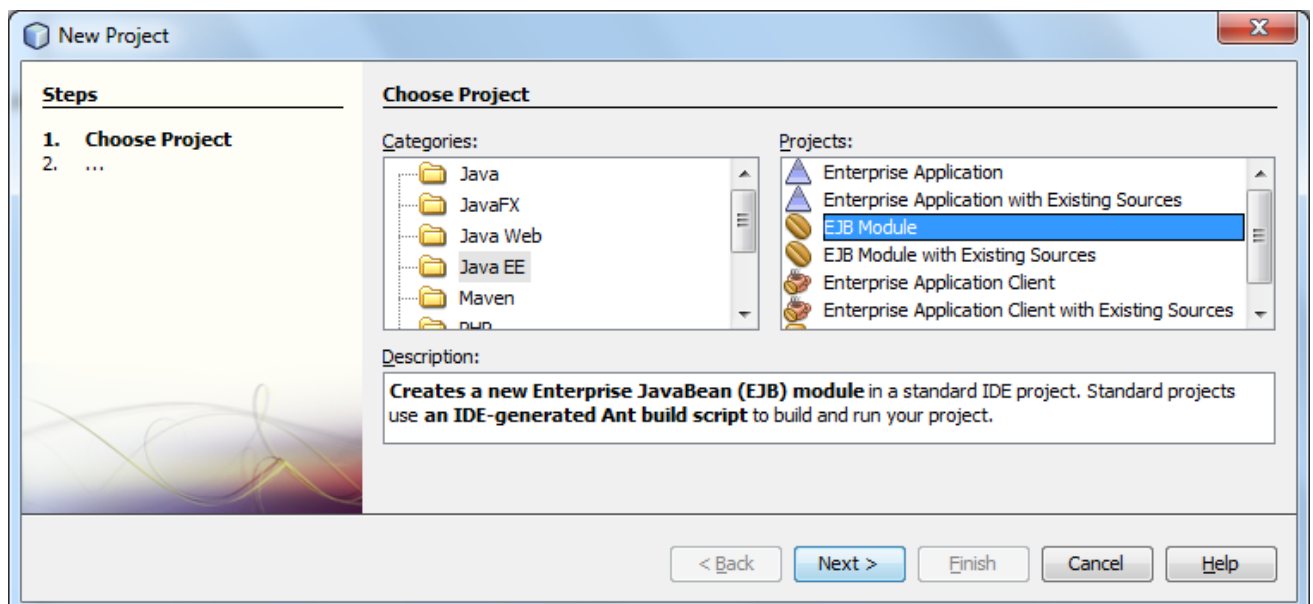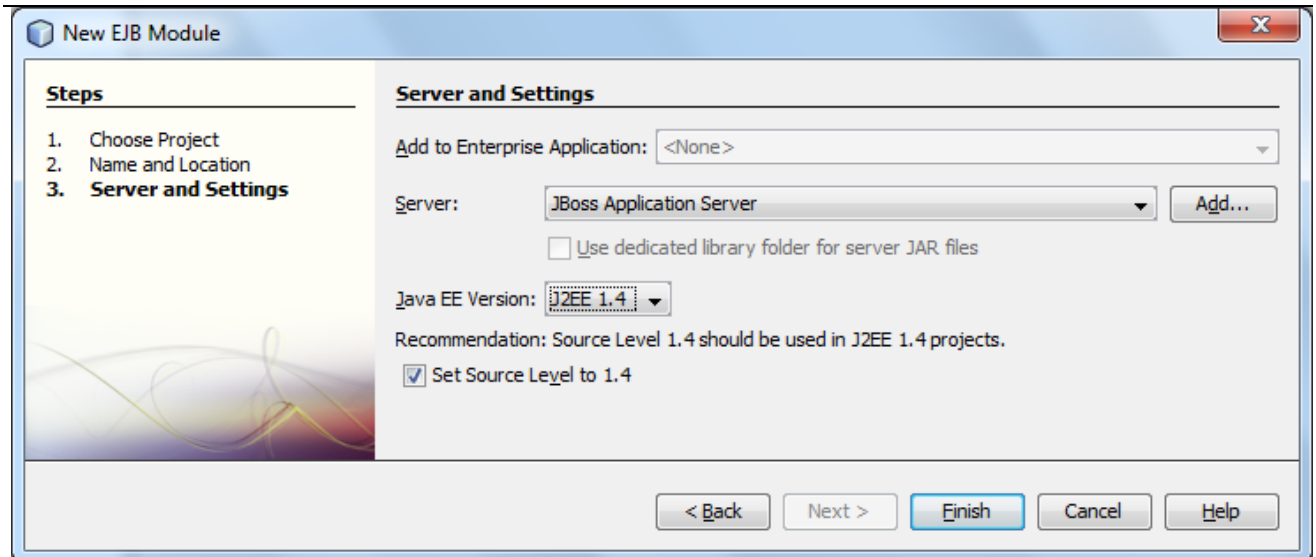
Thêm 1 CMP như sau: Nhấn phải chuột lên project c họn New->Others…, chọn như hình
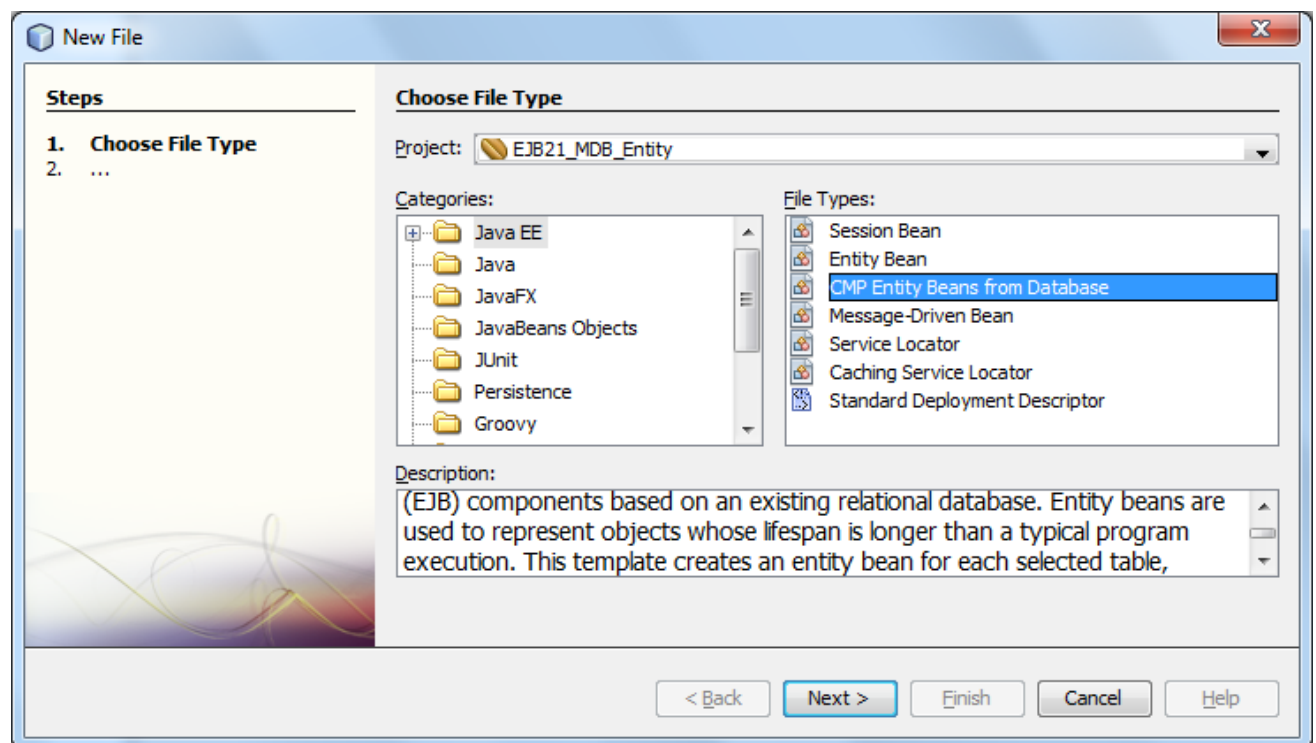
Tạo datasource và chọn bảng như sau:

