

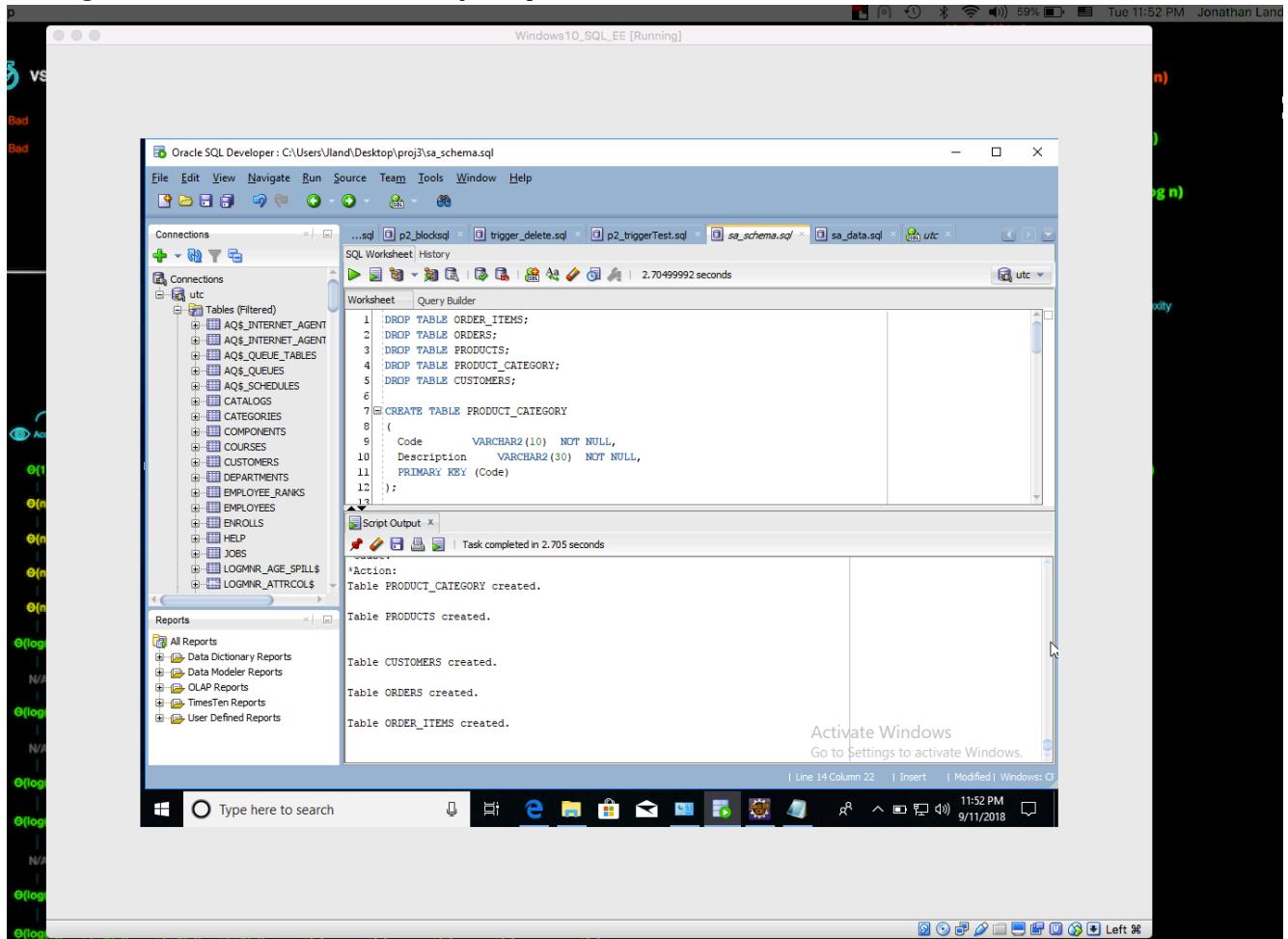
Project #3: Integrating Data from NoSQL Using JBoss and MongoDB

CPSC 5270: Advanced Database and Database Security

Jonathan Land

1. 10 points) Install Oracle DB (if you do not have one) and store the record data of the Sales System using five tables

Storing record data from *sa_schema.sql* script



The screenshot shows the Oracle SQL Developer interface running on Windows 10. The title bar indicates the session is titled "Windows10_SQL_EE [Running]" and the date and time are "Tue 11:52 PM 9/11/2018". The main window displays the "sa_schema.sql" script in the "Worksheet" tab. The script contains SQL commands to drop existing tables and create new ones, specifically the "PRODUCT_CATEGORY" table. The "Script Output" pane shows the results of the execution, indicating that the "PRODUCT_CATEGORY" table was created successfully. Other tables listed in the output include "PRODUCTS", "CUSTOMERS", "ORDERS", and "ORDER_ITEMS". The "Connections" sidebar shows a connection named "utc" which is expanded to show various tables like AQ\$INTERNET_AGENT, AQ\$QUEUE_TABLES, AQ\$QUEUES, AQ\$SCHEDULES, CATALOGS, CATEGORIES, COMPONENTS, COURSES, CUSTOMERS, DEPARTMENTS, EMPLOYEE_RANKS, EMPLOYEES, ENROLLS, HELP, JOBS, LOGMNR_ATTRCOL\$, and LOGMNR_SPILLS.

```
1 DROP TABLE ORDER_ITEMS;
2 DROP TABLE ORDERS;
3 DROP TABLE PRODUCTS;
4 DROP TABLE PRODUCT_CATEGORY;
5 DROP TABLE CUSTOMERS;
6
7 CREATE TABLE PRODUCT_CATEGORY
8 (
9     Code      VARCHAR2(10) NOT NULL,
10    Description  VARCHAR2(30) NOT NULL,
11    PRIMARY KEY (Code)
12 );

```

Action:
Table PRODUCT_CATEGORY created.

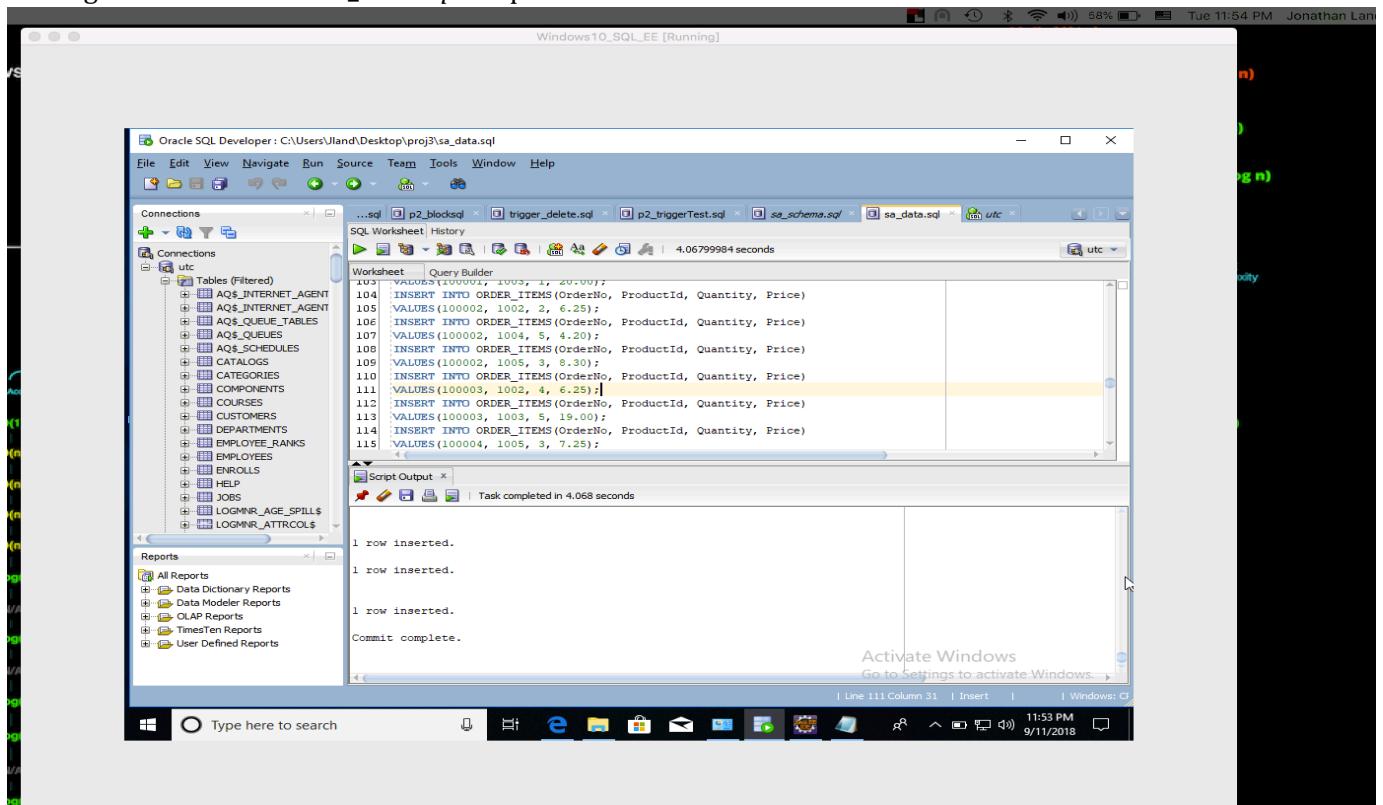
Table PRODUCTS created.

Table CUSTOMERS created.

Table ORDERS created.

Table ORDER_ITEMS created.

Storing record data from *sa_data.sql* script



The screenshot shows the Oracle SQL Developer interface. The title bar reads "Windows10_SQL_EE [Running]". The main window has a "Connections" sidebar on the left with a tree view of database objects under "Tables (Filtered)". The central workspace is titled "SQL Worksheet; History" and contains the following SQL code:

```

103  VALUES ('10001', 1005, 1, 20.00);
104  INSERT INTO ORDER_ITEMS(OrderNo, ProductId, Quantity, Price)
105  VALUES (100002, 1002, 2, 6.25);
106  INSERT INTO ORDER_ITEMS(OrderNo, ProductId, Quantity, Price)
107  VALUES (100002, 1004, 5, 4.20);
108  INSERT INTO ORDER_ITEMS(OrderNo, ProductId, Quantity, Price)
109  VALUES (100002, 1005, 3, 8.30);
110  INSERT INTO ORDER_ITEMS(OrderNo, ProductId, Quantity, Price)
111  VALUES (100003, 1002, 4, 6.25);
112  INSERT INTO ORDER_ITEMS(OrderNo, ProductId, Quantity, Price)
113  VALUES (100003, 1003, 5, 19.00);
114  INSERT INTO ORDER_ITEMS(OrderNo, ProductId, Quantity, Price)
115  VALUES (100004, 1005, 3, 7.25);

```

Below the code, the "Script Output" pane shows the results of the insertions:

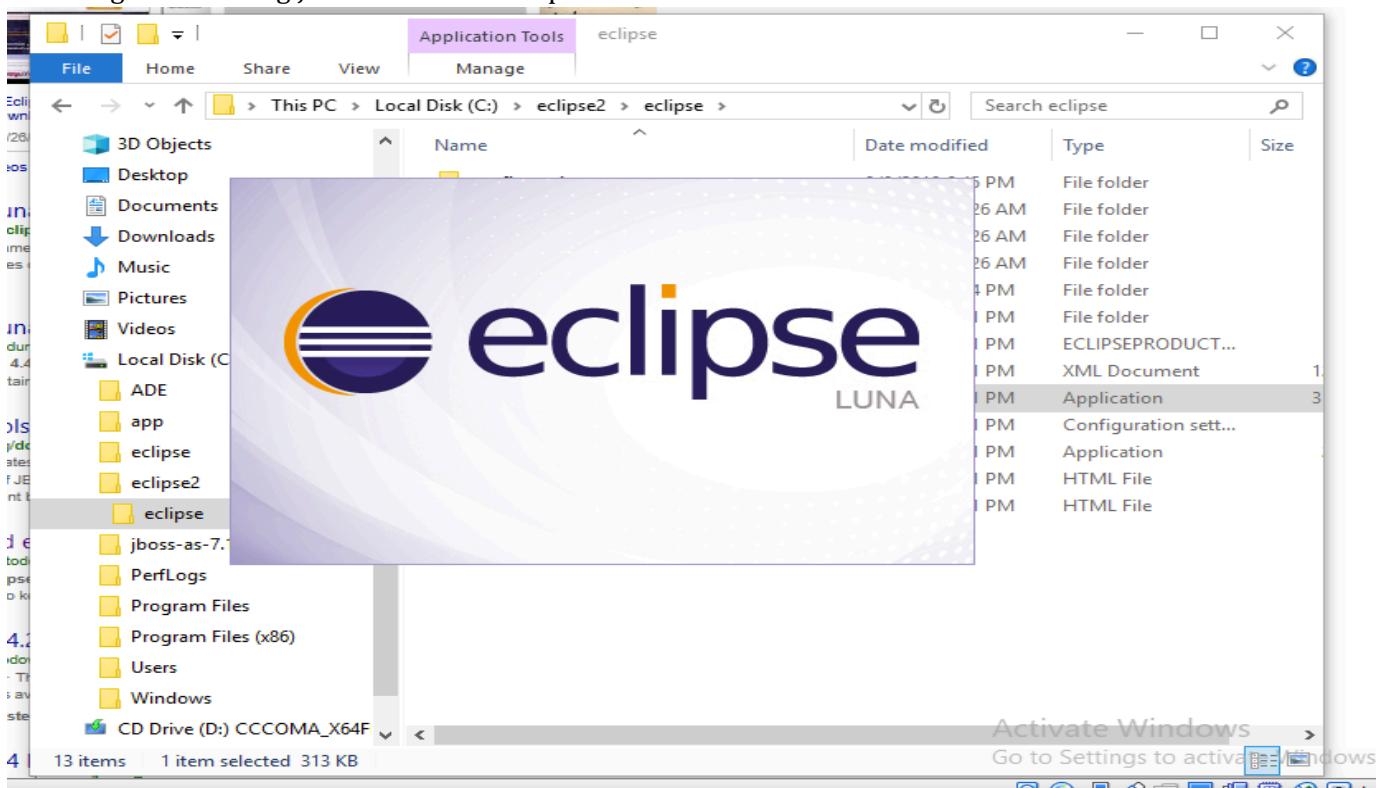
```

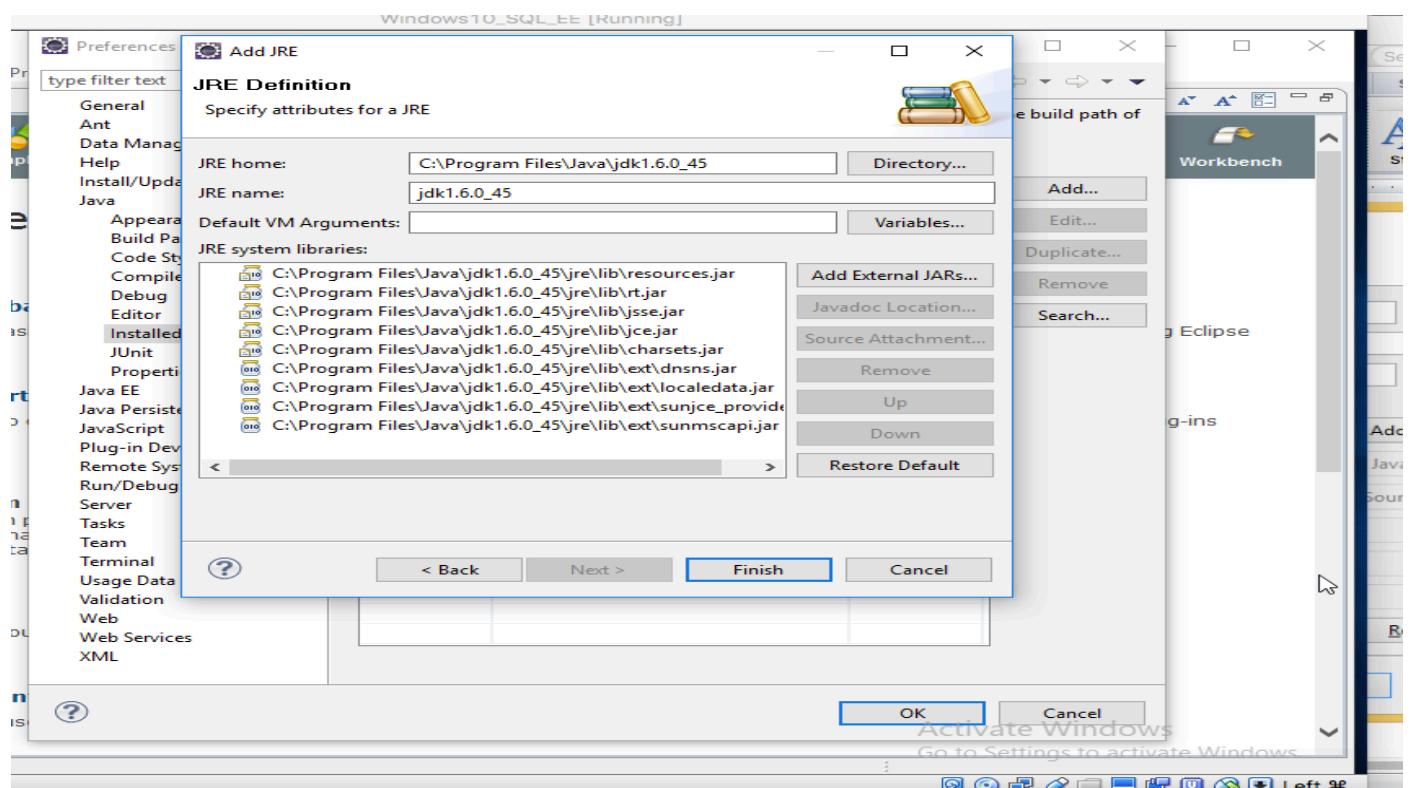
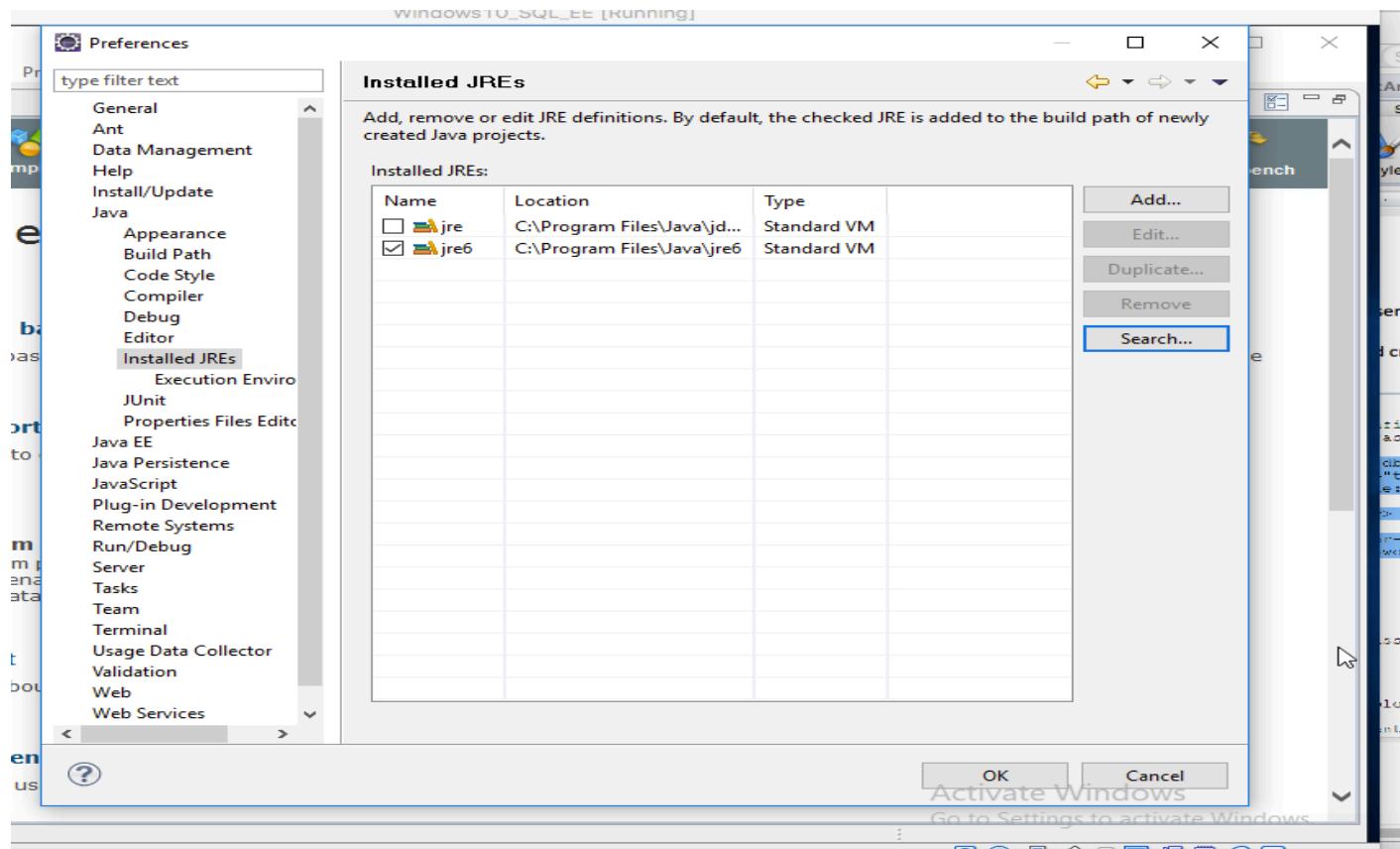
1 row inserted.
1 row inserted.
1 row inserted.
Commit complete.