Gõ package name với tên: **vovanhai.wordpress.com.entities**

Chỉnh sửa file LophocLocalHome.java như sau:

```
package vovanhai.wordpress.com.entities;

import java.util.Collection;
import javax.ejb.CreateException;
import javax.ejb.EJBLocalHome;
import javax.ejb.FinderException;

/**
 *
 * @author VoVanHai
 */
public interface LophocLocalHome extends EJBLocalHome {

    vovanhai.wordpress.com.entities.LophocLocal findByPrimaryKey(java.lang.String key)  throws
FinderException;
```

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```
    vovanhai.wordpress.com.entities.LophocLocal create(String msLop, String tenLop, String
giaovienCN)  throws CreateException;

    Collection findByMsLop(String msLop) throws FinderException;

    Collection findByTenLop(String tenLop) throws FinderException;

    Collection findByGiaovienCN(String giaovienCN) throws FinderException;

    Collection findAll() throws FinderException;
}
```

Sửa file LophocBean.java như sau:

```
…
public java.lang.String ejbCreate(String msLop, String tenLop, String giaovienCN)  throws
CreateException {
      if (msLop == null) {
        throw new CreateException("The field \"key\" must not be null");
      }
      setMsLop(msLop);
      setTenLop(tenLop);
      setGiaovienCN(giaovienCN);
      return null;
   }

   public void ejbPostCreate(String msLop, String tenLop, String giaovienCN) {
   }
…
```

Mở file **ejb-jar.xml** lên, thêm 1 <query> như sau

```
…
<query>
        <query-method>
          <method-name>findAll</method-name>
          <method-params/>
        </query-method>
        <ejb-ql>SELECT OBJECT(l) FROM Lophoc AS l</ejb-ql>
</query>
…
```

Trong **jboss.xml**, thêm phân đoạn khai báo cho entity bean như sau :

```
<?xml version="1.0" encoding="UTF-8"?>
<!DOCTYPE jboss PUBLIC "-/JBoss//DTD JBOSS 4.0//EN"
"http://www.jboss.org/j2ee/dtd/jboss_4_0.dtd">
<jboss>
   <enterprise-beans>
     <entity>
       <ejb-name>LophocBean</ejb-name>
       <local-jndi-name>LophocBean</local-jndi-name>
     </entity>
```
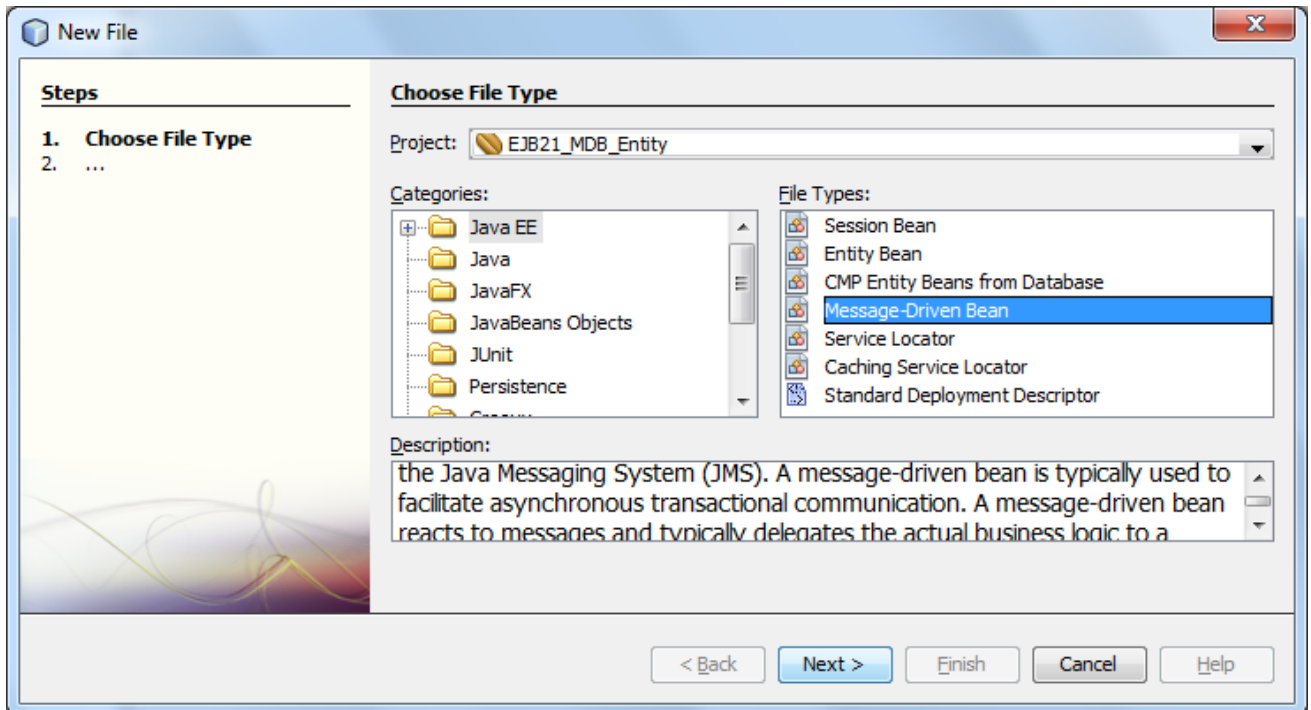
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```
        </enterprise-beans>
</jboss>
```

Thêm 1 Message-Driven Bean cho việc lắng nghe các Message gửi đến và sẽ lưu thông tin xuống CSDL dùng Entity bean.