```

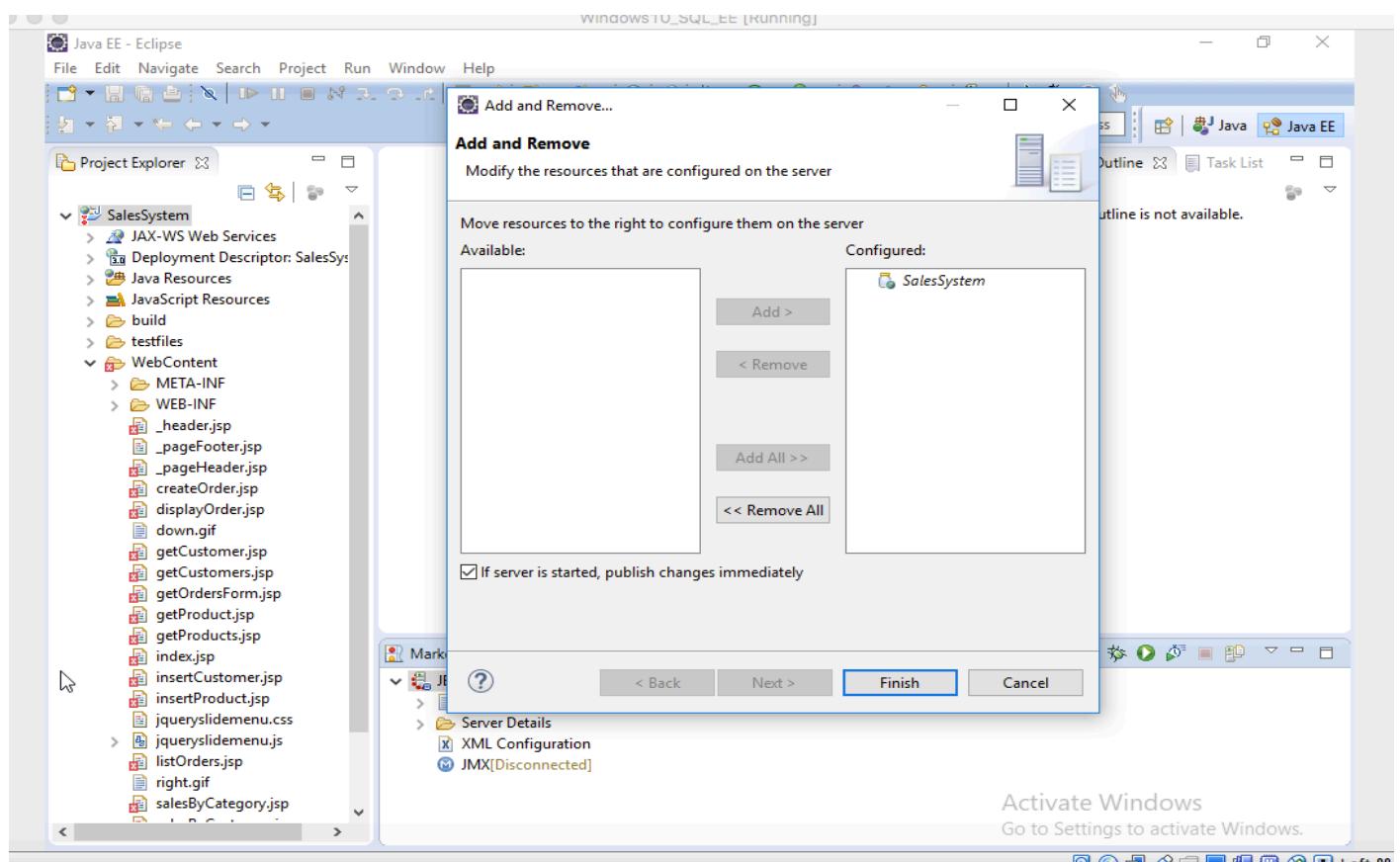
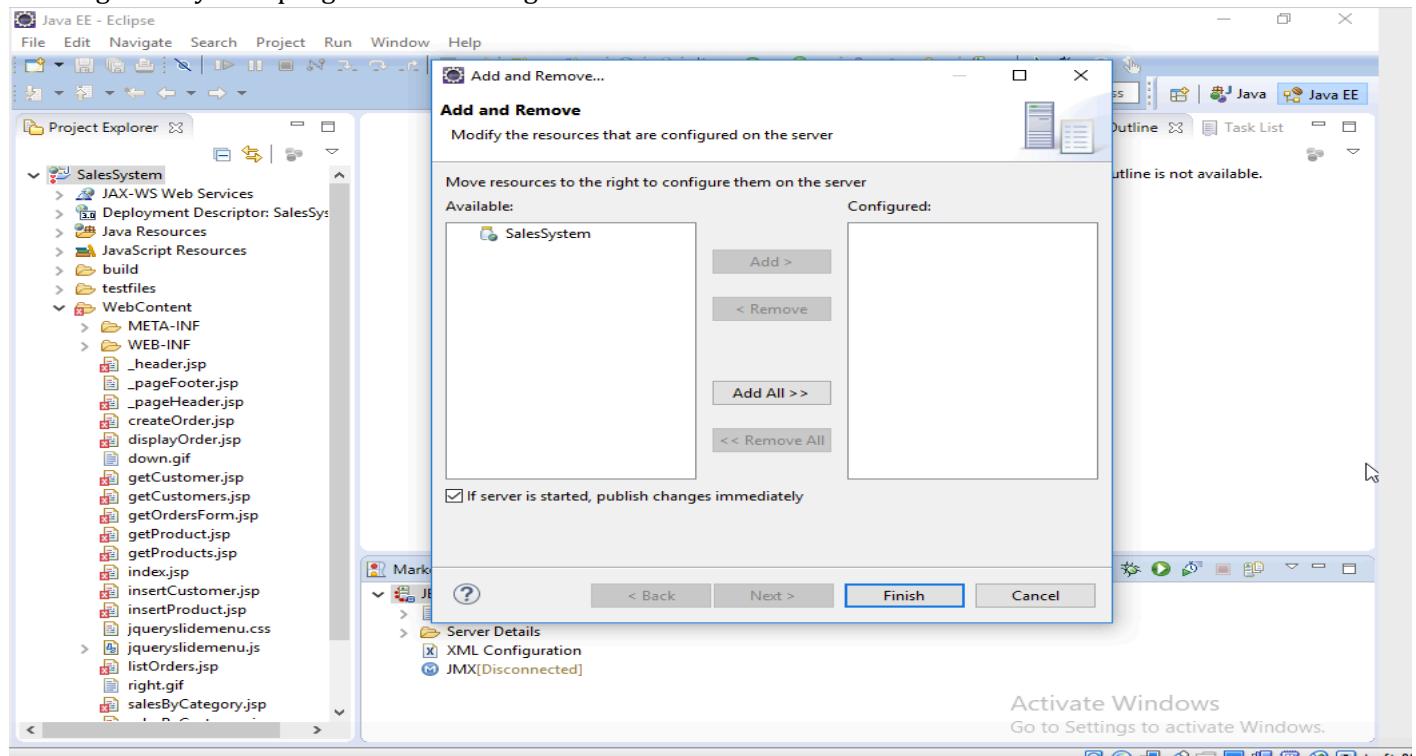
A message at the bottom right says "Activate Windows Go to Settings to activate Windows..."

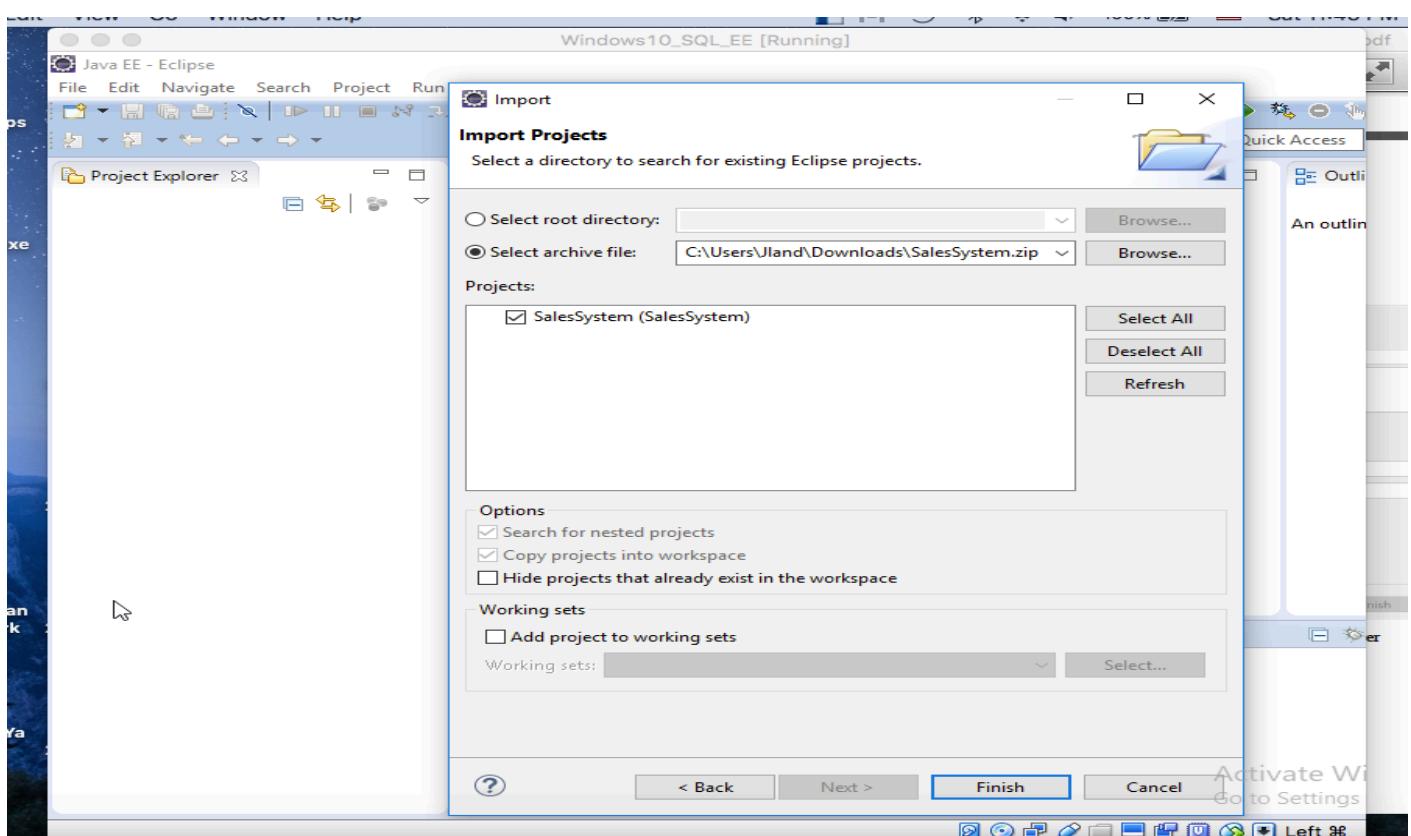
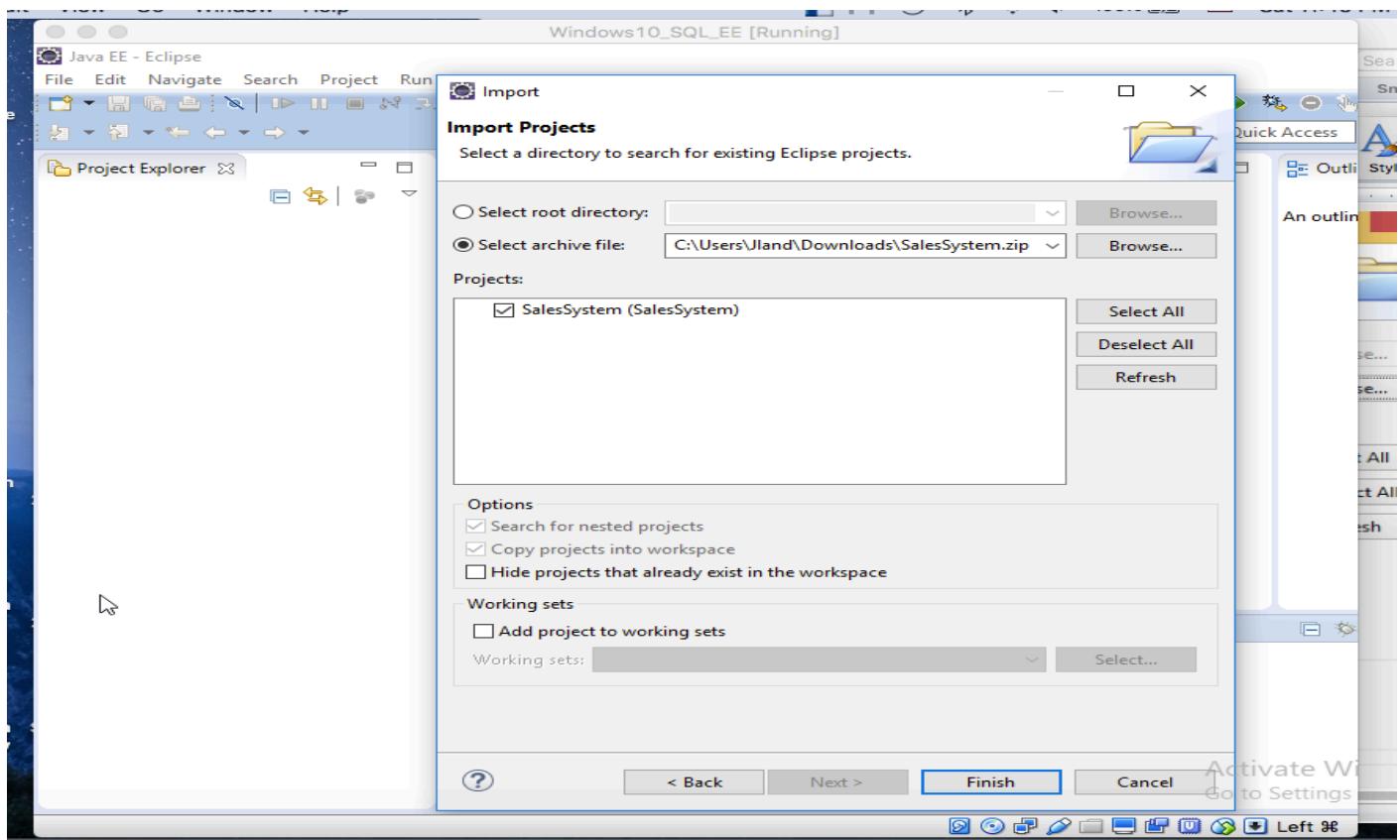
2. Installing and Running JBoss server via Eclipse Luna



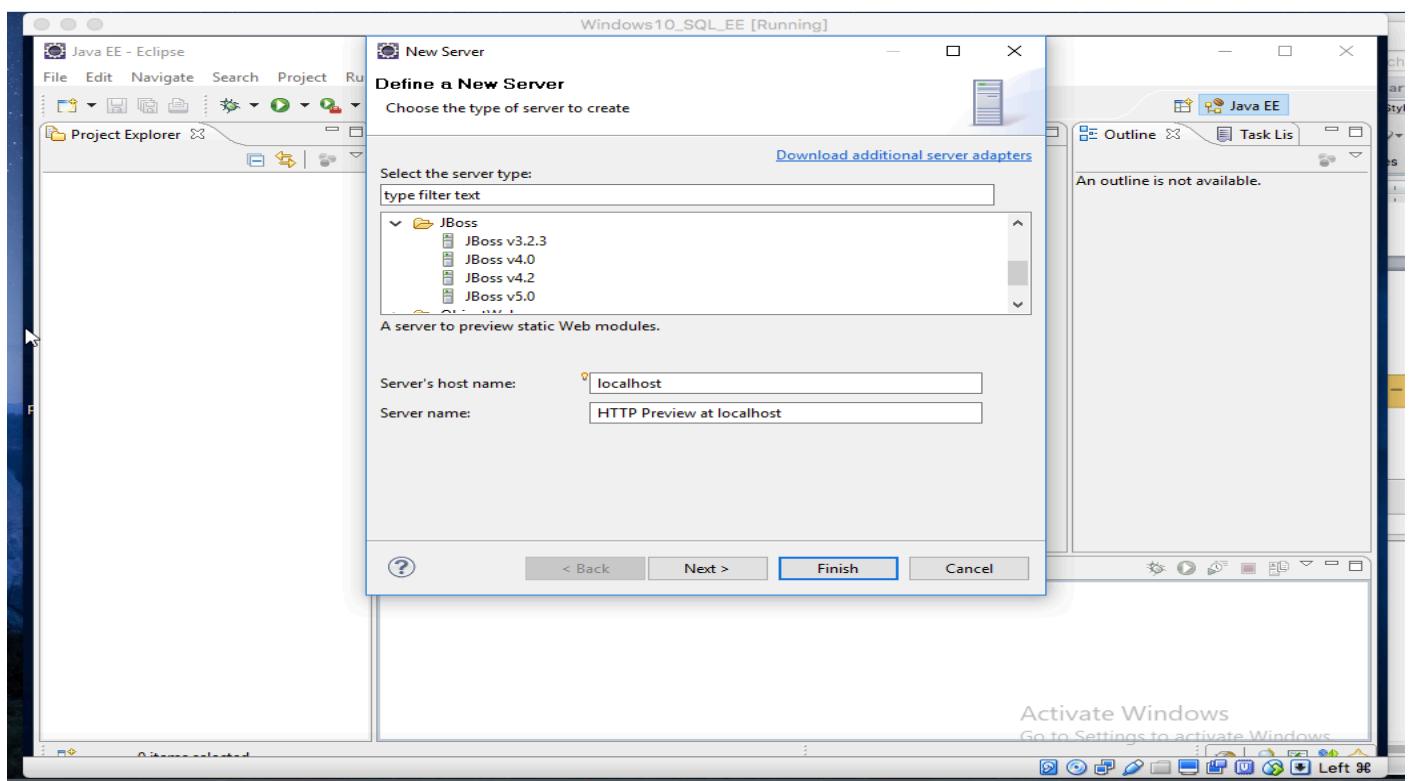
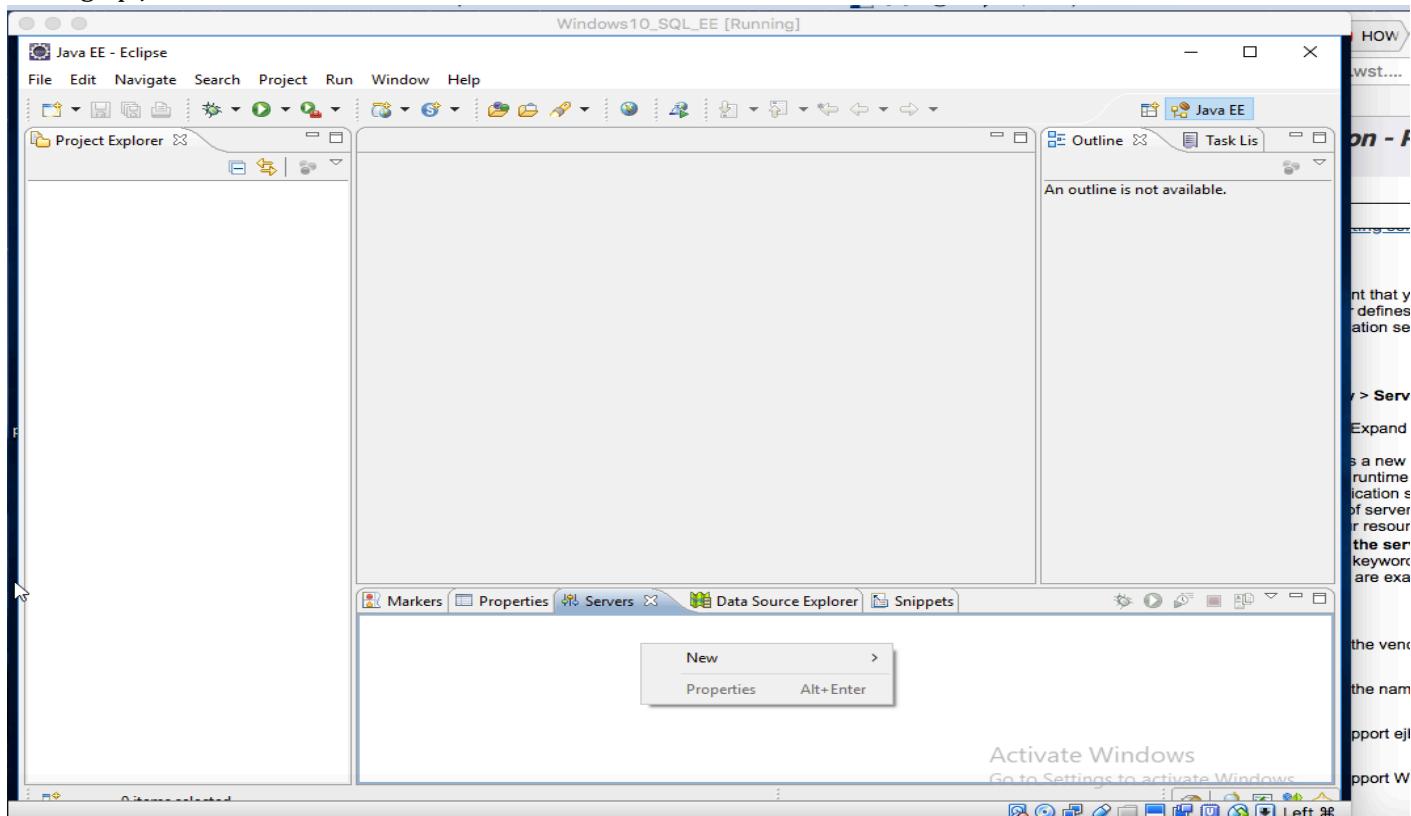