Nhấn phải chuột lên Project, chọn New->Others, chọn MDN như hình

Đặt tên MDB là **LophocMessage**, gói là **vovanhai.wordpress.com.mdb.**
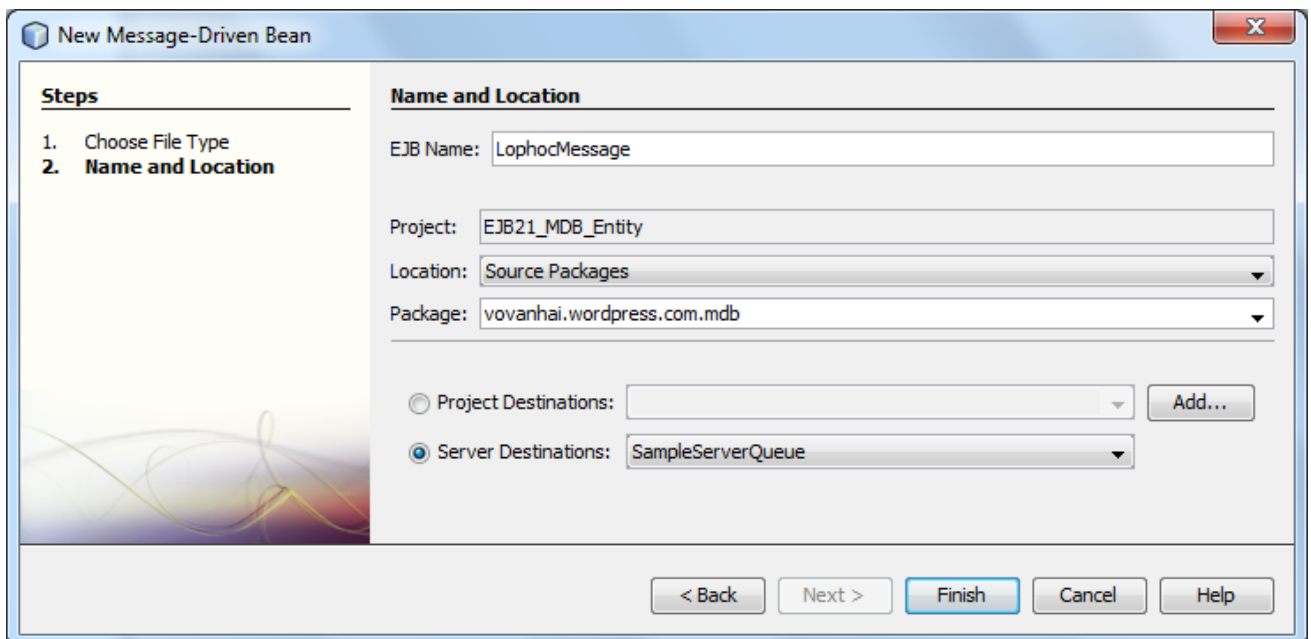
Code cho phương thức onMessage

```
public void onMessage(Message aMessage) {
    try {
        //ở đây giả thuyết chúng ta chỉ lấy MapMessage
```

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```
            if (aMessage instanceof MapMessage) {
               MapMessage msg = (MapMessage) aMessage;

               Context ctx = new InitialContext();
               LophocLocalHome home = (LophocLocalHome) ctx.lookup("LophocBean");
               String msLop = msg.getString("msLop");
               String tenLop = msg.getString("tenLop");
               String gvcn = msg.getString("gvcn");
               LophocLocal lophoc = home.create(msLop, tenLop, gvcn);
               System.out.println("_____Insert class \"" + tenLop + "\" successful.");
            }
         } catch (Exception e) {
            e.printStackTrace();
         }
      }
```

Cấu trúc Project
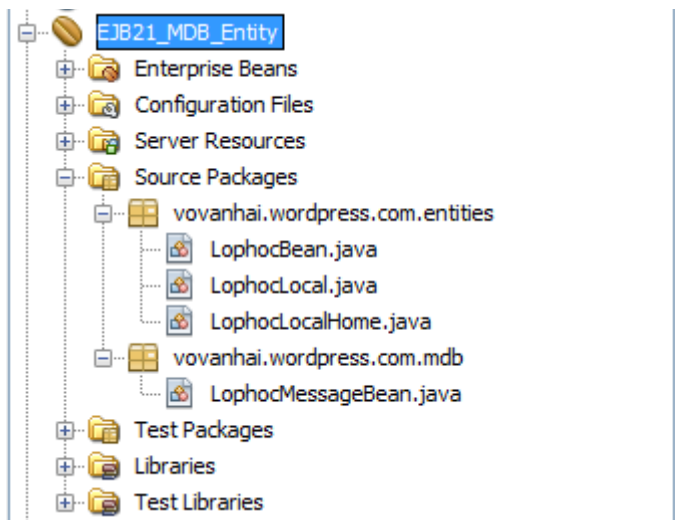
Nội dung **ejb-jar.xml**

```
<?xml version="1.0" encoding="UTF-8"?>
<ejb-jar version="2.1" xmlns="http://java.sun.com/xml/ns/j2ee"
xmlns:xsi="http://www.w3.org/2001/XMLSchema-instance"
xsi:schemaLocation="http://java.sun.com/xml/ns/j2ee http://java.sun.com/xml/ns/j2ee/ejb-
jar_2_1.xsd">
  <enterprise-beans>
     <entity>
        <description>jdbc:sqlserver://localhost:1433;databaseName=StudentMS [sa on
dbo]</description>
        <display-name>LophocEB</display-name>
        <ejb-name>LophocBean</ejb-name>
        <local-home>vovanhai.wordpress.com.entities.LophocLocalHome</local-home>
        <local>vovanhai.wordpress.com.entities.LophocLocal</local>
        <ejb-class>vovanhai.wordpress.com.entities.LophocBean</ejb-class>
        <persistence-type>Container</persistence-type>
        <prim-key-class>java.lang.String</prim-key-class>
        <reentrant>false</reentrant>
        <abstract-schema-name>Lophoc</abstract-schema-name>
        <cmp-field>
           <field-name>msLop</field-name>
        </cmp-field>
```