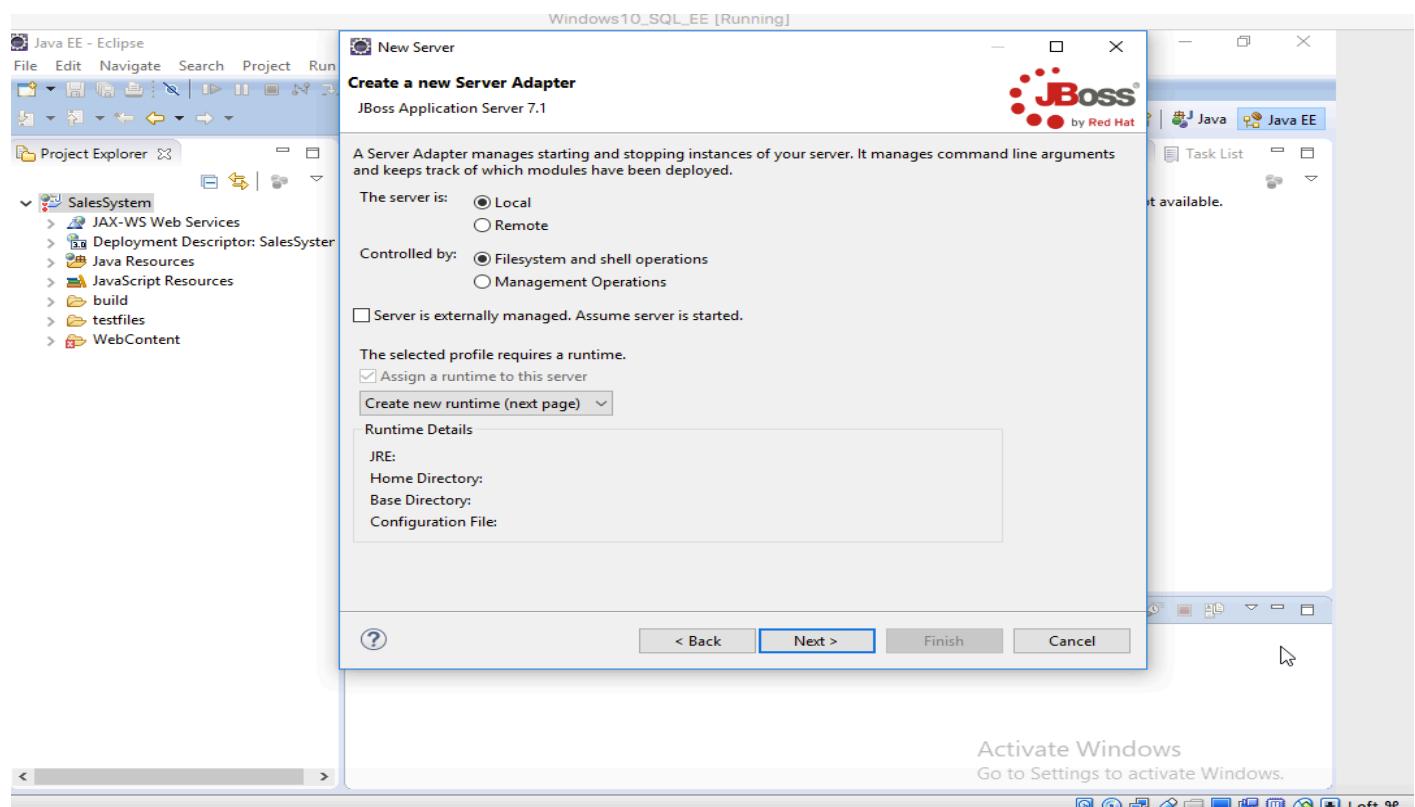
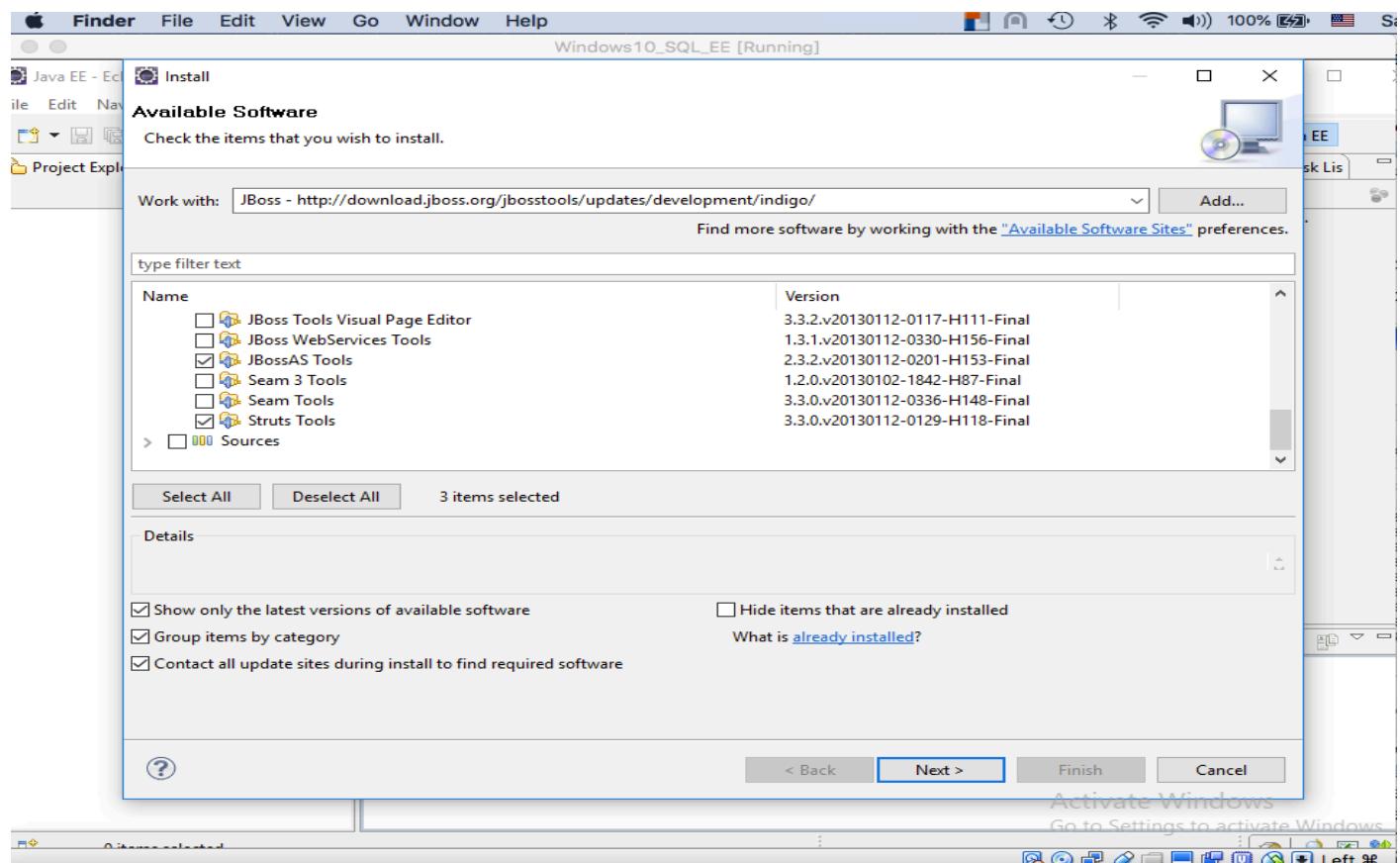
Loading SalesSystem program to be configured on the sever

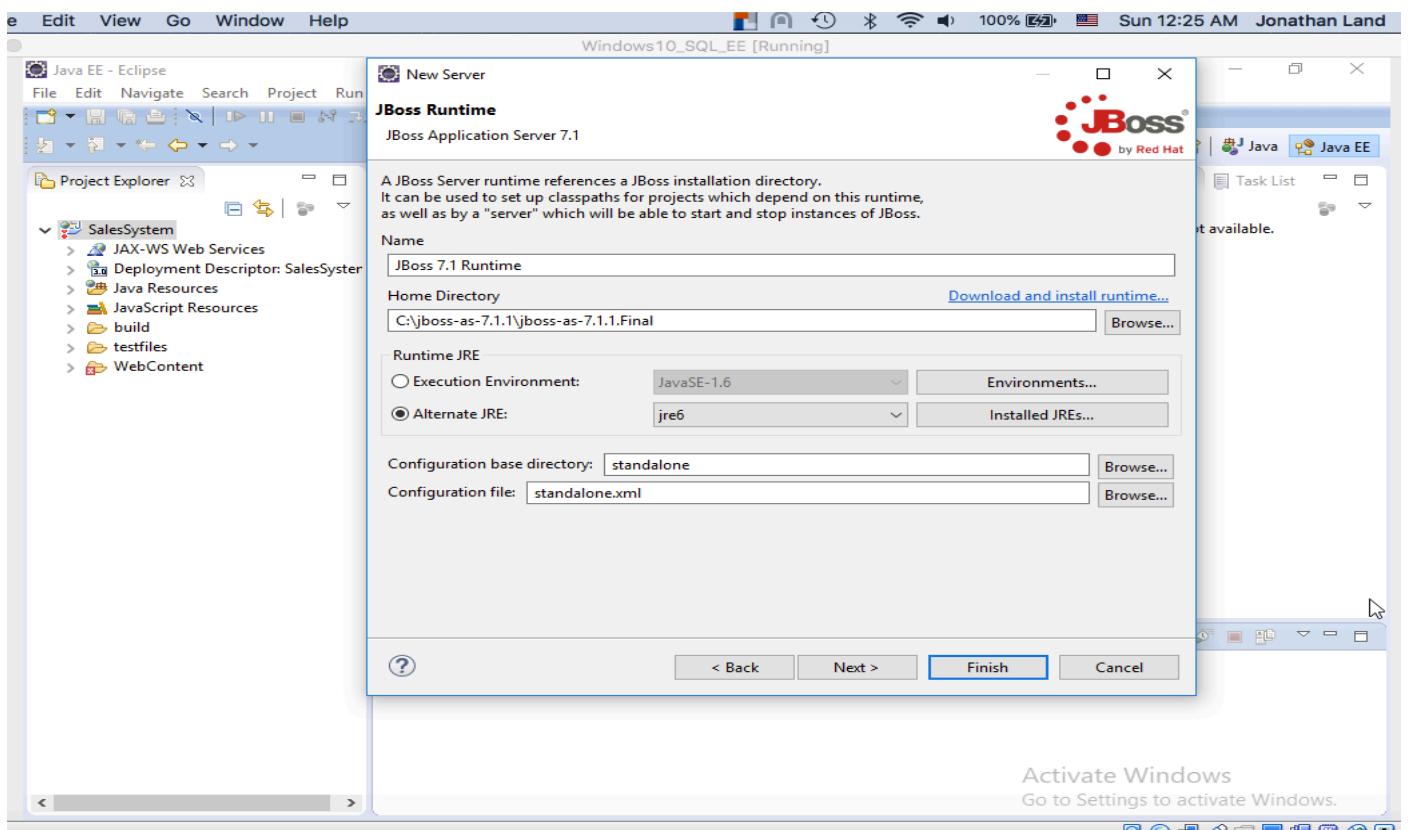
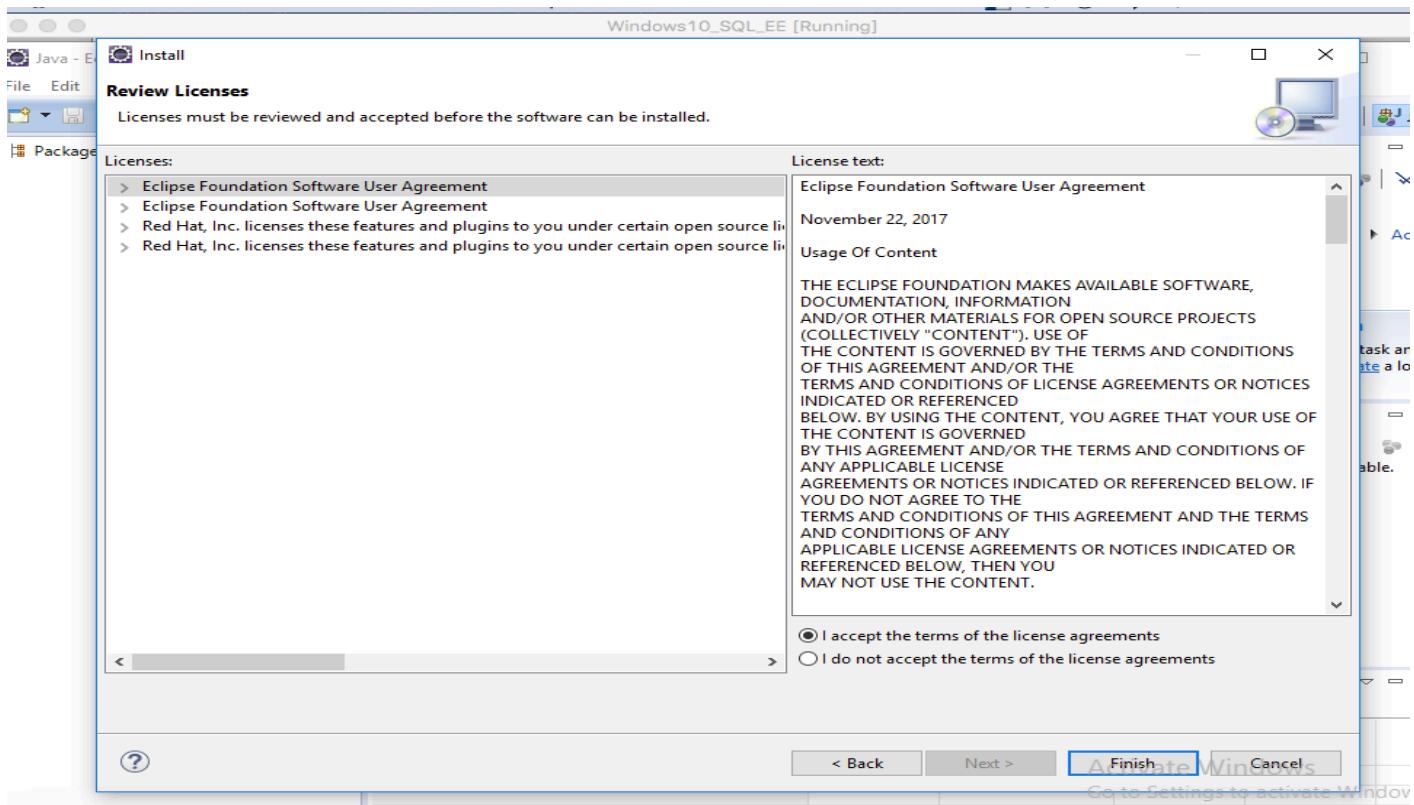


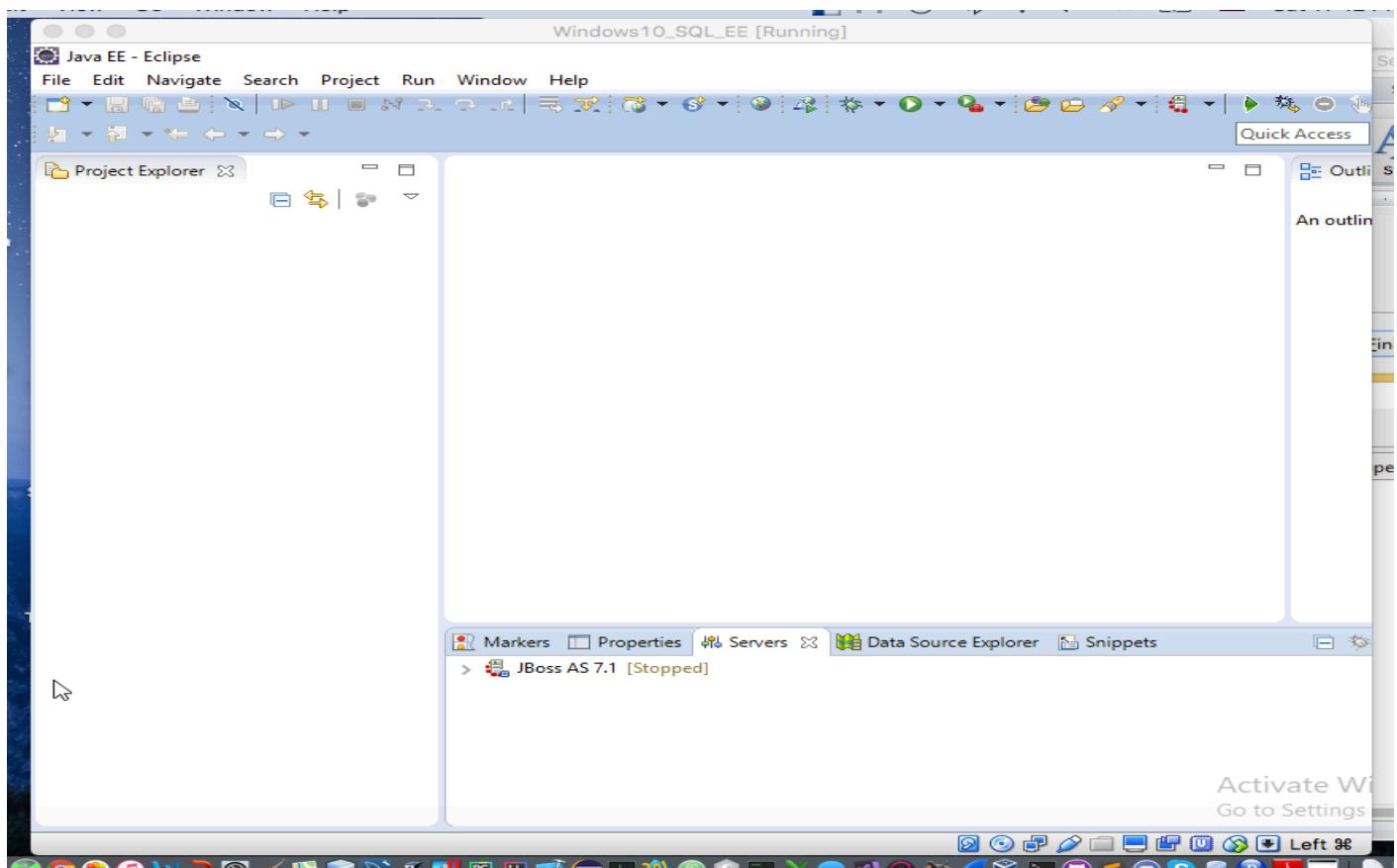
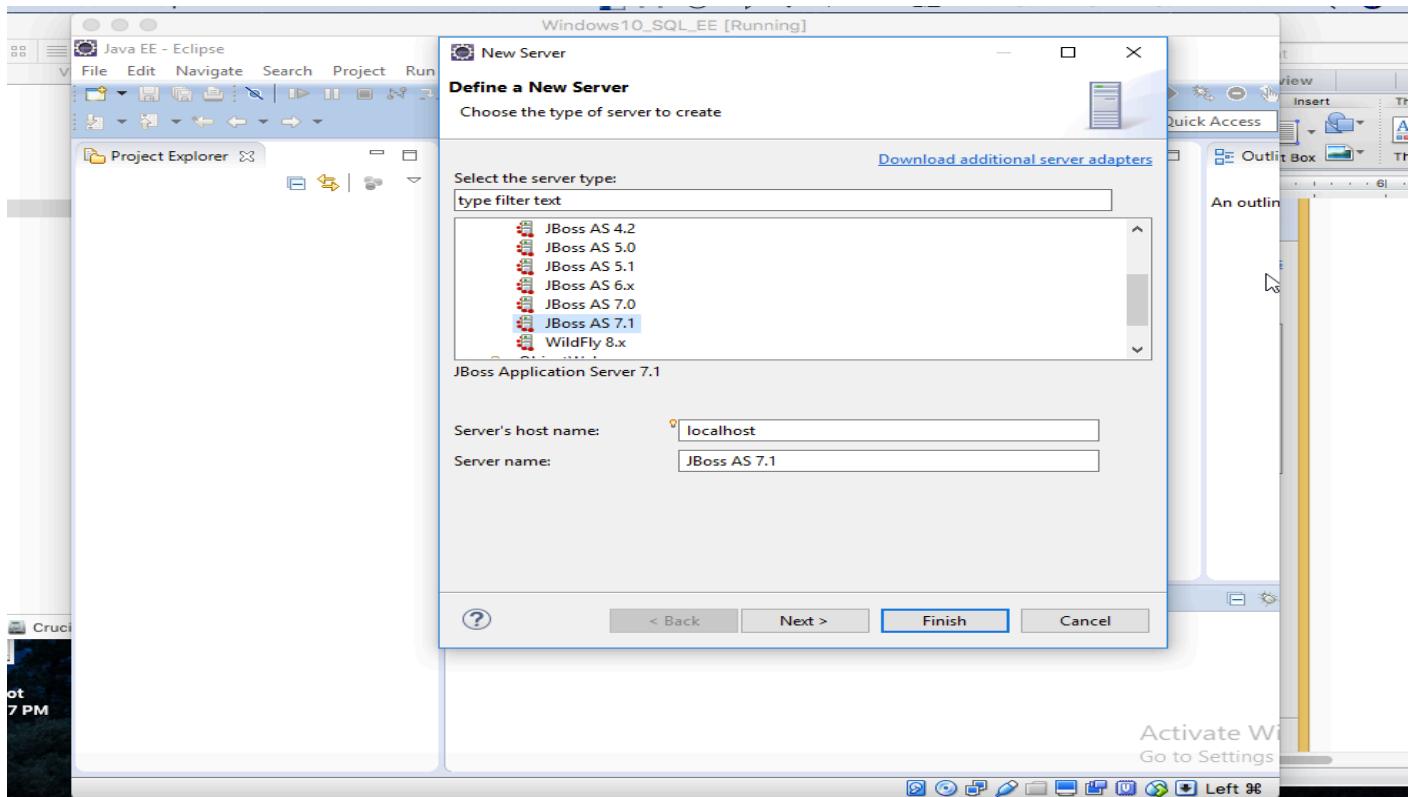


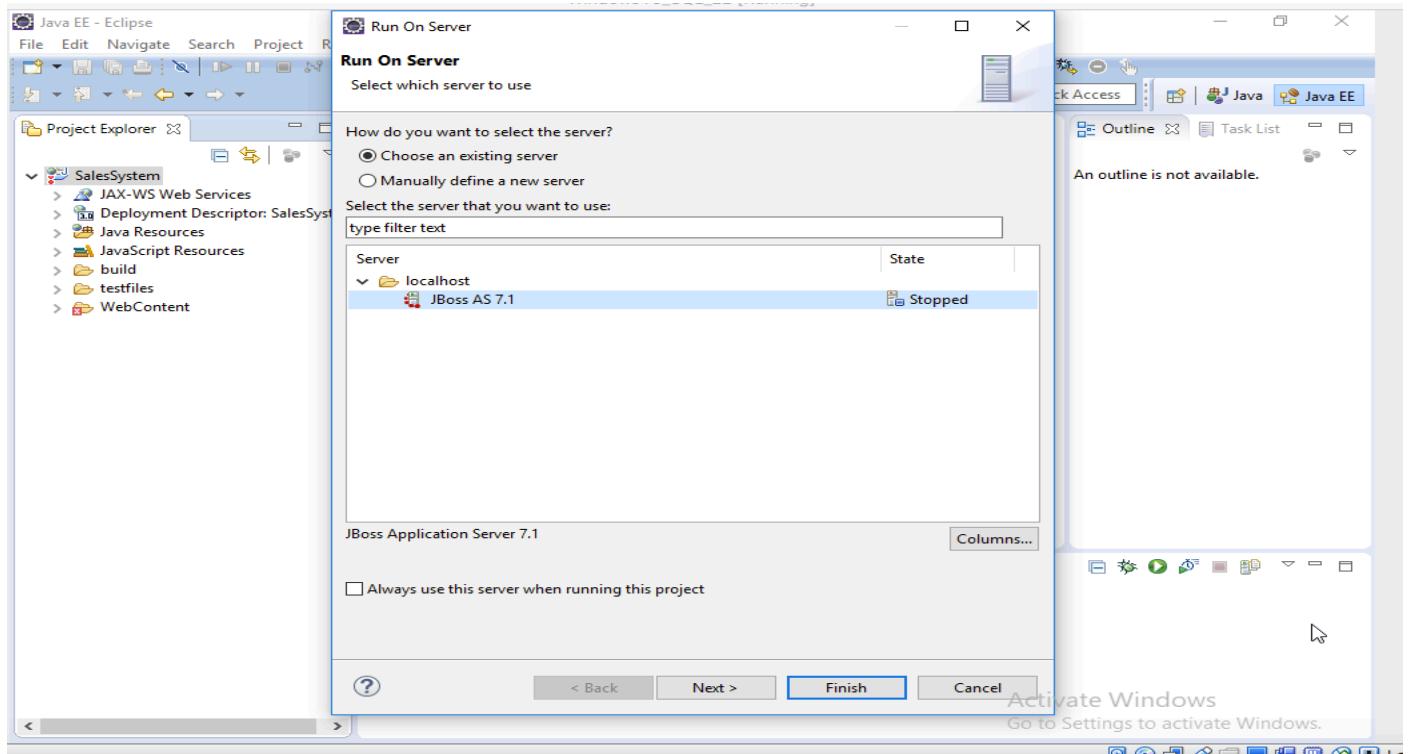
Setting up JBoss



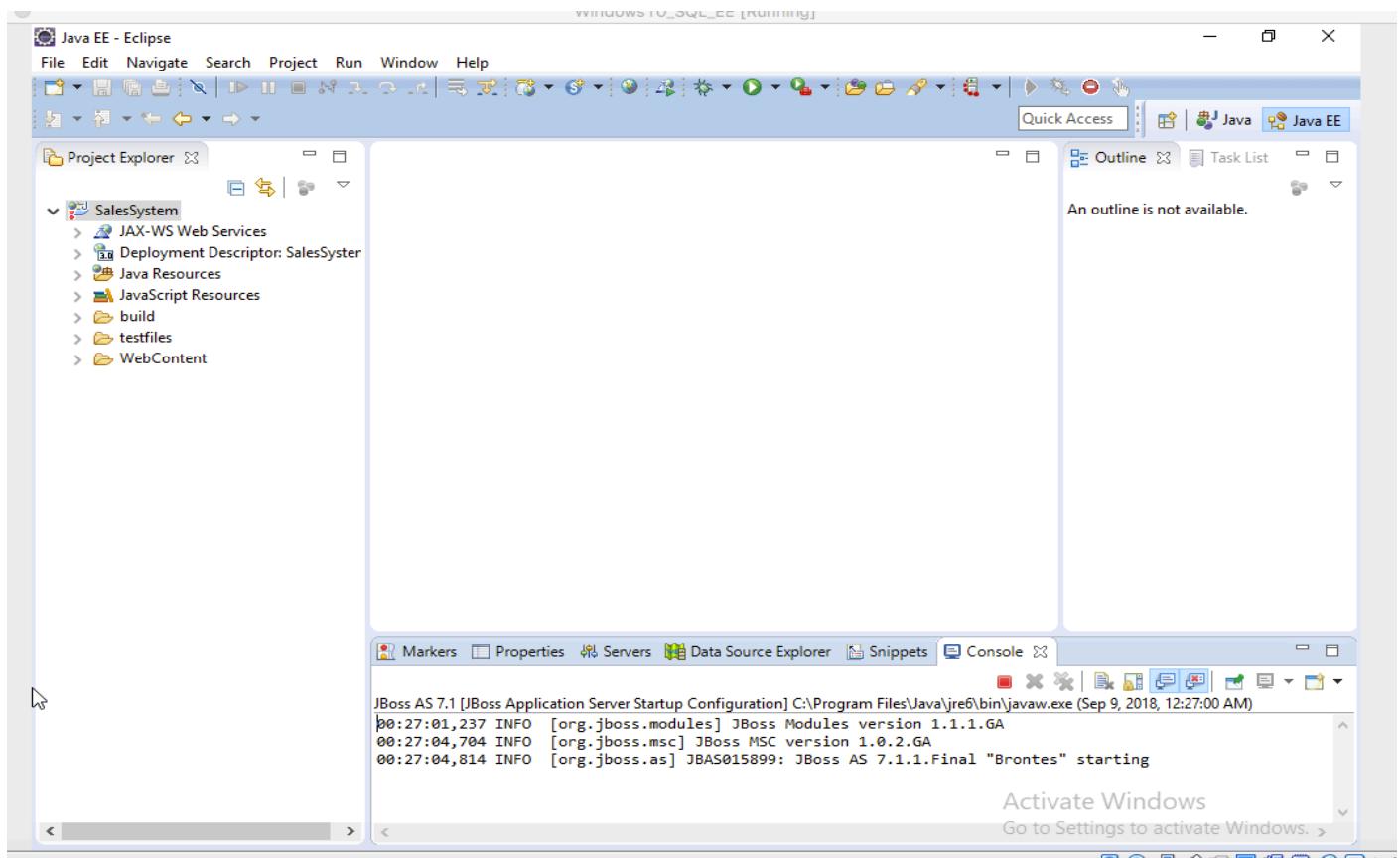








Starting JBoss Server



3. (10 points) Install and Run MongoDB on Windows

Installing MongoDB

Screenshot of a web browser showing the MongoDB download center for Enterprise. The page displays information about MongoDB Enterprise Server and provides links to an Installation Guide and individual enterprise packages.

Install MongoDB Enterprise

Please follow the installation guide to setup MongoDB Enterprise.

Installation Guide

Alternatively, you can download and install our individual Enterprise packages below:

- archive
- msi

Close

MongoDB Enterprise is available as part of the MongoDB Enterprise Advanced subscription, which features the most comprehensive support for MongoDB and the best SLA, in addition to Ops Manager, Compass and the Connector for BI.

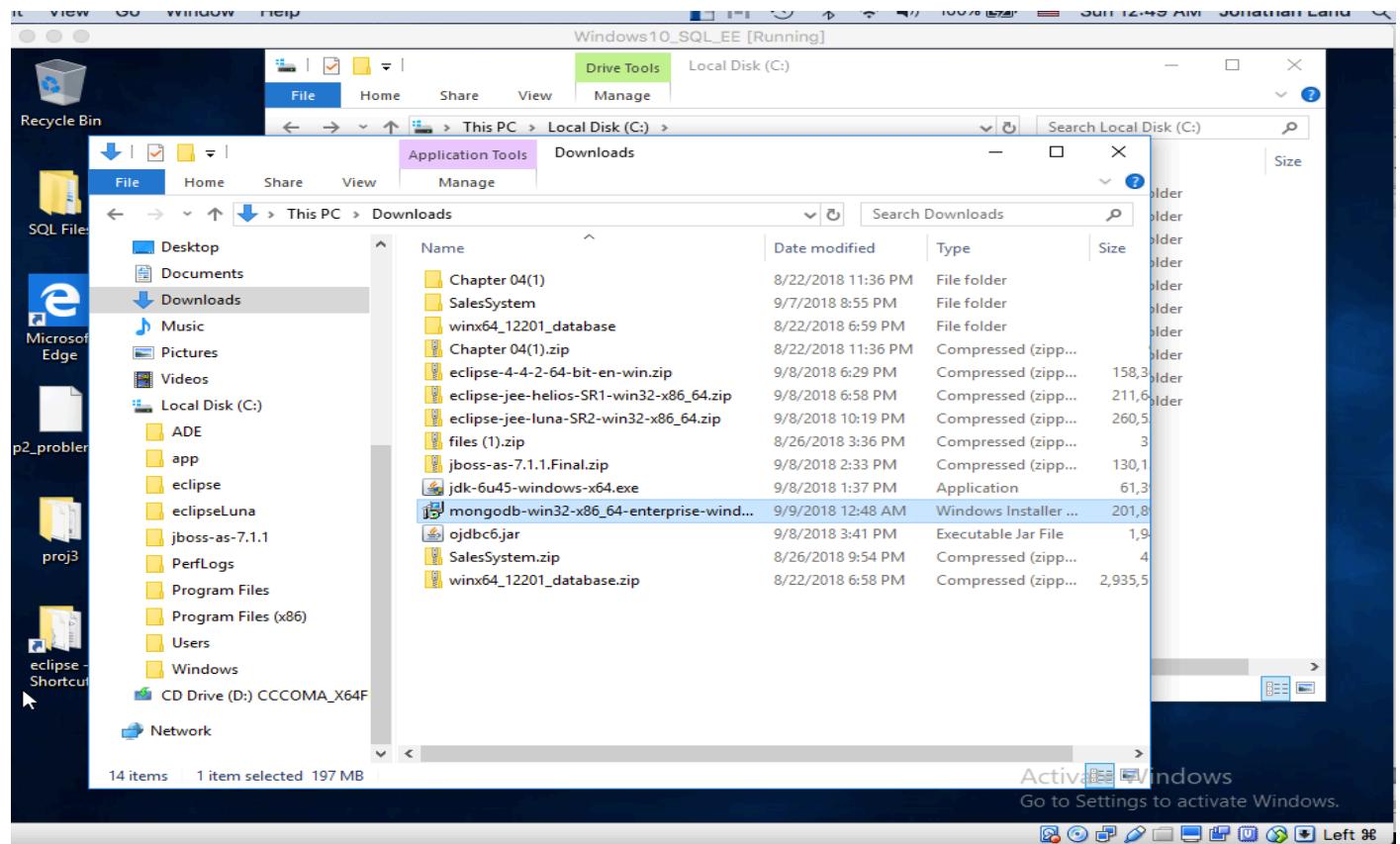
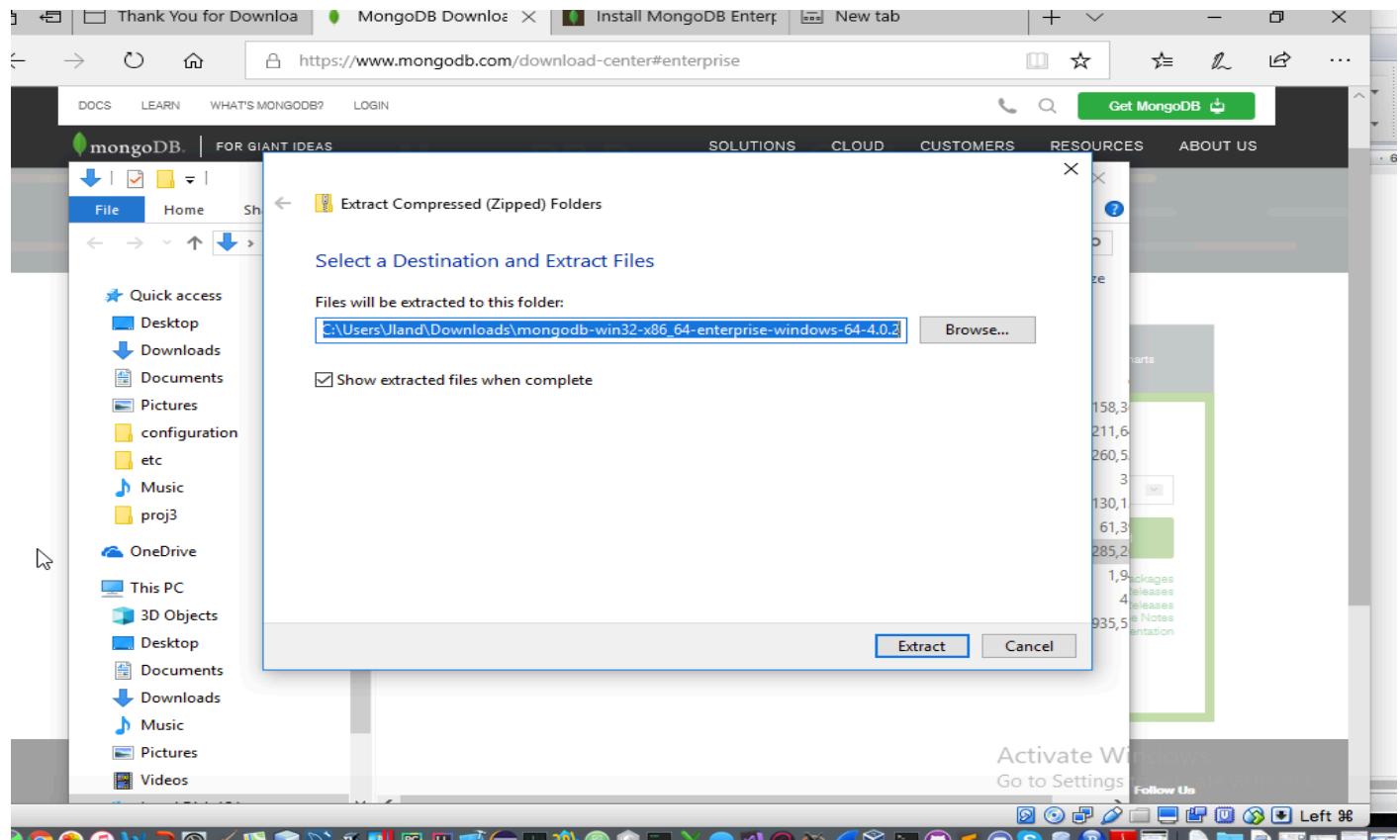
Current Releases & Packages
Development Releases
Archive Releases
Release Notes
Documentation

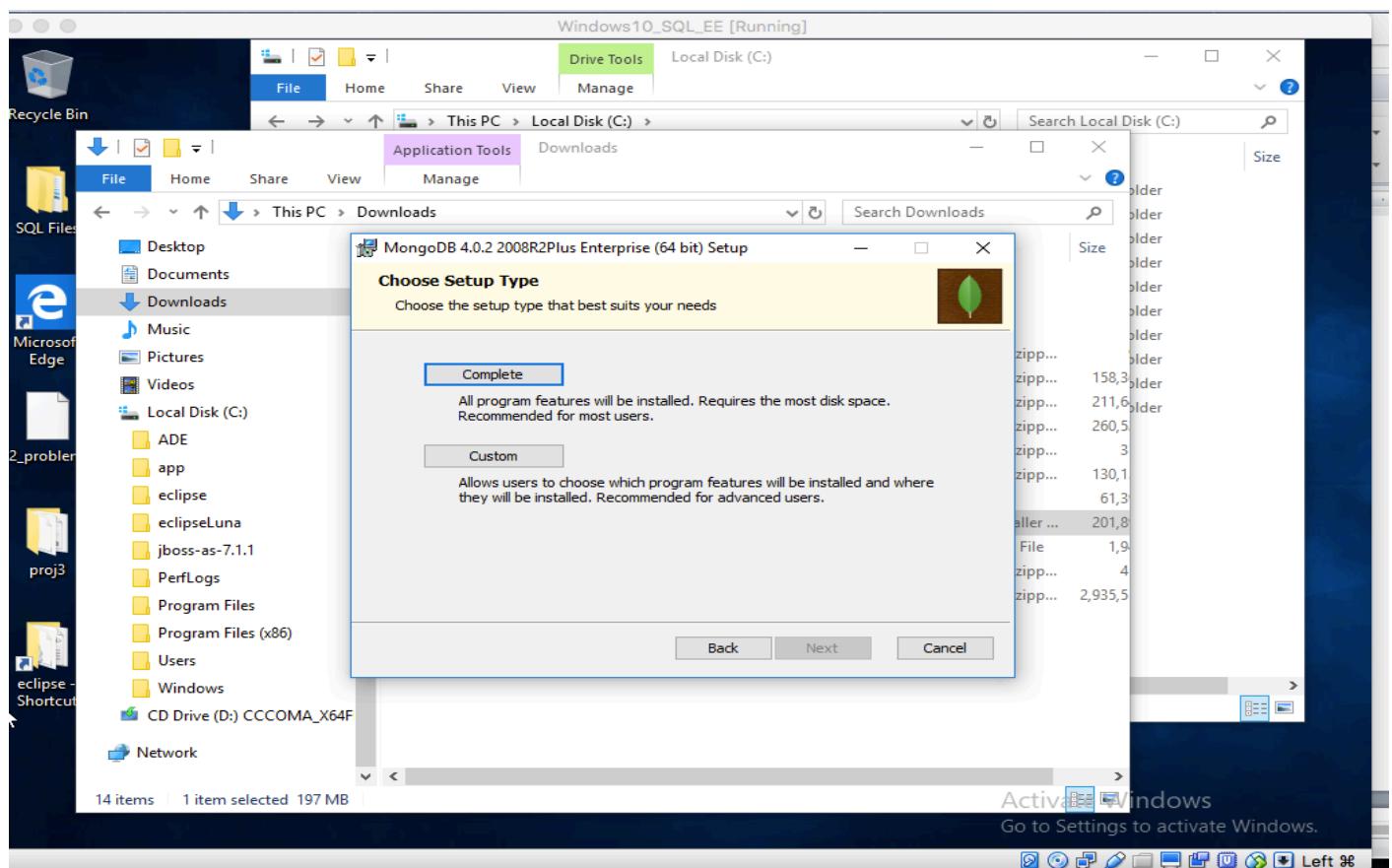
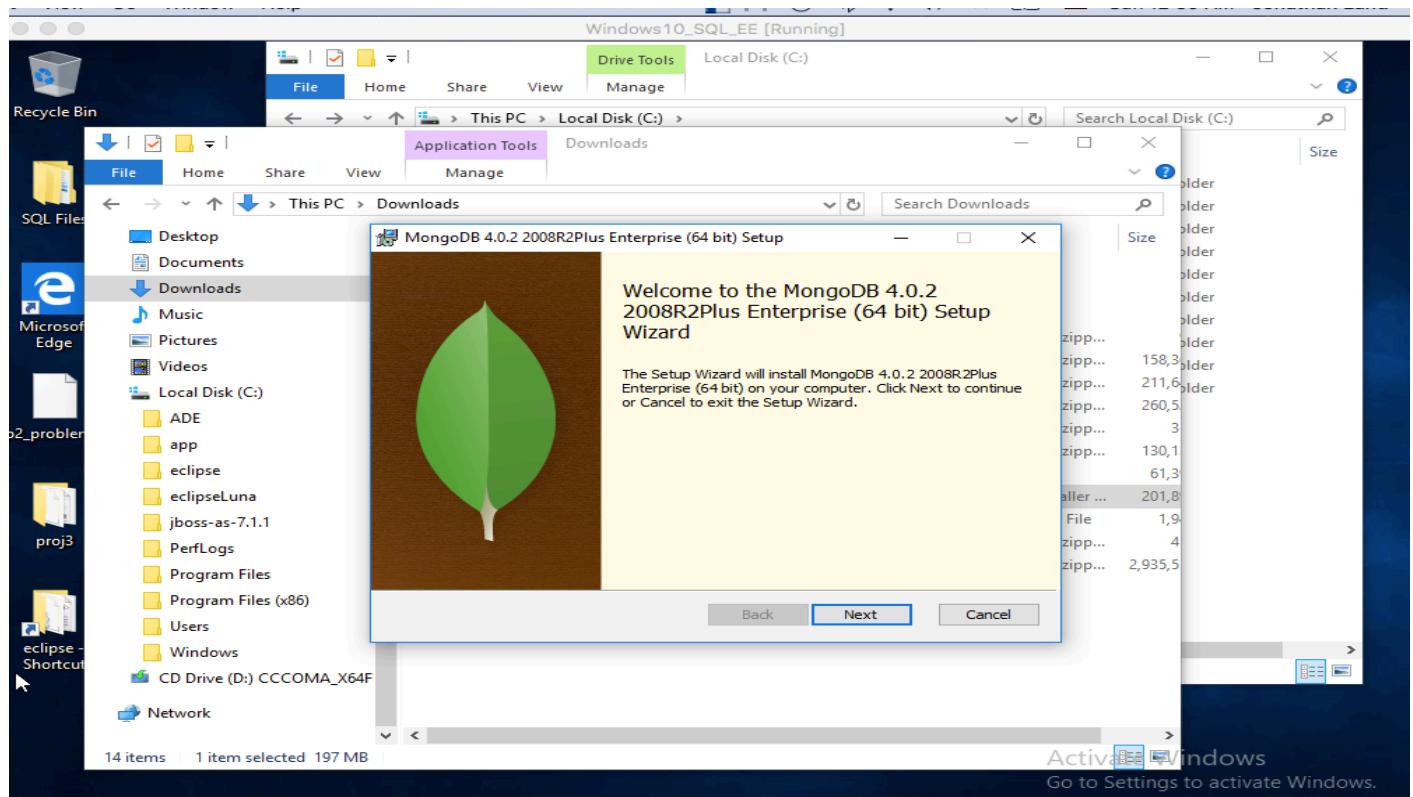
What do you want to do with **mongodb-win32-x86_64-enterprise-windows-64-4.0.2.zip** (279 MB)?