```xml
      <cmp-field>
        <field-name>tenLop</field-name>
      </cmp-field>
      <cmp-field>
        <field-name>giaovienCN</field-name>
      </cmp-field>
      <primkey-field>msLop</primkey-field>
      <query>
        <query-method>
          <method-name>findByMsLop</method-name>
          <method-params>
            <method-param>java.lang.String</method-param>
          </method-params>
        </query-method>
        <ejb-ql>SELECT OBJECT(l) FROM Lophoc AS l WHERE l.msLop = ?1</ejb-ql>
      </query>
      <query>
        <query-method>
          <method-name>findByTenLop</method-name>
          <method-params>
            <method-param>java.lang.String</method-param>
          </method-params>
        </query-method>
        <ejb-ql>SELECT OBJECT(l) FROM Lophoc AS l WHERE l.tenLop = ?1</ejb-ql>
      </query>
      <query>
        <query-method>
          <method-name>findByGiaovienCN</method-name>
          <method-params>
            <method-param>java.lang.String</method-param>
          </method-params>
        </query-method>
        <ejb-ql>SELECT OBJECT(l) FROM Lophoc AS l WHERE l.giaovienCN = ?1</ejb-ql>
      </query>
      <query>
        <query-method>
          <method-name>findAll</method-name>
          <method-params/>
        </query-method>
        <ejb-ql>SELECT OBJECT(l) FROM Lophoc AS l</ejb-ql>
      </query>
      </entity>
  <message-driven>
      <display-name>LophocMessageMDB</display-name>
      <ejb-name>LophocMessageBean</ejb-name>
      <ejb-class>vovanhai.wordpress.com.mdb.LophocMessageBean</ejb-class>
      <transaction-type>Container</transaction-type>
      <message-destination-type>javax.jms.Queue</message-destination-type>
      <message-destination-link>SampleServerQueue</message-destination-link>
      <activation-config>
        <activation-config-property>
          <activation-config-property-name>acknowledgeMode</activation-config-property-name>
          <activation-config-property-value>Auto-acknowledge</activation-config-property-value>
        </activation-config-property>
        <activation-config-property>
          <activation-config-property-name>destinationType</activation-config-property-name>
          <activation-config-property-value>javax.jms.Queue</activation-config-property-value>
```

```
          </activation-config-property>
        </activation-config>
      </message-driven>
    </enterprise-beans>
  <assembly-descriptor>
    <container-transaction>
      <method>
        <ejb-name>LophocBean</ejb-name>
        <method-name>*</method-name>
      </method>
      <trans-attribute>Required</trans-attribute>
    </container-transaction>
    <container-transaction>
      <method>
        <ejb-name>LophocMessageBean</ejb-name>
        <method-name>*</method-name>
      </method>
      <trans-attribute>Required</trans-attribute>
    </container-transaction>
    <message-destination>
      <display-name>Destination for LophocMessageMDB</display-name>
      <message-destination-name>SampleServerQueue</message-destination-name>
    </message-destination>
    </assembly-descriptor>
  </ejb-jar>
```

Nội dung file **jboss.xml**

```
<?xml version="1.0" encoding="UTF-8"?>
<!DOCTYPE jboss PUBLIC "-/JBoss//DTD JBOSS 4.0//EN"
"http://www.jboss.org/j2ee/dtd/jboss_4_0.dtd">
<jboss>
  <enterprise-beans>
    <entity>
      <ejb-name>LophocBean</ejb-name>
      <local-jndi-name>LophocBean</local-jndi-name>
    </entity>
    <message-driven>
      <ejb-name>LophocMessageBean</ejb-name>
      <destination-jndi-name>queue/SampleServerQueue</destination-jndi-name>
    </message-driven>
  </enterprise-beans>
</jboss>
```

Nội dung file **jbosscmp-jdbc.xml**

```
<?xml version="1.0" encoding="UTF-8"?>
<!DOCTYPE jbosscmp-jdbc PUBLIC "-//JBoss//DTD JBOSSCMP-JDBC 4.0//EN"
"http://www.jboss.org/j2ee/dtd/jbosscmp-jdbc_4_0.dtd">