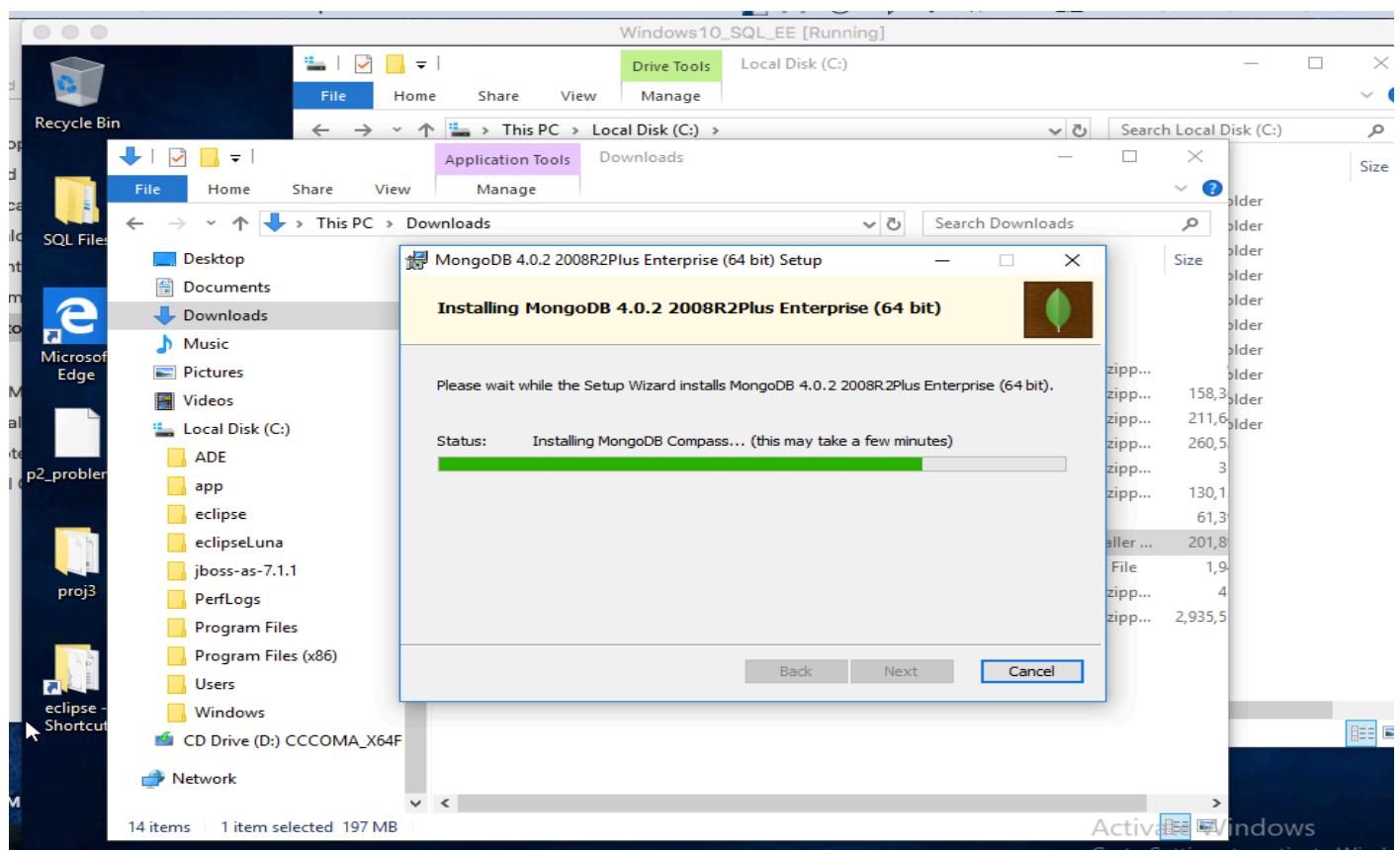
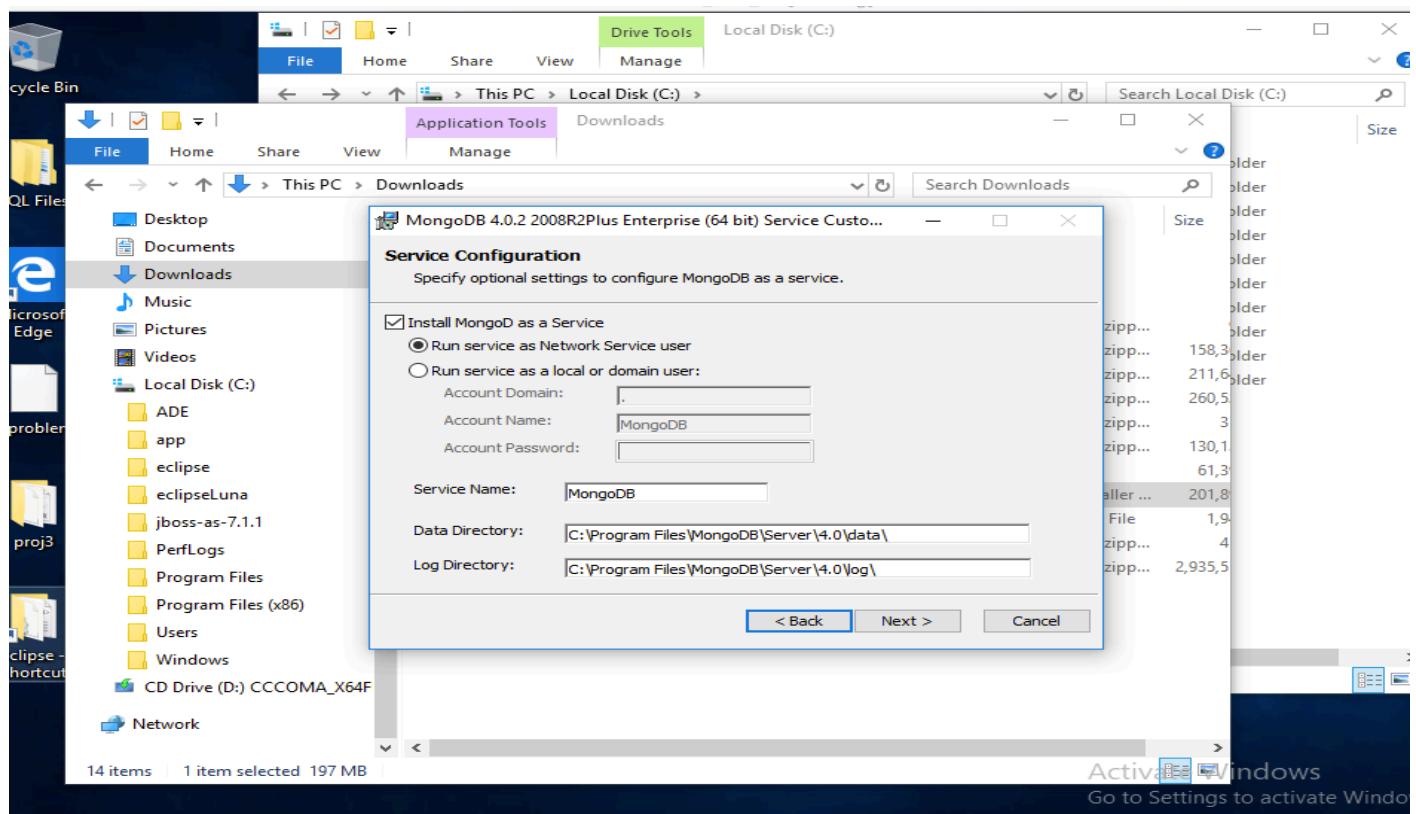
Open Save Cancel

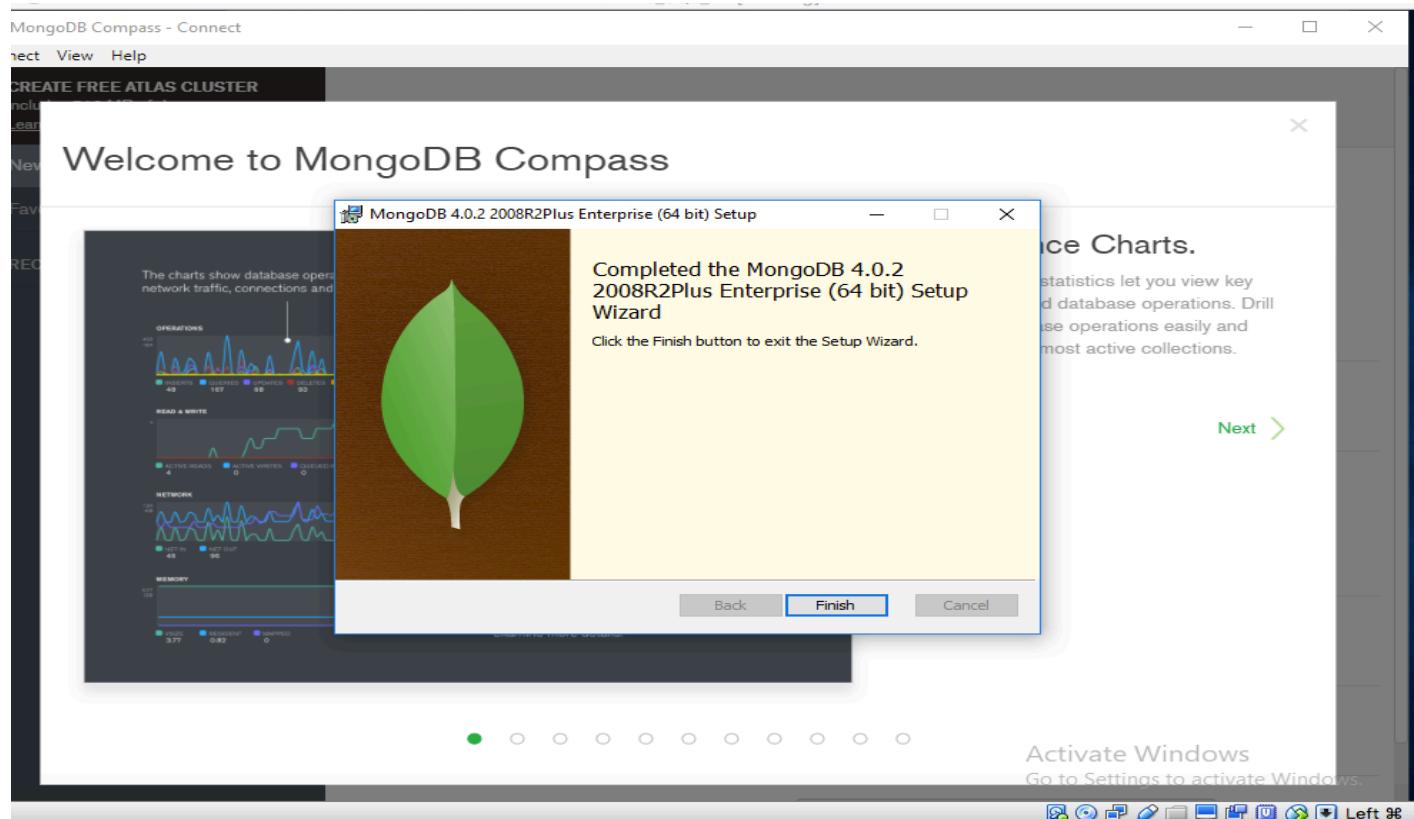
Screenshot of a file explorer window showing the contents of the Downloads folder on Local Disk (C:). The folder contains several compressed files and executables, including the MongoDB Enterprise package and other development tools.

Name	Date modified	Type	Size
Chapter 04(1)	8/22/2018 11:36 PM	File folder	
SalesSystem	9/7/2018 8:55 PM	File folder	
winx64_12201_database	8/22/2018 6:59 PM	File folder	
Chapter 04(1).zip	8/22/2018 11:36 PM	Compressed (zipp...)	
eclipse-4-4-2-64-bit-en-win.zip	9/8/2018 6:29 PM	Compressed (zipp...)	158,3
eclipse-jee-helios-SR1-win32-x86_64.zip	9/8/2018 6:58 PM	Compressed (zipp...)	211,6
eclipse-jee-luna-SR2-win32-x86_64.zip	9/8/2018 10:19 PM	Compressed (zipp...)	260,5
files (1).zip	8/26/2018 3:36 PM	Compressed (zipp...)	3
jboss-as-7.1.1.Final.zip	9/8/2018 2:33 PM	Compressed (zipp...)	130,1
jdk-6u45-windows-x64.exe	9/8/2018 1:37 PM	Application	61,3
mongodb-win32-x86_64-enterprise-wind...	9/9/2018 12:44 AM	Compressed (zipp...)	285,2
ojdbc6.jar	9/8/2018 3:41 PM	Executable Jar File	1,9
SalesSystem.zip	8/26/2018 9:54 PM	Compressed (zipp...)	4
winx64_12201_database.zip	8/22/2018 6:58 PM	Compressed (zipp...)	2,935,5

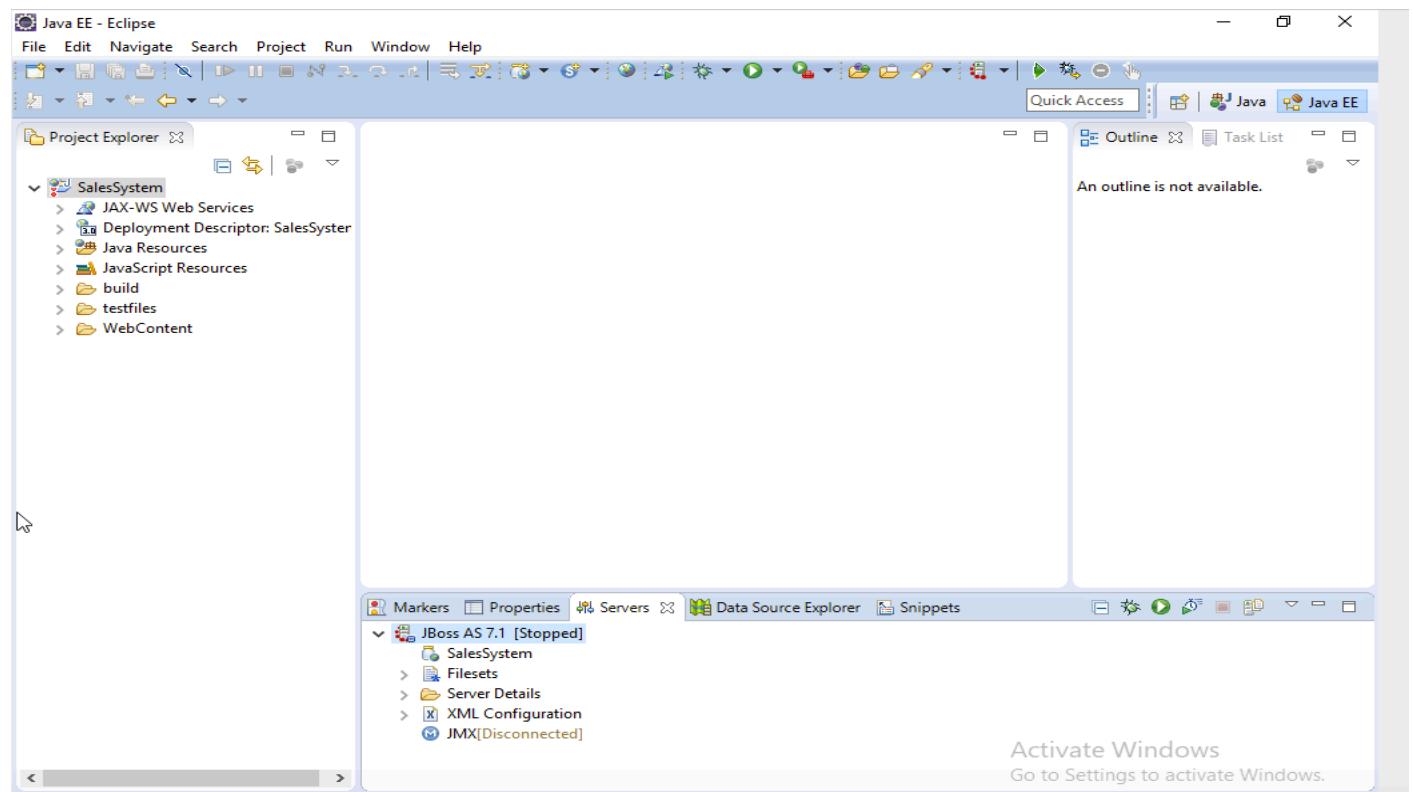




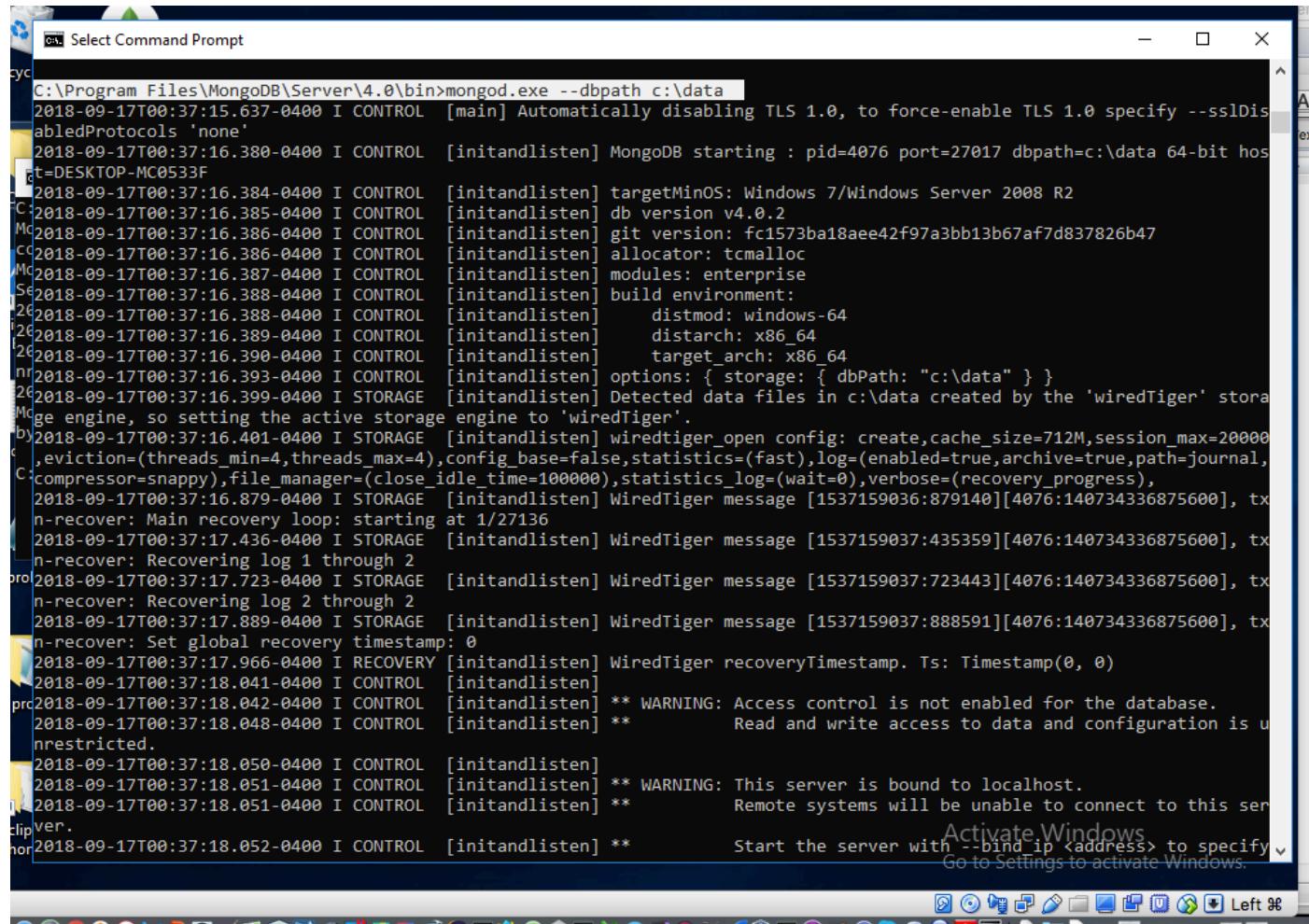




Starting JBoss server



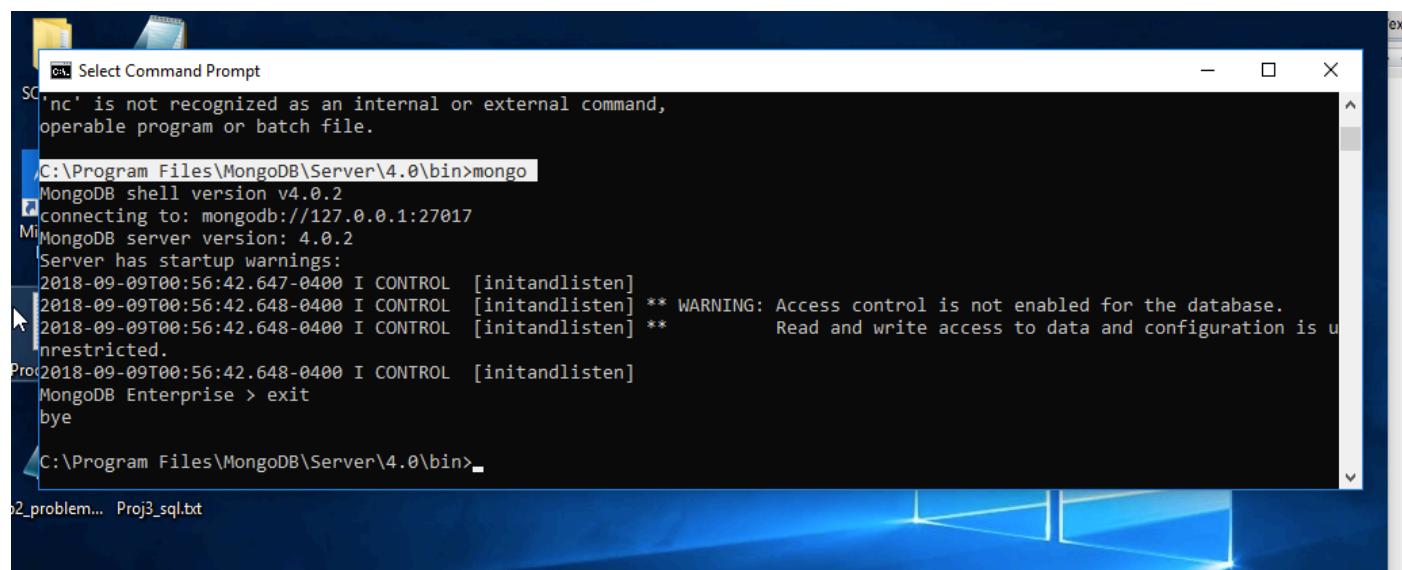
Starting MongoDB



```

c:\ Select Command Prompt
C:\Program Files\MongoDB\Server\4.0\bin>mongod.exe --dbpath c:\data
2018-09-17T00:37:15.637-0400 I CONTROL [main] Automatically disabling TLS 1.0, to force-enable TLS 1.0 specify --sslDisabledProtocols 'none'
2018-09-17T00:37:16.380-0400 I CONTROL [initandlisten] MongoDB starting : pid=4076 port=27017 dbpath=c:\data 64-bit host=DESKTOP-MC0533F
2018-09-17T00:37:16.384-0400 I CONTROL [initandlisten] targetMinOS: Windows 7/Windows Server 2008 R2
2018-09-17T00:37:16.385-0400 I CONTROL [initandlisten] db version v4.0.2
2018-09-17T00:37:16.386-0400 I CONTROL [initandlisten] git version: fc1573ba18aeee42f97a3bb13b67af7d837826b47
2018-09-17T00:37:16.386-0400 I CONTROL [initandlisten] allocator: tcmalloc
2018-09-17T00:37:16.387-0400 I CONTROL [initandlisten] modules: enterprise
2018-09-17T00:37:16.388-0400 I CONTROL [initandlisten] build environment:
2018-09-17T00:37:16.388-0400 I CONTROL [initandlisten] distmod: windows-64
2018-09-17T00:37:16.389-0400 I CONTROL [initandlisten] distarch: x86_64
2018-09-17T00:37:16.390-0400 I CONTROL [initandlisten] target_arch: x86_64
2018-09-17T00:37:16.393-0400 I CONTROL [initandlisten] options: { storage: { dbPath: "c:\data" } }
2018-09-17T00:37:16.399-0400 I STORAGE [initandlisten] Detected data files in c:\data created by the 'wiredTiger' storage engine, so setting the active storage engine to 'wiredTiger'.
2018-09-17T00:37:16.401-0400 I STORAGE [initandlisten] wiredtiger_open config: create,cache_size=712M/session_max=20000, eviction=(threads_min=4, threads_max=4), config_base=false, statistics=(fast), log=(enabled=true, archive=true, path=journal, compressor=snappy), file_manager=(close_idle_time=100000), statistics_log=(wait=0), verbose=(recovery_progress),
2018-09-17T00:37:16.879-0400 I STORAGE [initandlisten] WiredTiger message [1537159036:879140][4076:140734336875600], txn_recover: Main recovery loop: starting at 1/27136
2018-09-17T00:37:17.436-0400 I STORAGE [initandlisten] WiredTiger message [1537159037:435359][4076:140734336875600], txn_recover: Recovering log 1 through 2
2018-09-17T00:37:17.723-0400 I STORAGE [initandlisten] WiredTiger message [1537159037:723443][4076:140734336875600], txn_recover: Recovering log 2 through 2
2018-09-17T00:37:17.889-0400 I STORAGE [initandlisten] WiredTiger message [1537159037:888591][4076:140734336875600], txn_recover: Set global recovery timestamp: 0
2018-09-17T00:37:17.966-0400 I RECOVERY [initandlisten] WiredTiger recoveryTimestamp. Ts: Timestamp(0, 0)
2018-09-17T00:37:18.041-0400 I CONTROL [initandlisten]
2018-09-17T00:37:18.042-0400 I CONTROL [initandlisten] ** WARNING: Access control is not enabled for the database.
2018-09-17T00:37:18.048-0400 I CONTROL [initandlisten] ** Read and write access to data and configuration is unrestricted.
2018-09-17T00:37:18.050-0400 I CONTROL [initandlisten]
2018-09-17T00:37:18.051-0400 I CONTROL [initandlisten] ** WARNING: This server is bound to localhost.
2018-09-17T00:37:18.051-0400 I CONTROL [initandlisten] ** Remote systems will be unable to connect to this server.
2018-09-17T00:37:18.052-0400 I CONTROL [initandlisten] ** Start the server with --bind_ip <address> to specify a different IP
2018-09-17T00:37:18.052-0400 I CONTROL [initandlisten] Go to Settings to activate Windows.

```



```

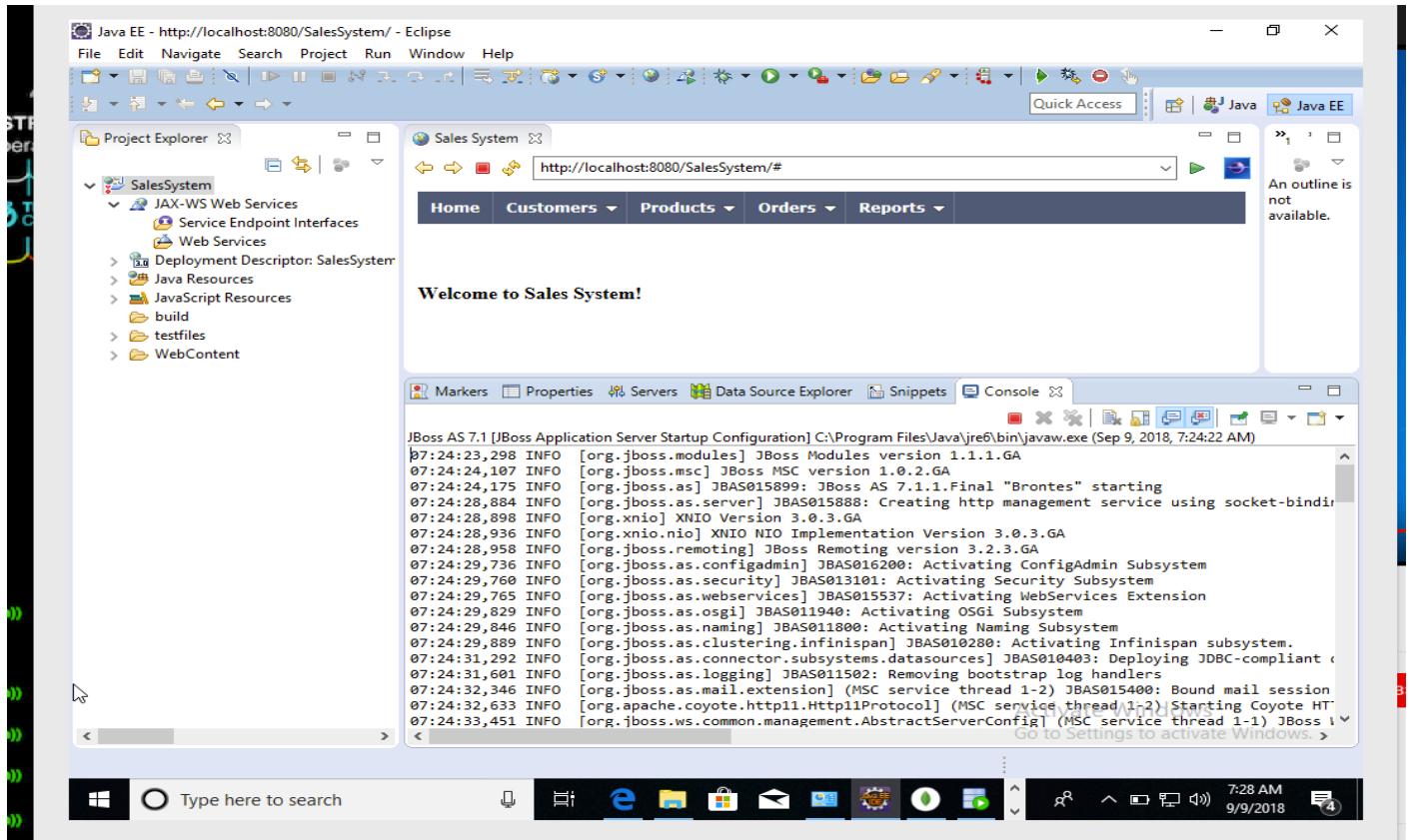
c:\ Select Command Prompt
C:\>nc is not recognized as an internal or external command,
operable program or batch file.

C:\Program Files\MongoDB\Server\4.0\bin>mongo
MongoDB shell version v4.0.2
connecting to: mongodb://127.0.0.1:27017
MongoDB server version: 4.0.2
Server has startup warnings:
2018-09-09T00:56:42.647-0400 I CONTROL [initandlisten]
2018-09-09T00:56:42.648-0400 I CONTROL [initandlisten] ** WARNING: Access control is not enabled for the database.
2018-09-09T00:56:42.648-0400 I CONTROL [initandlisten] ** Read and write access to data and configuration is unrestricted.
2018-09-09T00:56:42.648-0400 I CONTROL [initandlisten]
MongoDB Enterprise > exit
bye

C:\Program Files\MongoDB\Server\4.0\bin>

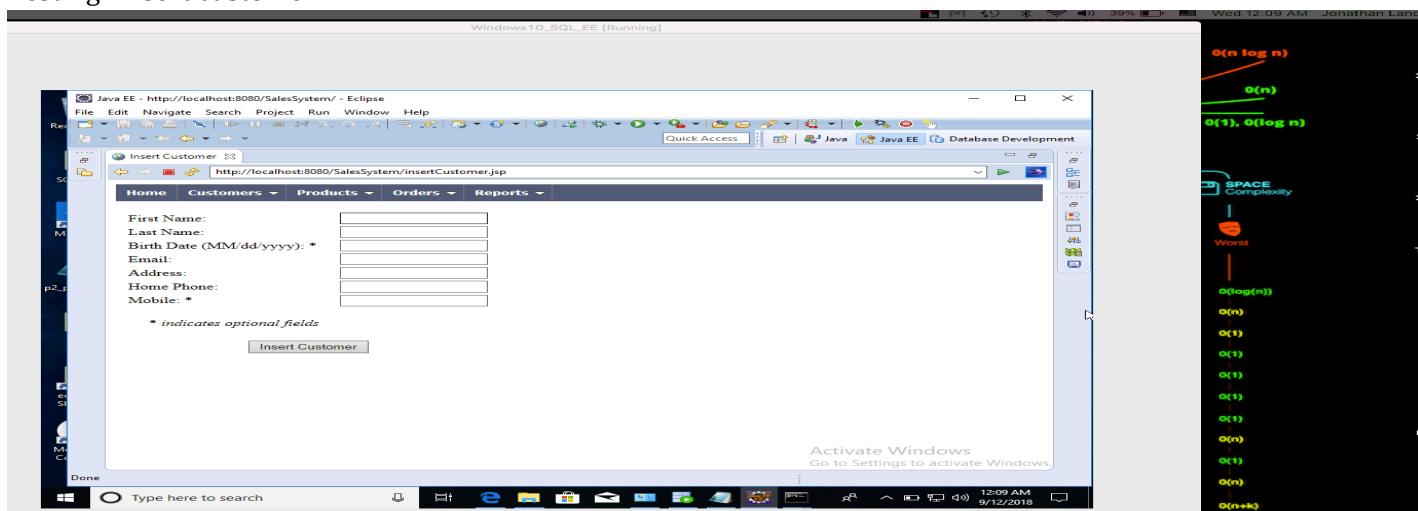
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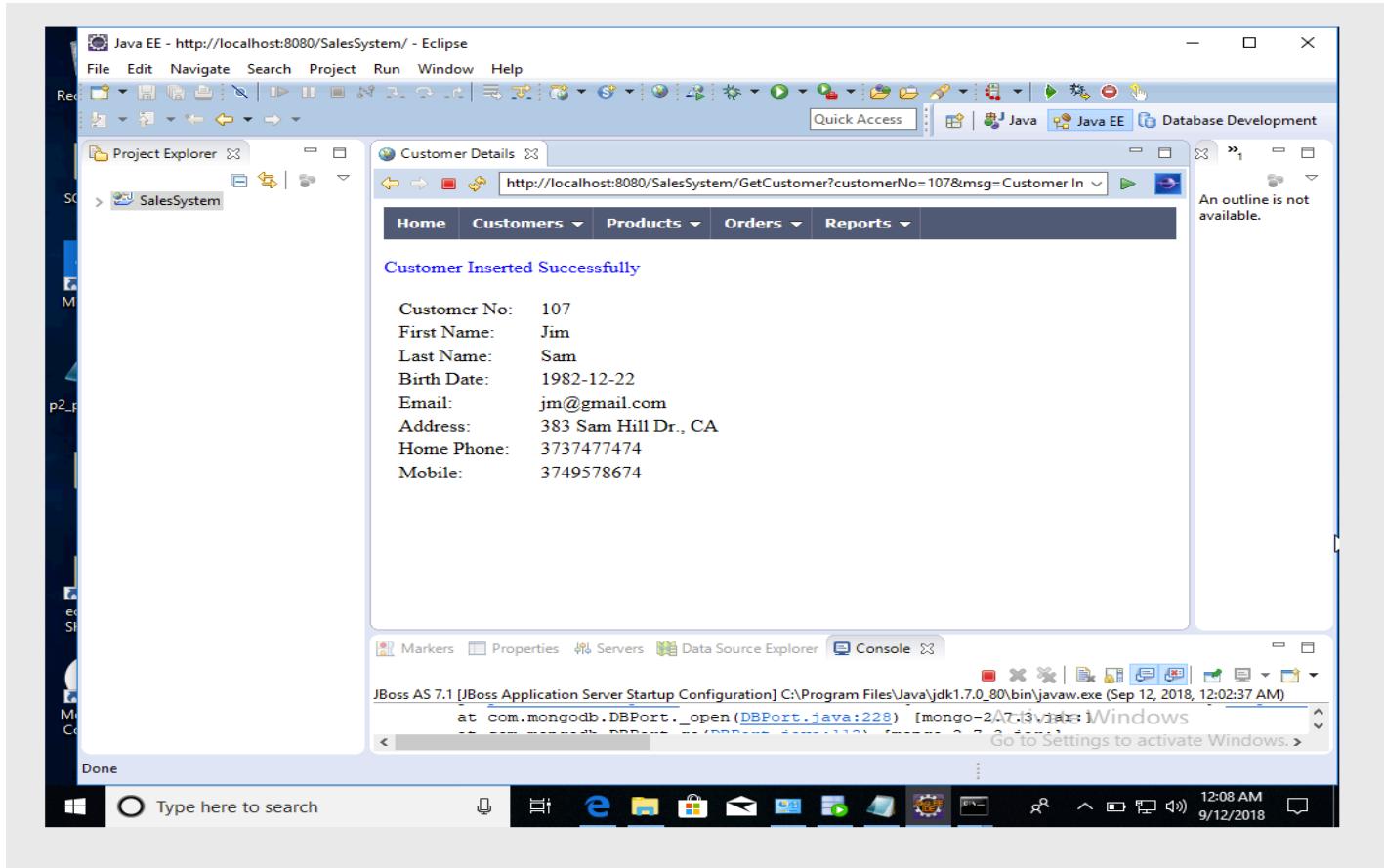
4. (80 points) You are able to Display Data from both databases such as:
 Starting SalesSystem application in Eclipse Luna



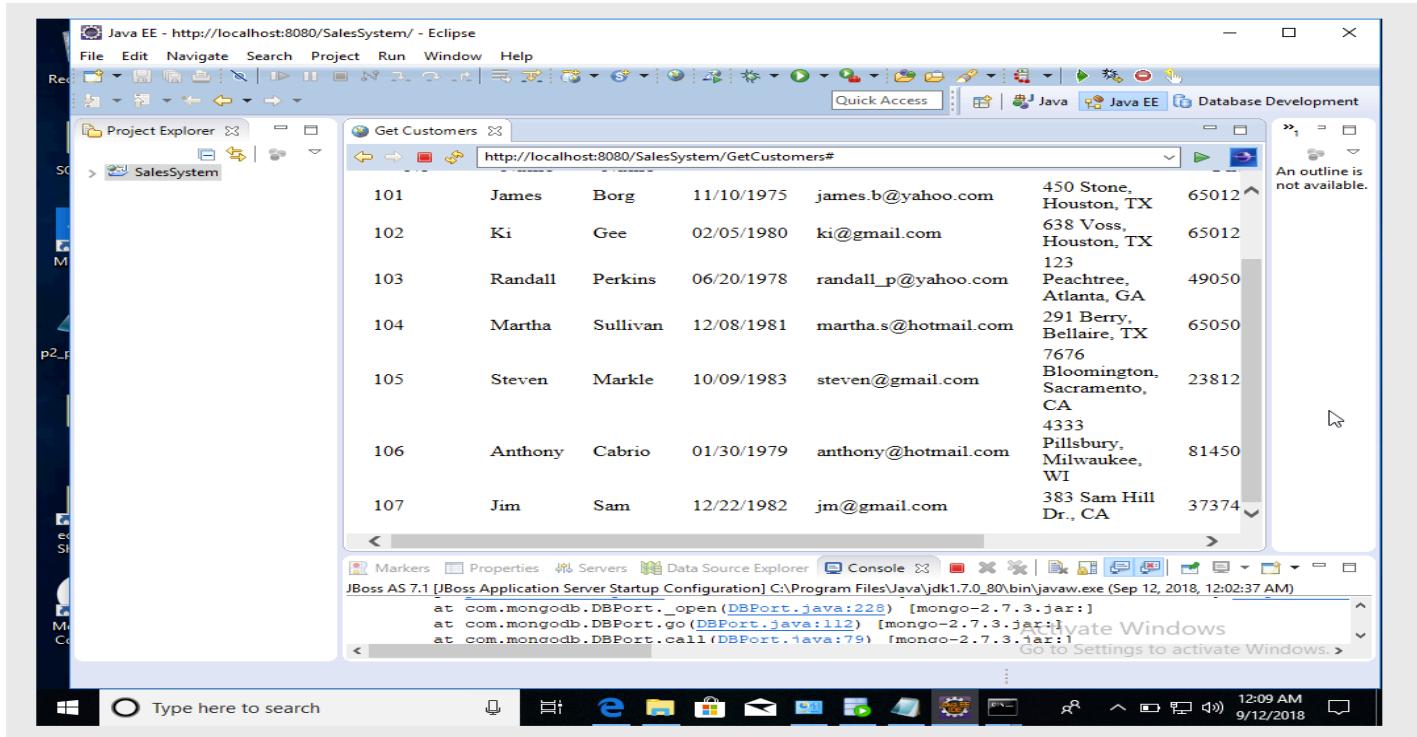
Displaying data (NOTE: The following screenshots demonstrate successful updating and viewing of inserted products, customers, and orders, as well as uploading and viewing documents).

Testing “insert customer”

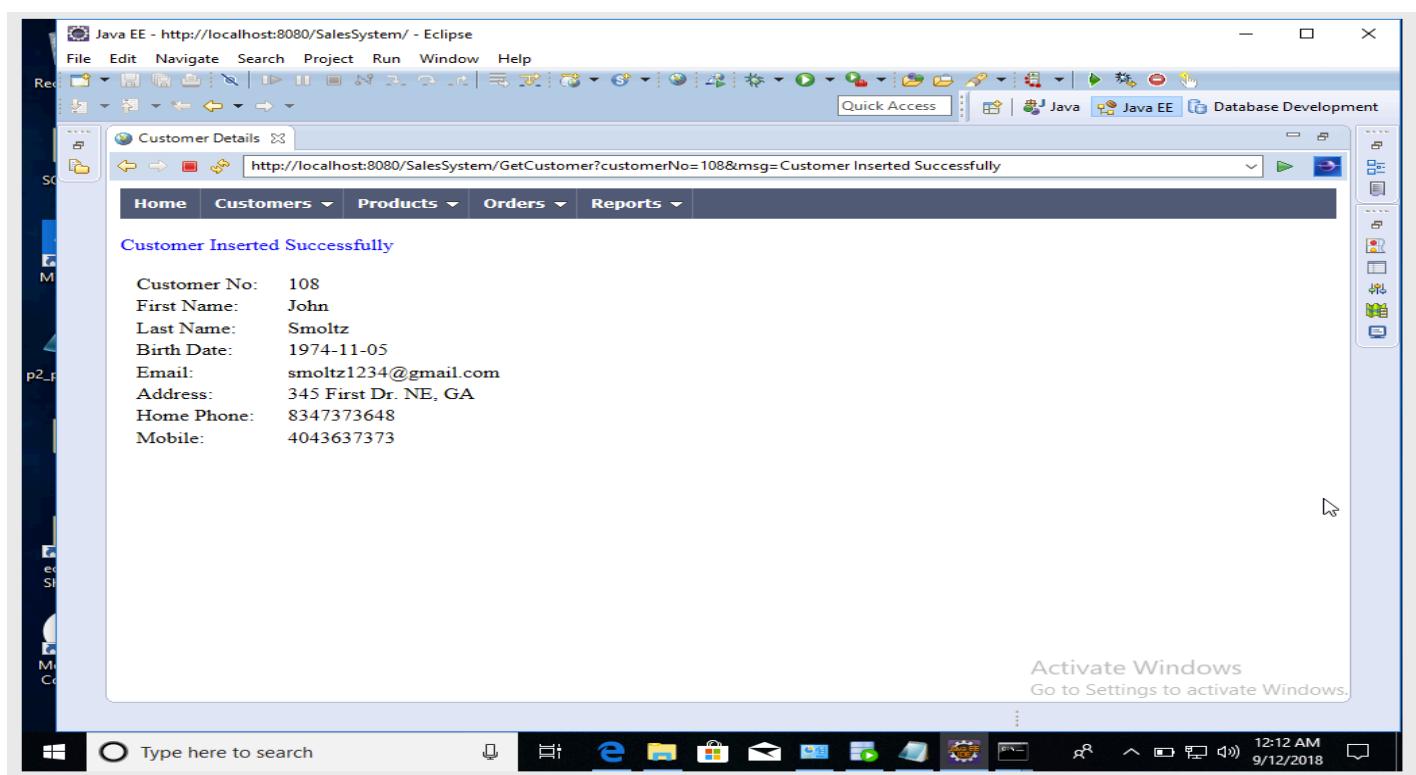
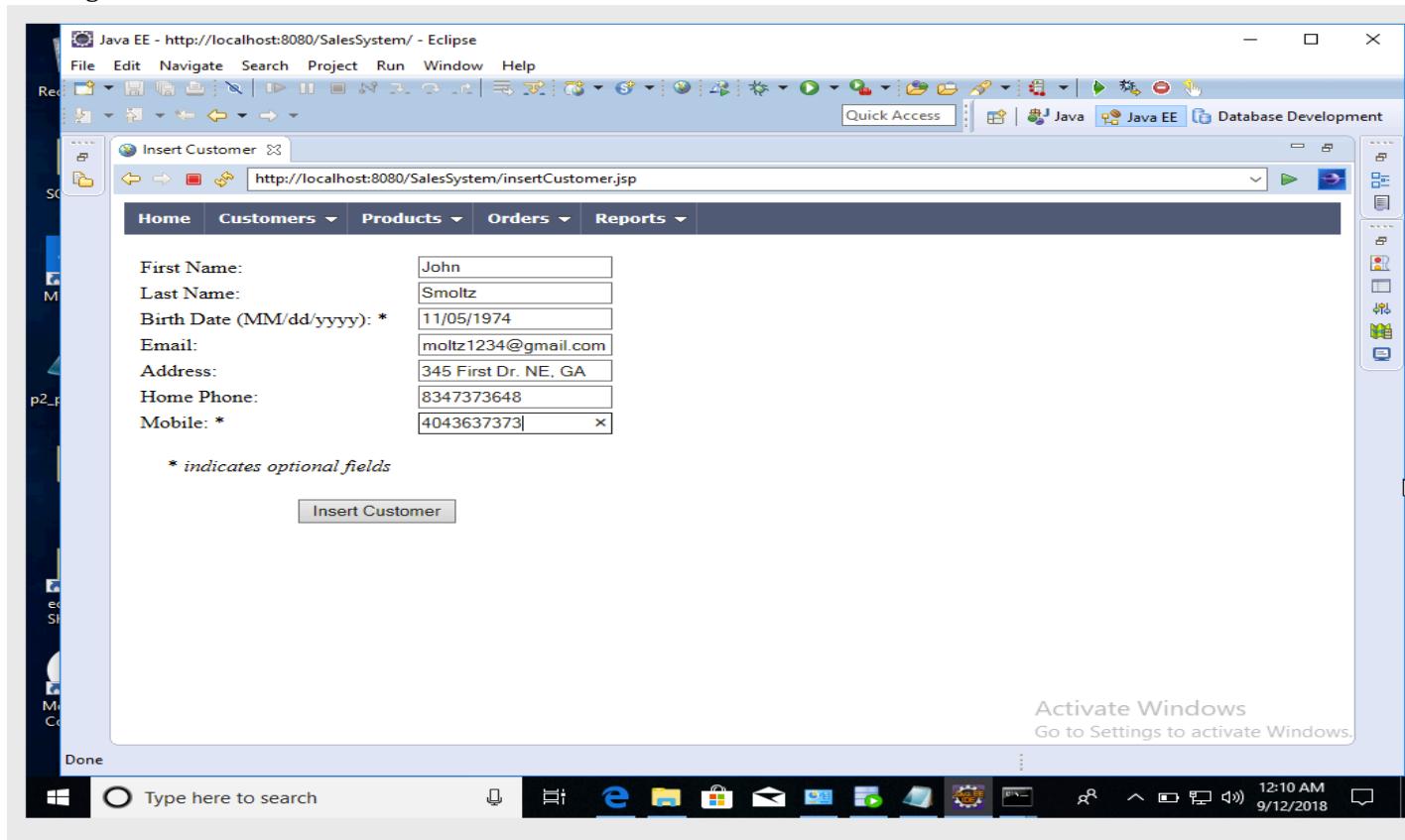




Verification



Testing “insert customer”



Verification

Java EE - http://localhost:8080/SalesSystem/ - Eclipse

File Edit Navigate Search Project Run Window Help

Quick Access Java Java EE Database Development

Get Customers

http://localhost:8080/SalesSystem/GetCustomers

Customer No	First Name	Last Name	Birth Date	Email	Address	Home Phone	Mobile
101	James	Borg	11/10/1975	james.b@yahoo.com	450 Stone, Houston, TX	6501248234	6302457890
102	Ki	Gee	02/05/1980	ki@gmail.com	638 Voss, Houston, TX	6501271734	6303780029
103	Randall	Perkins	06/20/1978	randall_p@yahoo.com	123 Peachtree, Atlanta, GA	4905054876	4105685643
104	Martha	Sullivan	12/08/1981	martha.s@hotmail.com	291 Berry, Bellaire, TX	6505079878	6301274565
105	Steven	Markle	10/09/1983	steven@gmail.com	7676 Bloomington, Sacramento, CA	2381241434	2560096478
106	Anthony	Cabrio	01/30/1979	anthony@hotmail.com	4333 Pillsbury, Milwaukee, WI	8145094876	8540230045
107	Jim	Sam	12/22/1982	jm@gmail.com	383 Sam Hill Dr., CA	3737477474	3749578674
108	John	Smoltz	11/05/1974	smoltz1234@gmail.com	345 First Dr. NE, GA	8347373648	4043637373

Activate Windows
Go to Settings to activate Windows.