<jbosscmp-jdbc>
  <defaults>
    <datasource>java:/Students_DSN</datasource>
    <datasource-mapping>MS SQLSERVER</datasource-mapping>
    <create-table>false</create-table>
    <remove-table>false</remove-table>
```

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```xml
    </defaults>
    <enterprise-beans>
      <entity>
        <ejb-name>LophocBean</ejb-name>
        <datasource>java:/Students_DSN</datasource>
        <datasource-mapping>MS SQLSERVER</datasource-mapping>
        <create-table>false</create-table>
        <table-name>Lophoc</table-name>
        <cmp-field>
          <field-name>msLop</field-name>
          <column-name>msLop</column-name>
        </cmp-field>
        <cmp-field>
          <field-name>tenLop</field-name>
          <column-name>tenLop</column-name>
        </cmp-field>
        <cmp-field>
          <field-name>giaovienCN</field-name>
          <column-name>giaovienCN</column-name>
        </cmp-field>
      </entity>
    </enterprise-beans>
</jbosscmp-jdbc>
```
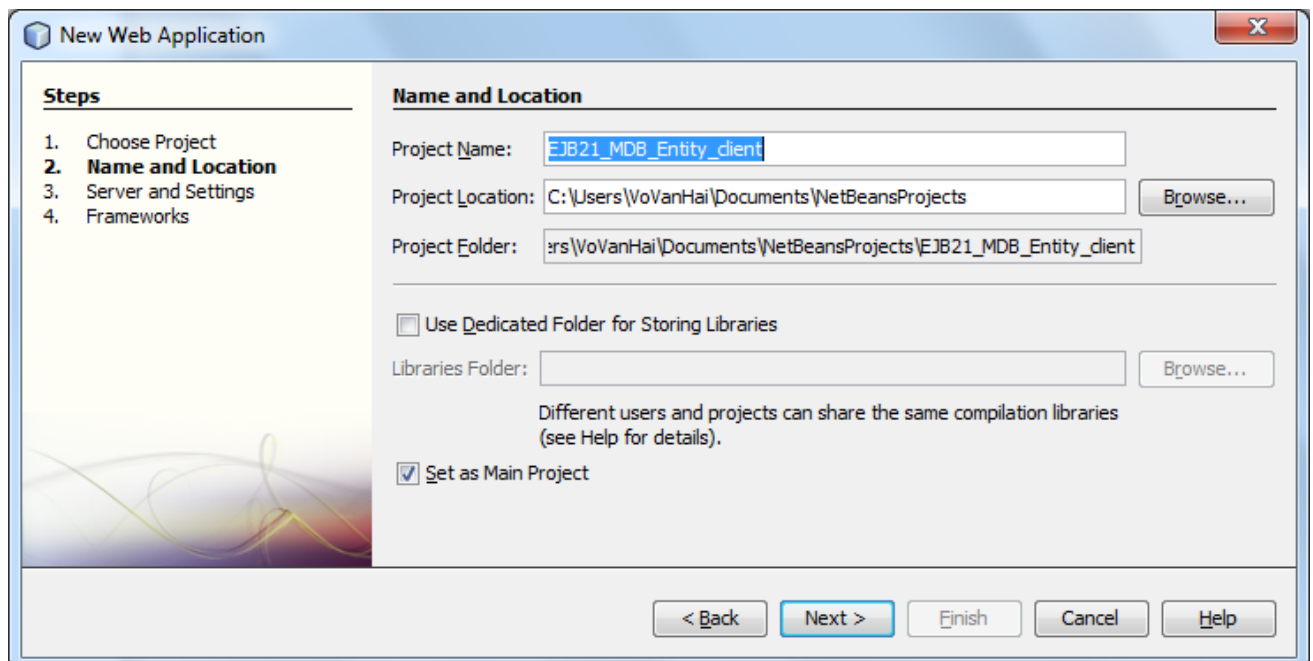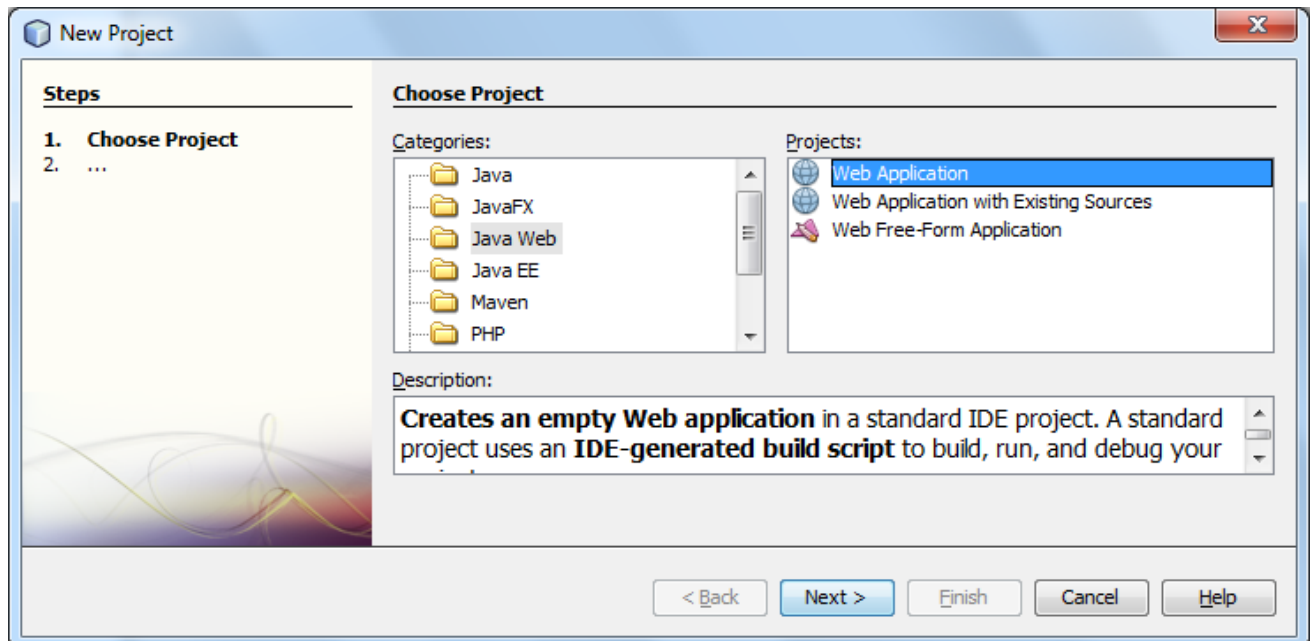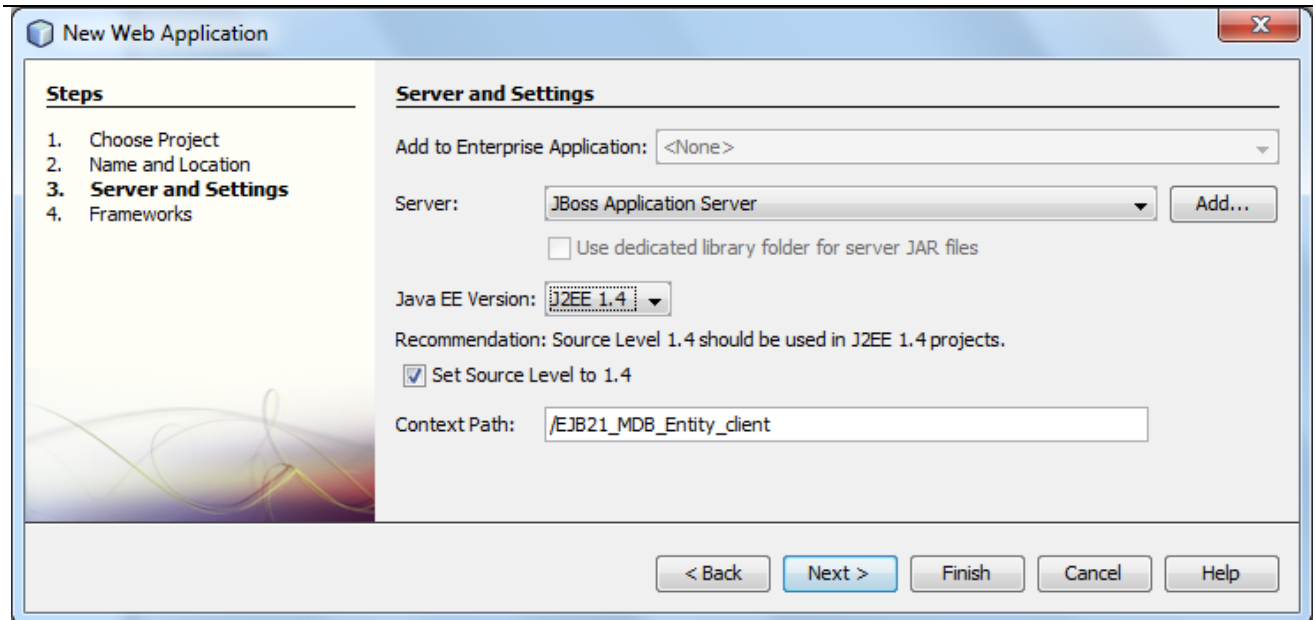
Triển khai

```
21:13:04,472 INFO  [BaseLocalProxyFactory] Bound EJB LocalHome 'LophocBean' to j
ndi 'LophocBean'
21:13:04,487 WARN  [JMSContainerInvoker] Could not find the queue destination-jn
di-name=queue/SampleServerQueue
21:13:04,503 WARN  [JMSContainerInvoker] destination not found: queue/SampleServ
erQueue reason: javax.naming.NameNotFoundException: SampleServerQueue not bound
21:13:04,503 WARN  [JMSContainerInvoker] creating a new temporary destination: q
ueue/SampleServerQueue
21:13:04,612 INFO  [SampleServerQueue] Bound to JNDI name: queue/SampleServerQue
ue
21:13:04,628 INFO  [EJBDeployer] Deployed: file:/E:/javaSoft/jboss-4.2.3.GA/serv
er/default/deploy/EJB21_MDB_Entity.jar
```
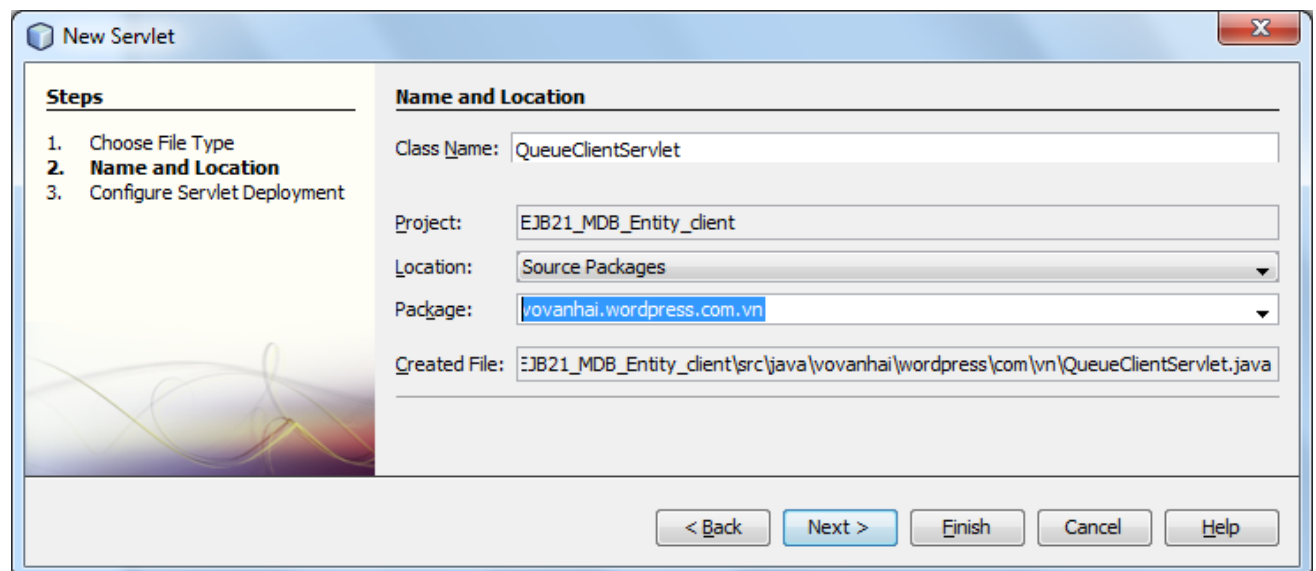
Client