12:12 AM 9/12/2018

Testing "insert product"

Java EE - http://localhost:8080/SalesSystem/ - Eclipse

File Edit Navigate Search Project Run Window Help

Quick Access Java Java EE Database Development

Insert Product

http://localhost:8080/SalesSystem/InsertProductForm

Product Description:	r2d2
Category:	Electronics
Available Quantity:	1
Cost:	100000
List Price:	200000

Insert Product

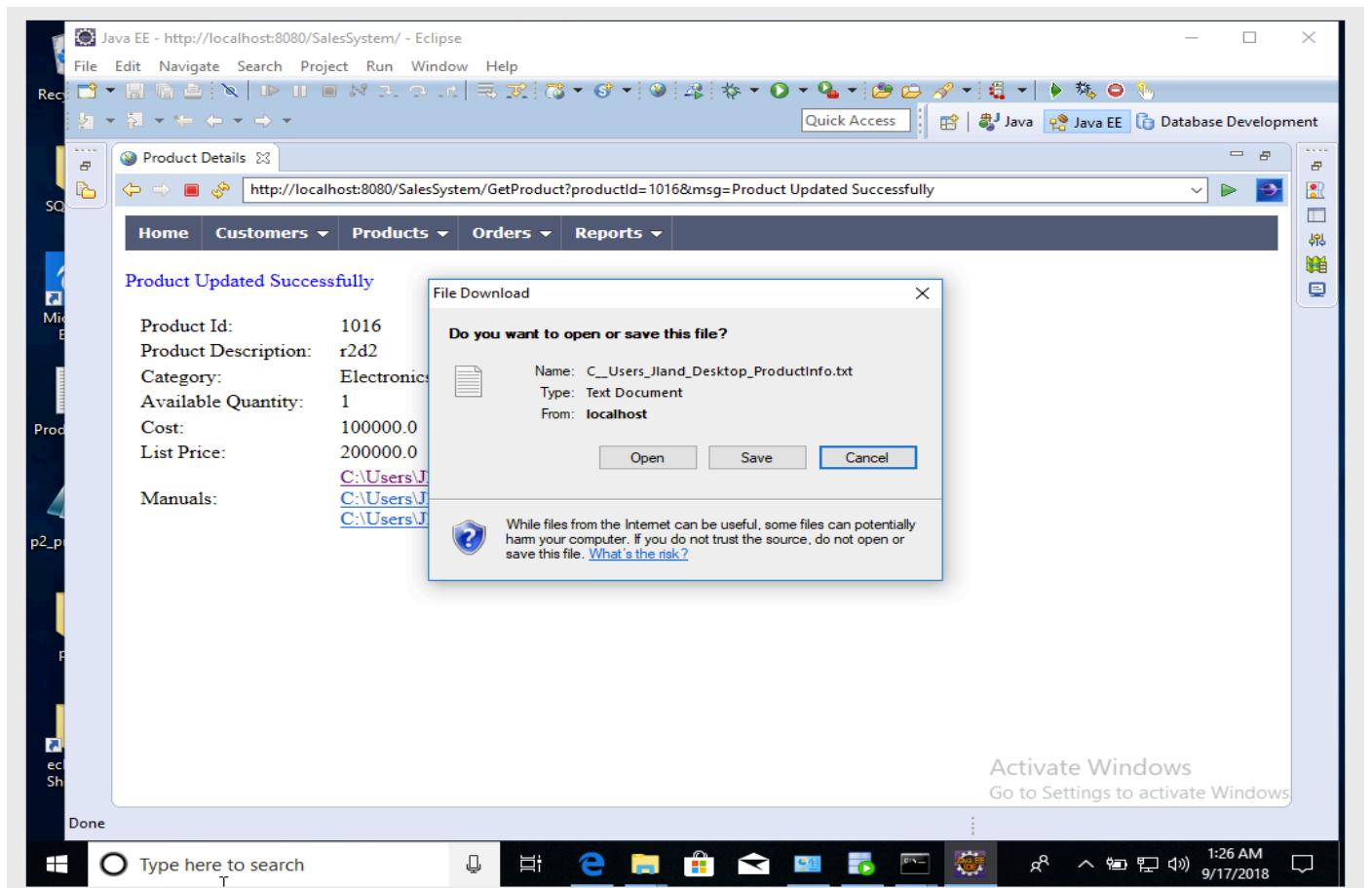
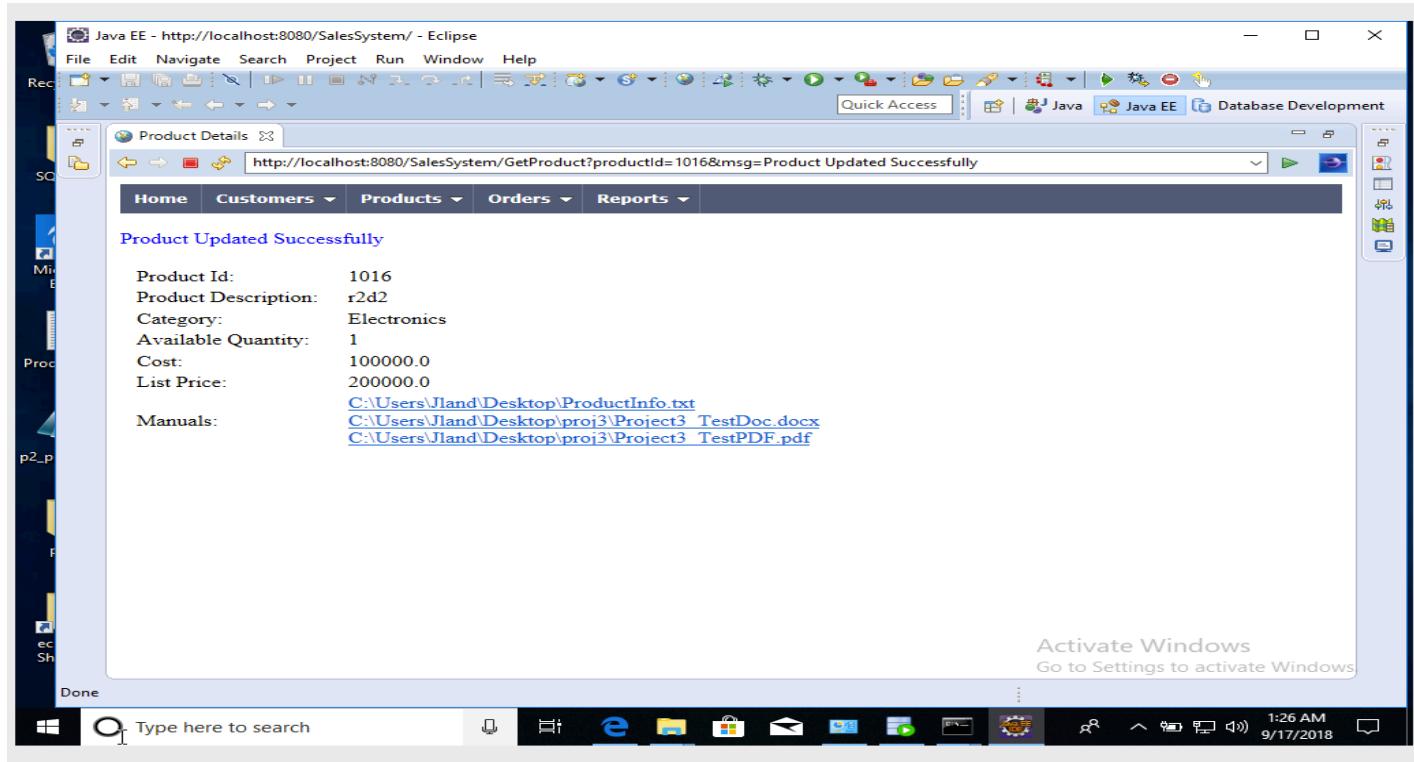
Activate Windows
Go to Settings to activate Windows.

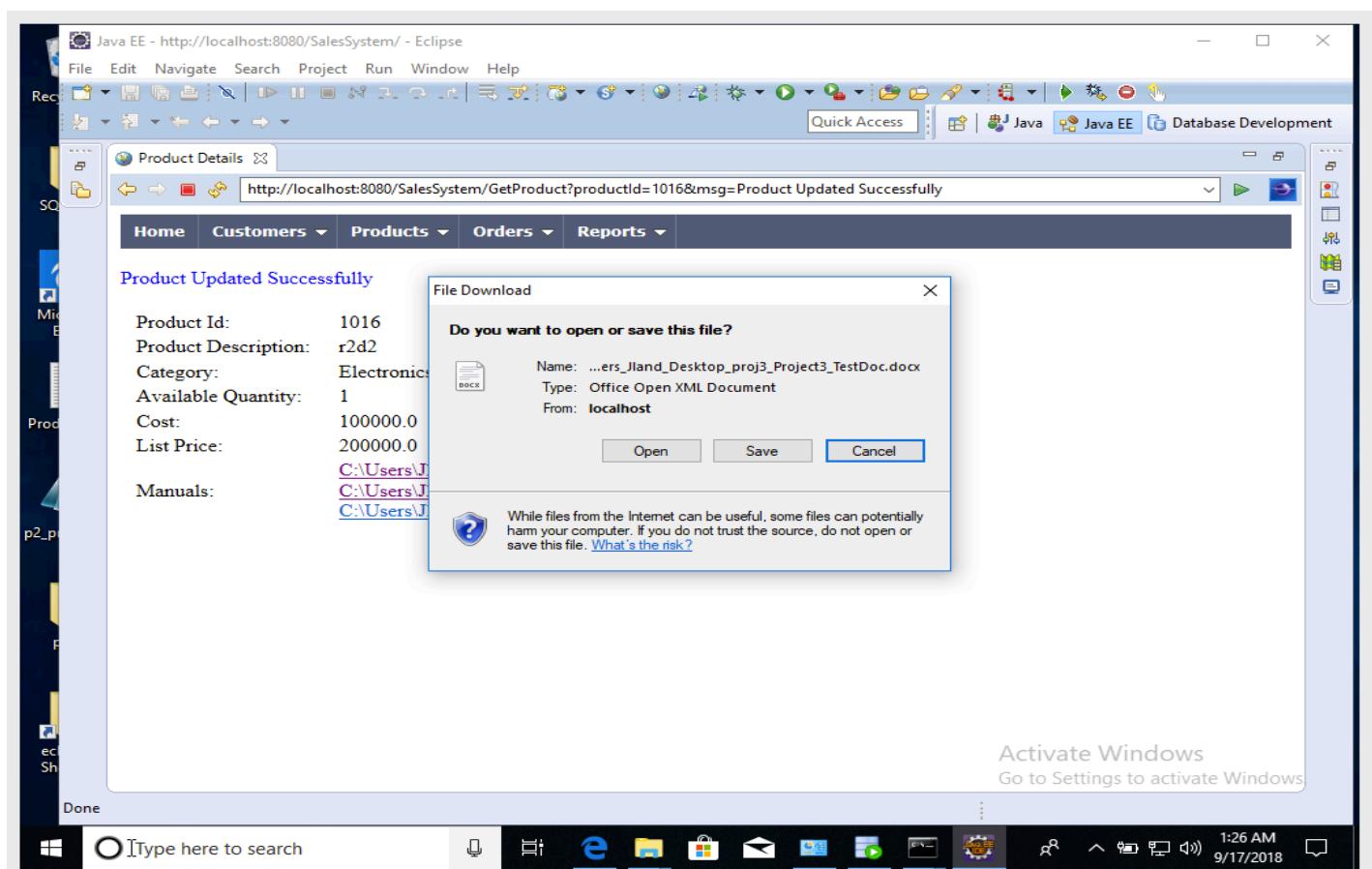
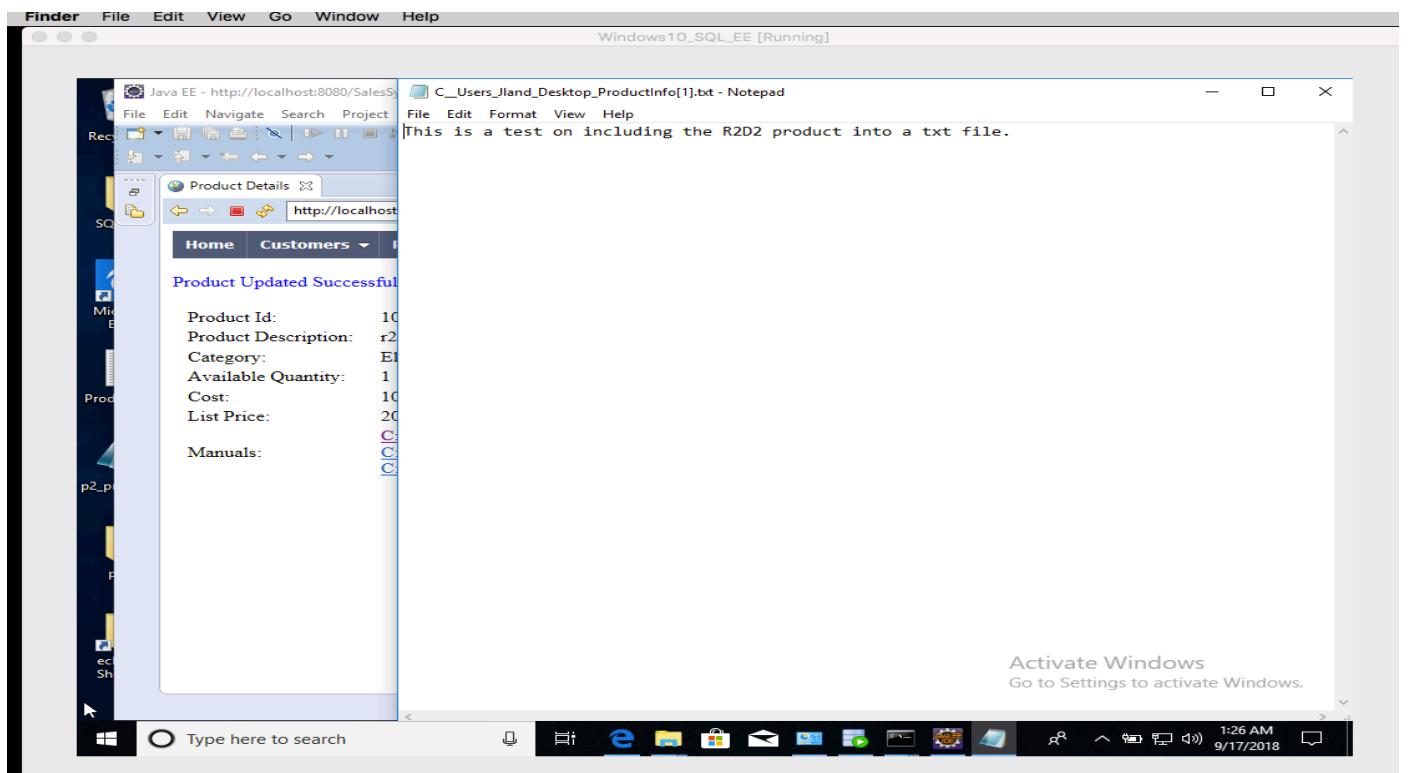
12:19 AM 9/12/2018

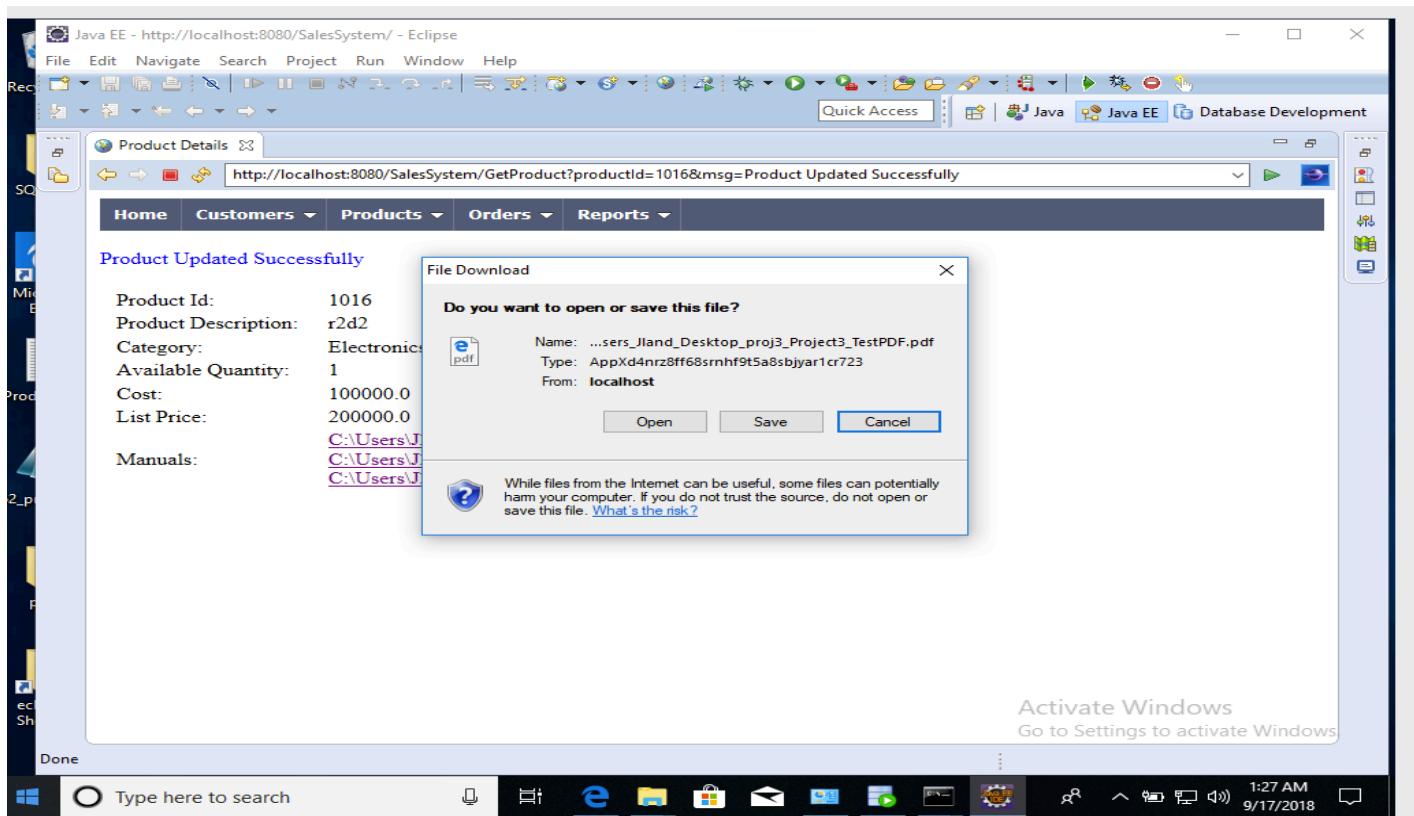
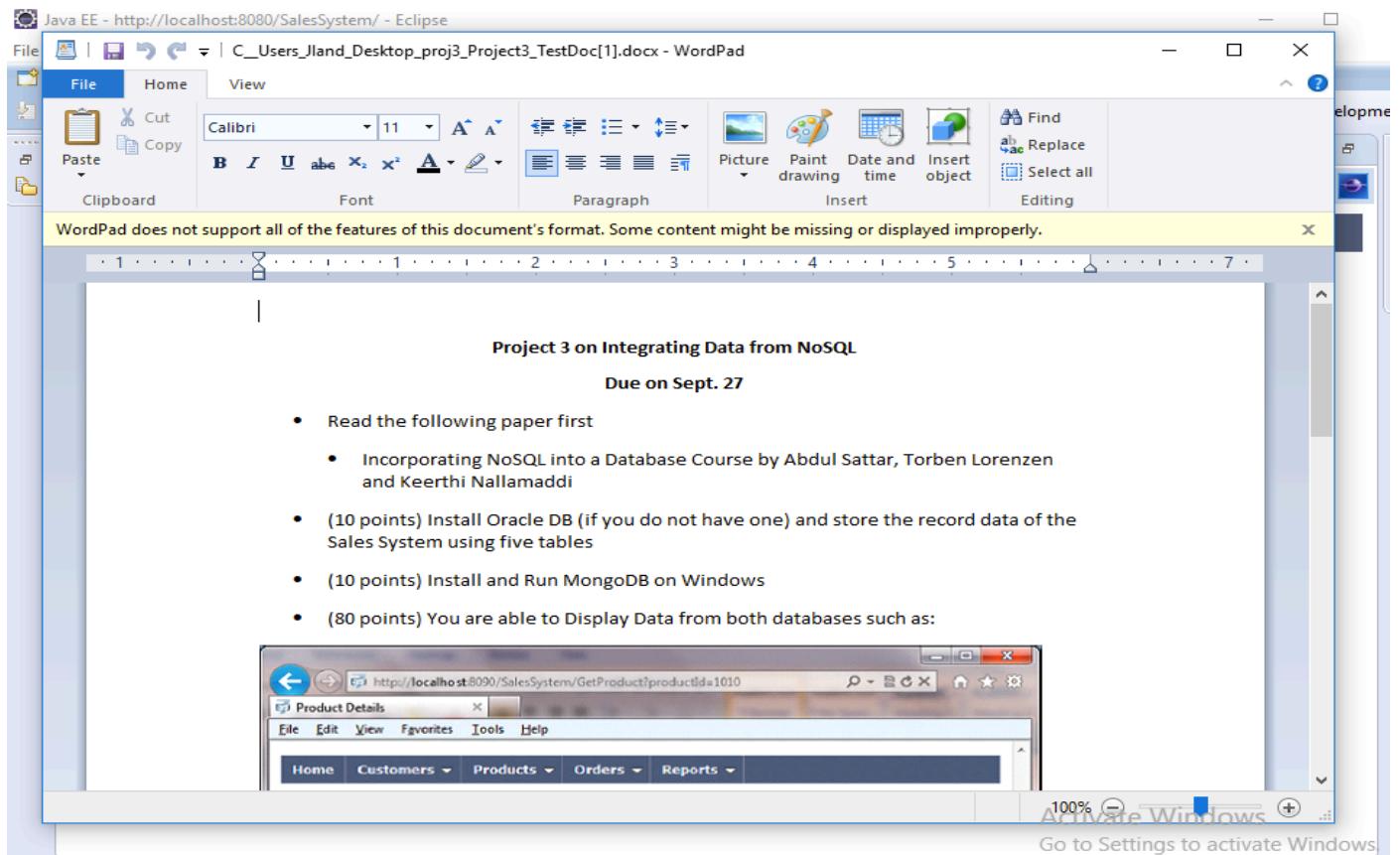
Verification

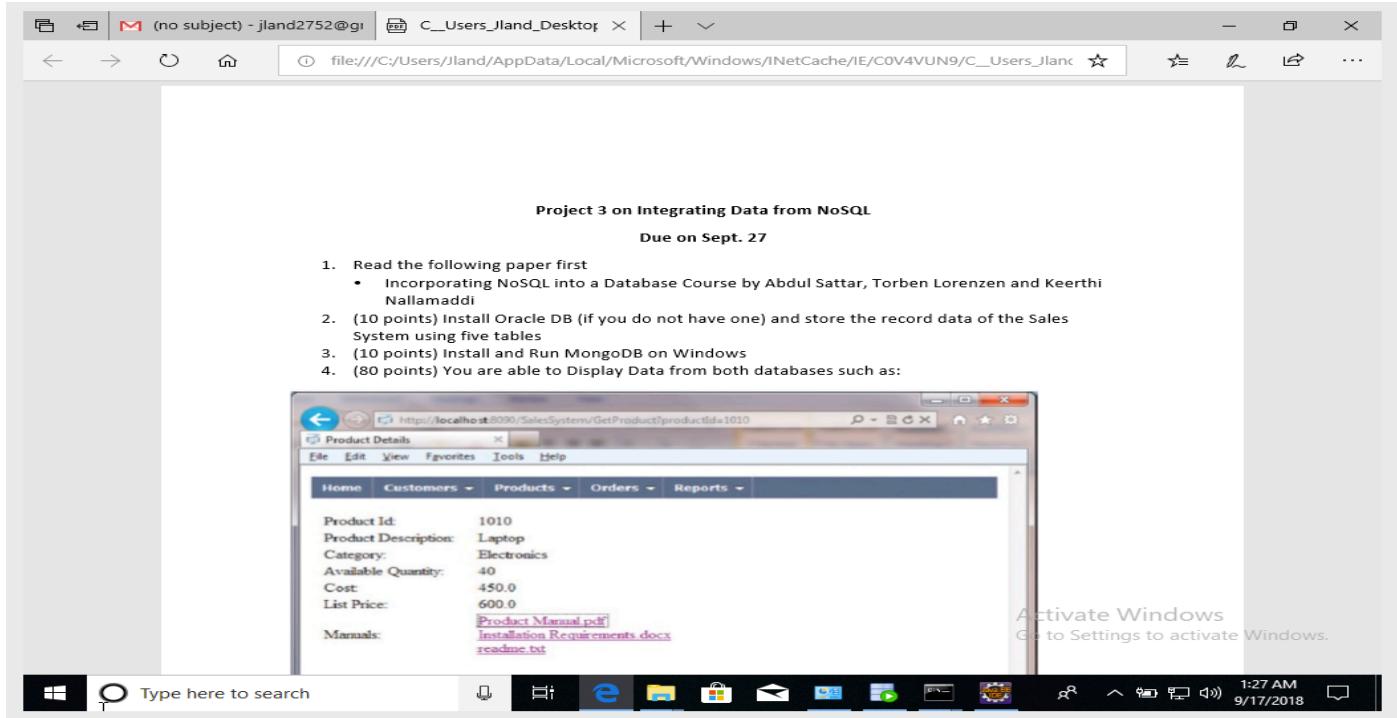
Product Id	Description	Category	Available Quantity	Cost	List Price	Action
1001	Pens	Stationary	500	3.25	6.5	<button>Update</button>
1002	Copy Paper	Stationary	300	5.25	7.5	<button>Update</button>
1003	Printer Ink	Stationary	400	16.5	22.25	<button>Update</button>
1004	Bandaid	Medical Supplies	350	4.0	5.5	<button>Update</button>
1005	Thermometer	Medical Supplies	190	6.75	9.25	<button>Update</button>
1006	Tylenol	Medical Supplies	250	11.5	15.25	<button>Update</button>
1007	Bananas	Produce	75	1.25	2.15	<button>Update</button>
1008	Milk	Produce	190	2.25	3.5	<button>Update</button>
1009	Television	Electronics	25	850.0	1050.0	<button>Update</button>
1010	Laptop	Electronics	40	450.0	600.0	<button>Update</button>
1011	Camera	Electronics	15	150.0	200.0	<button>Update</button>
1012	BackPack	Sporting Goods	10	80.0	95.0	<button>Update</button>
1013	Gloves	Sporting Goods	30	20.0	35.0	<button>Update</button>
1014	Soccer balls	Sporting Goods	50	15.0	20.0	<button>Update</button>
1015	J100	Electronics	1	80000.0	85000.0	<button>Update</button>
1016	r2d2	Electronics	1	100000.0	200000.0	<button>Update</button>

Testing “update” along with document upload feature (NOTE: Three documents were uploaded and then opened).

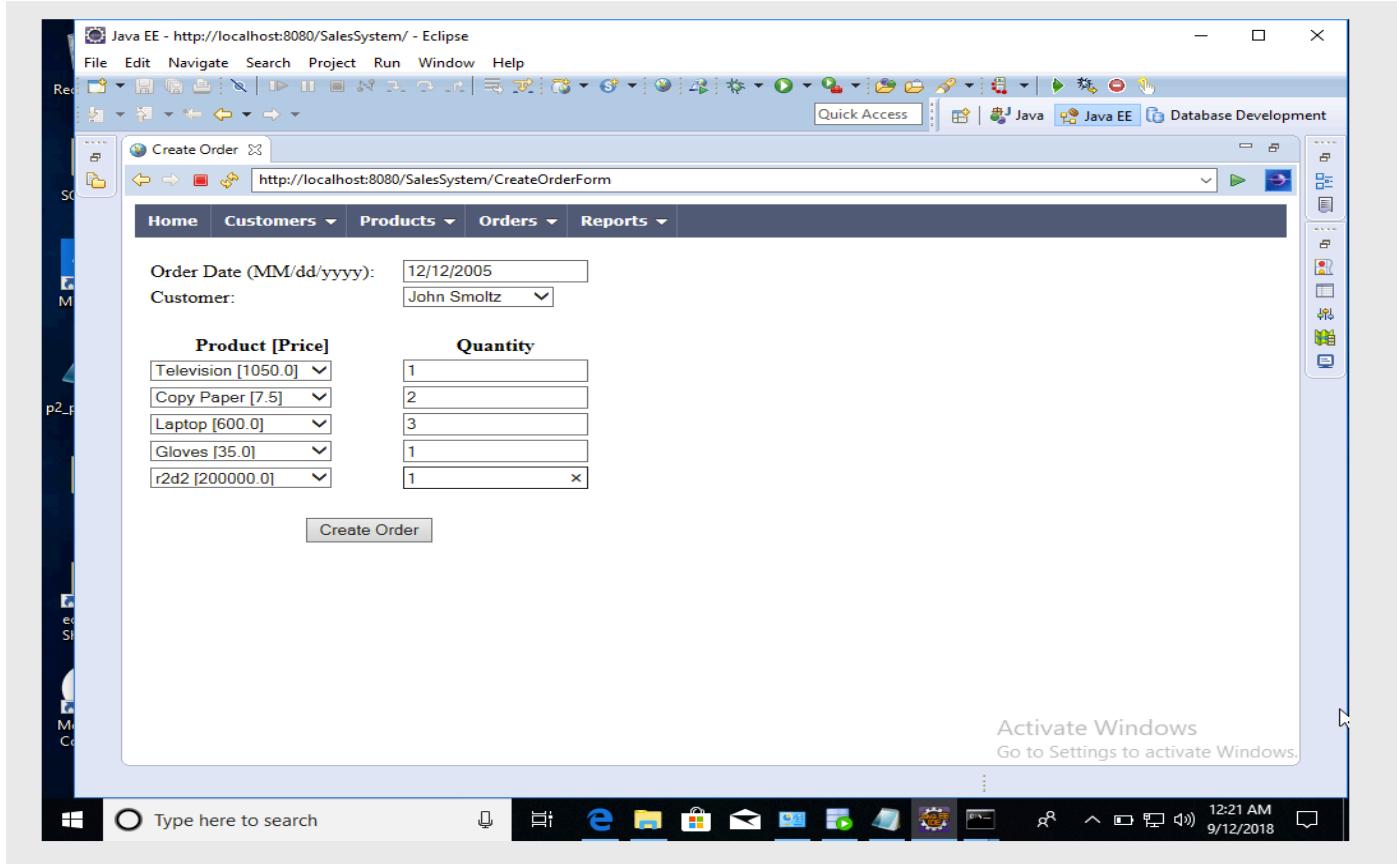




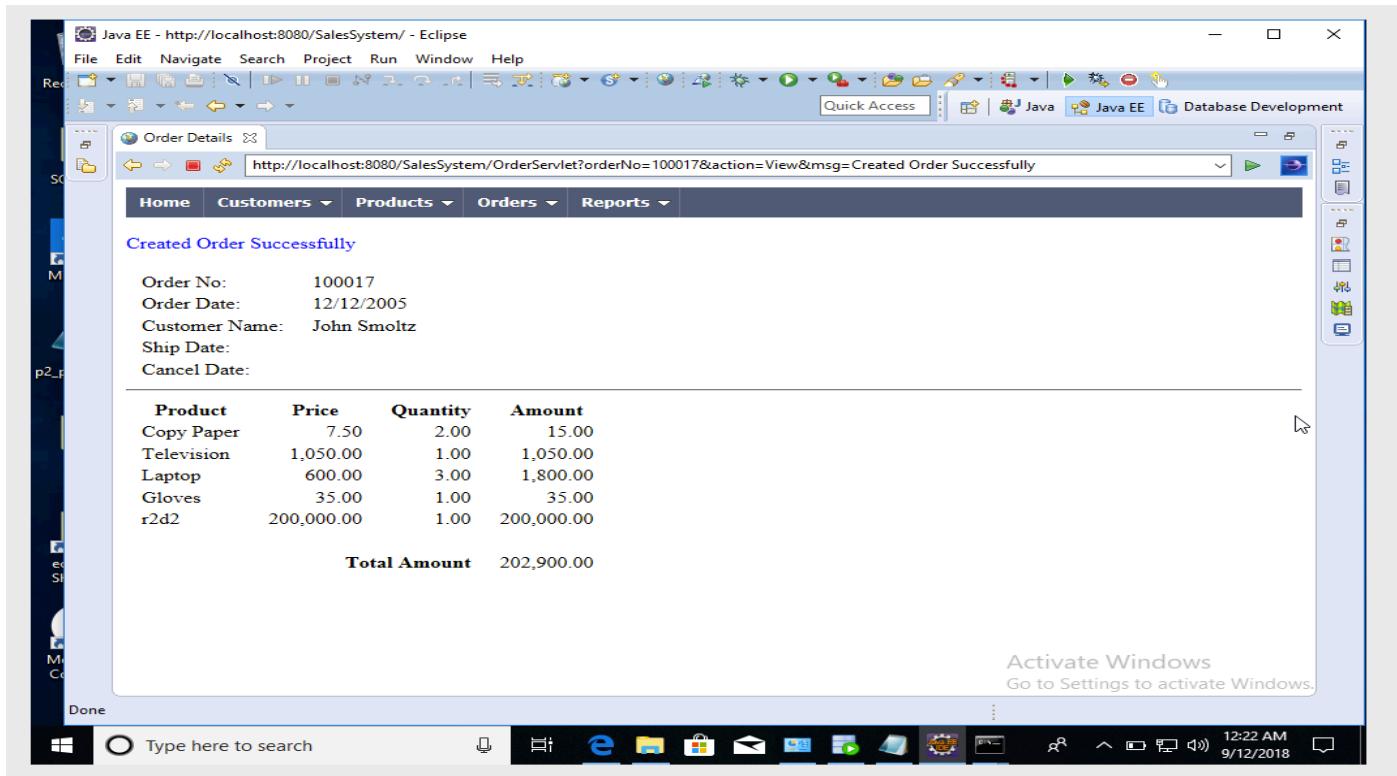




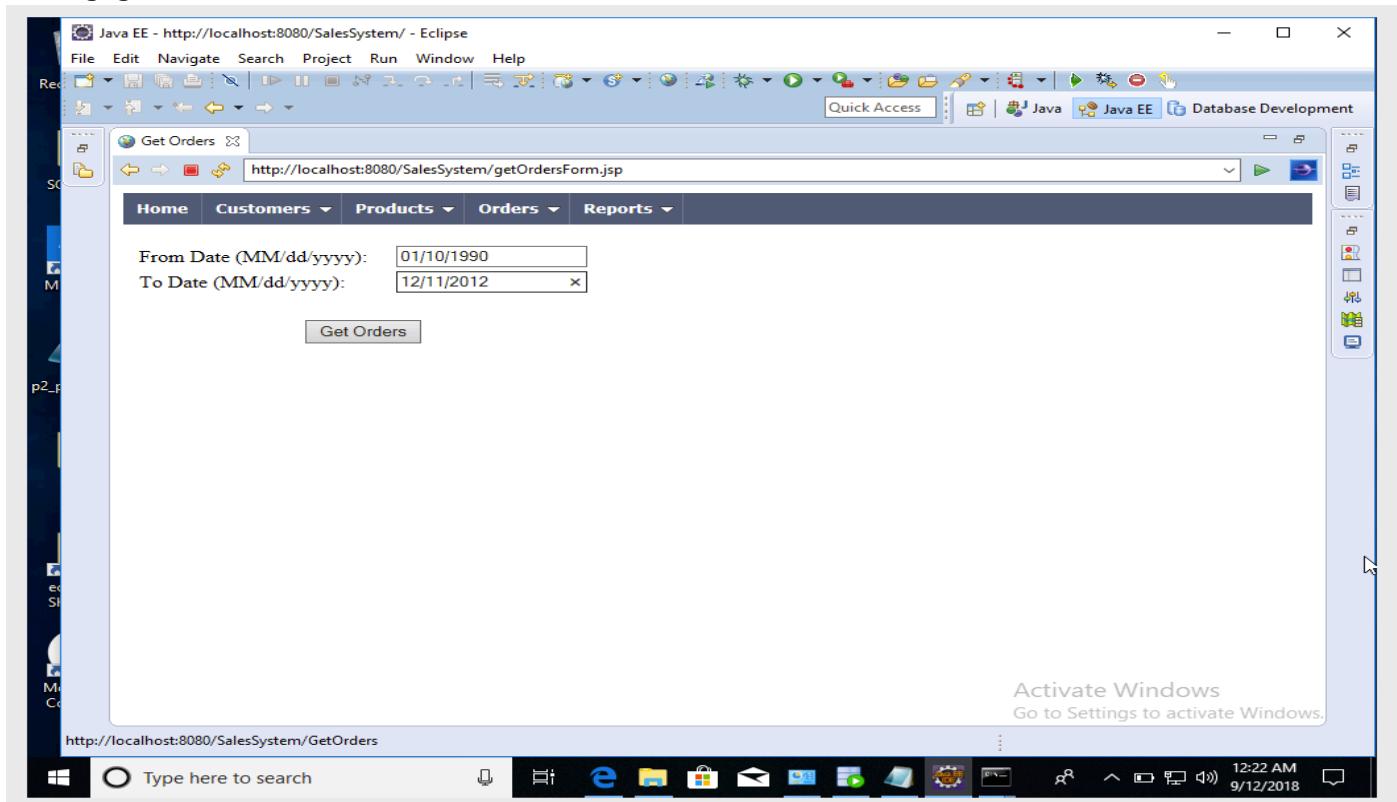
Testing “create order”



Verification



Testing "get orders"



Verification

Screenshot of a Windows desktop showing a Java EE application running in Eclipse. The browser window displays the 'List Orders' page at <http://localhost:8080/SalesSystem/GetOrders>. The table shows 17 orders with columns: Order No, Order Date, Customer Name, Ship Date, Total Amount, and View/Ship/Cancel buttons.

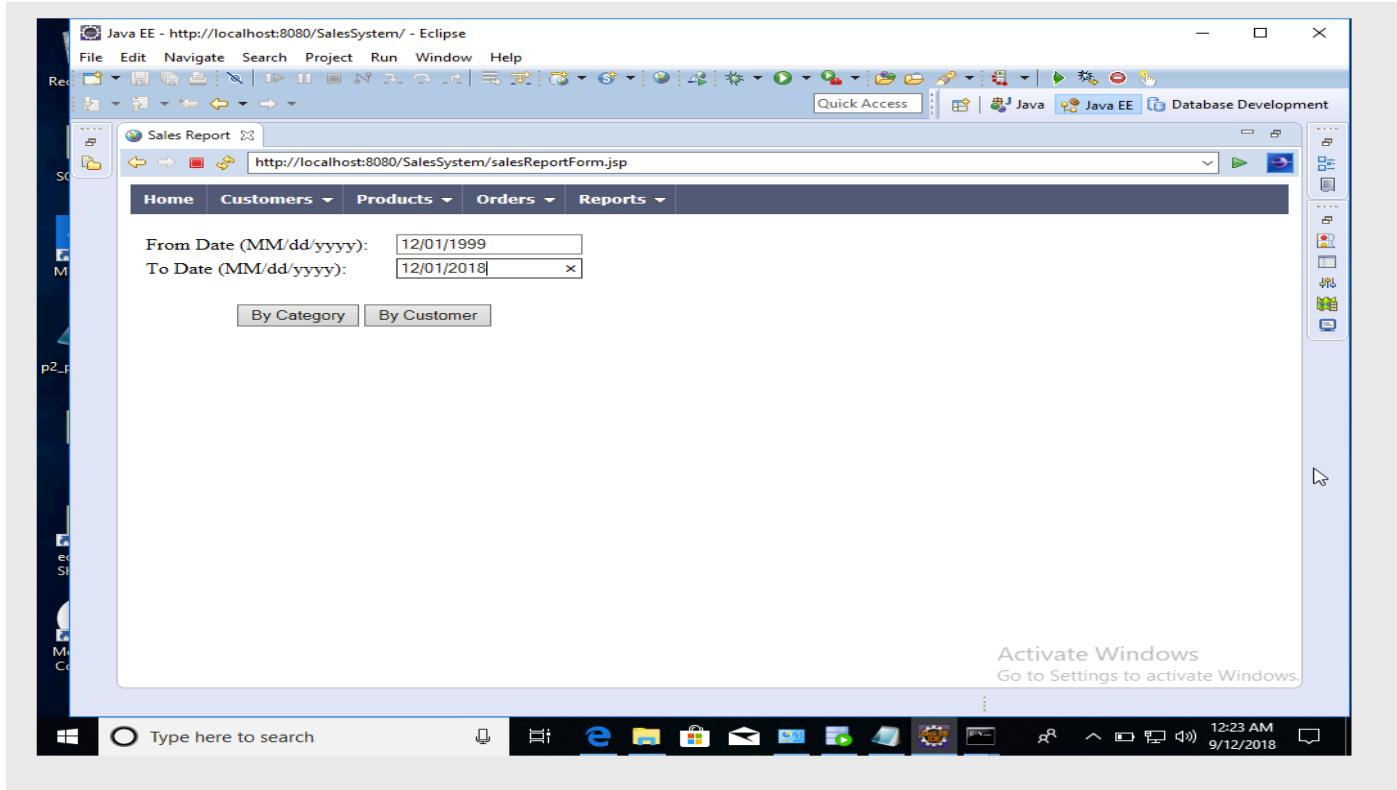
Order No	Order Date	Customer Name	Ship Date	Total Amount	
100001	02/03/2012	James Borg	02/05/2012 11:25:39 AM	35.75	<button>View</button>
100002	02/11/2012	Steven Markle	02/12/2012 09:15:12 AM	58.40	<button>View</button>
100003	02/13/2012	Ki Gee	02/14/2012 10:05:52 AM	120.00	<button>View</button>
100004	02/17/2012	Steven Markle	02/17/2012 03:40:05 PM	56.95	<button>View</button>
100005	02/19/2012	Ki Gee	02/20/2012 08:52:12 AM	46.70	<button>View</button>
100006	02/21/2012	James Borg	02/21/2012 04:06:25 PM	44.65	<button>View</button>
100007	02/23/2012	Steven Markle	02/23/2012 02:25:15 PM	518.85	<button>View</button>
100008	03/01/2012	Randall Perkins	03/03/2012 08:05:12 AM	21.00	<button>View</button>
100009	03/06/2012	Martha Sullivan	03/06/2012 03:18:56 PM	2,555.23	<button>View</button>
100010	03/10/2012	Ki Gee	03/12/2012 10:21:16 AM	726.00	<button>View</button>
100011	03/15/2012	Randall Perkins	03/16/2012 08:31:28 AM	2,775.70	<button>View</button>
100012	03/18/2012	Martha Sullivan	03/18/2012 04:30:27 PM	463.50	<button>View</button>
100013	03/21/2012	James Borg	03/22/2012 09:12:18 AM	207.28	<button>View</button>
100014	03/25/2012	Martha Sullivan	03/26/2012 10:16:21 AM	261.78	<button>View</button>
100015	04/27/2012	Randall Perkins		56.60	<button>View</button> <button>Ship</button> <button>Cancel</button>
100016	04/29/2012	Anthony Cabrio		442.00	<button>View</button> <button>Ship</button> <button>Cancel</button>
100017	12/12/2005	John Smoltz		202,900.00	<button>View</button> <button>Ship</button> <button>Cancel</button>

Screenshot of a Windows desktop showing a Java EE application running in Eclipse. The browser window displays the 'Order Details' page at <http://localhost:8080/SalesSystem/OrderServlet>. The page shows order details for Order No: 100001 and a product list.

Product	Price	Quantity	Amount
Pens	5.25	3.00	15.75
Printer Ink	20.00	1.00	20.00

Total Amount 35.75

Testing “sales report form”



Verification

Category	Sales	Cost	Profit
Stationary	258.85	215.25	43.60
Medical Supplies	265.03	230.00	35.03
Sporting Goods	869.50	770.00	99.50
Electronics	209,850.00	108,550.00	101,300.00
Produce	47.01	33.75	13.26
Total	211,290.39	109,799.00	101,491.39

The screenshot shows the results of the sales report. The browser window displays a table titled 'Sales by Category' with the URL <http://localhost:8080/SalesSystem/SalesReport>. The table lists sales, cost, and profit for various categories. The total sales are 211,290.39, cost is 109,799.00, and profit is 101,491.39.