Tạo 1 Web Application có tên EJB21_MDB_Entity_client

Thêm 1 servlet có tên QueueClientServlet trong gói vovanhai.wordpress.com.vn như sau:
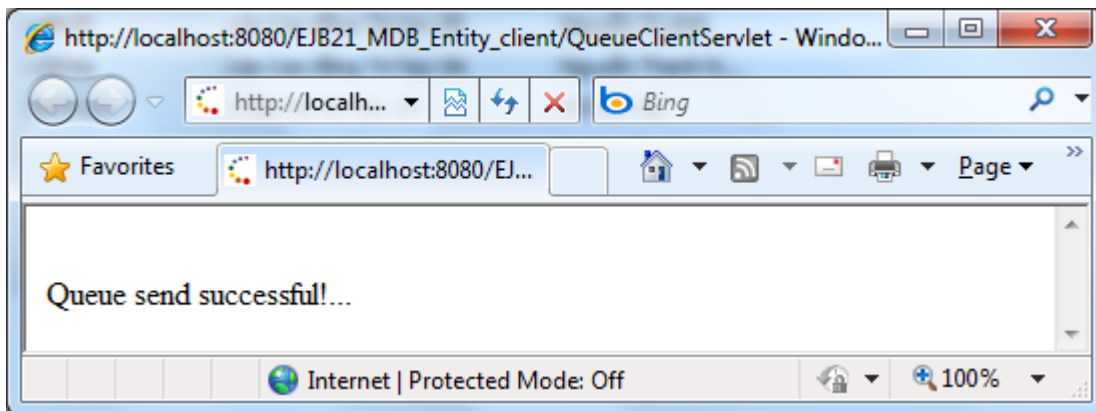

Code cho phần xử lý

```java
protected void processRequest(HttpServletRequest request, HttpServletResponse response)
        throws ServletException, IOException {
    response.setContentType("text/html;charset=UTF-8");
    PrintWriter out = response.getWriter();
    try {
        System.setProperty("java.naming.factory.initial",
"org.jnp.interfaces.NamingContextFactory");
        System.setProperty("java.naming.provider.url", "127.0.0.1:1099");
        Context context = new InitialContext();
        QueueConnectionFactory connectionFactory = (QueueConnectionFactory)
context.lookup("ConnectionFactory");
        QueueConnection queueConnection = connectionFactory.createQueueConnection();
        QueueSession queueSession = queueConnection.createQueueSession(false,
Session.AUTO_ACKNOWLEDGE);
        Queue queue = (Queue) context.lookup("queue/TyteoDest");
        QueueSender queueSender = queueSession.createSender(queue);
```

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```
        MapMessage message = queueSession.createMapMessage();
        message.setString("msLop", "DHTH1A");
        message.setString("tenLop", "Lớp Đại học tin học 1A");
        message.setString("gvcn", "Võ Văn Hải");

        queueSender.send(message);
        queueConnection.close();
        out.println("<br/> Queue send successful!...");
    } catch (Exception ex) {
        out.println(ex.getMessage());
    } finally {
        out.close();
    }
}
```


Kết quả trên Jboss console:

```
21:23:37,432 INFO  [TomcatDeployer] deploy, ctxPath=/EJB21_MDB_Entity_client, wa
rUrl=.../tmp/deploy/tmp3646291902952104043EJB21_MDB_Entity_client-exp.war/
21:23:41,005 INFO  [STDOUT] _____Insert class "L?p Ð?i h?c tin h?c 1A" succ
essful.
```

Database :

msLop	tenLop	giaovienCN
cdth8B	Lớp Cao đẳng Tin học 8B	Nguyễn Tú Anh
cdth9a	Lớp Cao đẳng Tin học 9A	Nguyễn Thanh N...
DHTH1A	Lớp Đại học tin học 1A	Võ Văn Hải
dhth2B	Lớp Đại Học Tin học 2B	Hoàng Thu Trang
ncth1a	Lớp Cao đẳng nghề Tin học 1A	Nguyễn Anh Minh
tcth36a	Lớp TRung cấp Tin học 36A	Trần Tuấn Hùng

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