

## Lab 04

IT2020 – Software Engineering

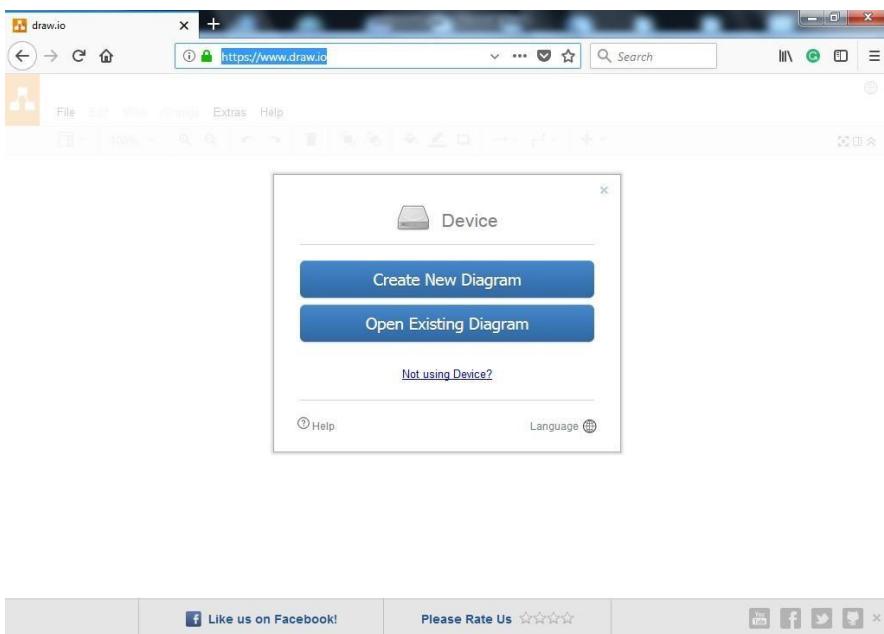
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**In this Lab we will draw Physical Diagrams using draw.io**

draw.io is free online diagram software for making flowcharts, process diagrams, org charts, UML, ER and network diagrams.

**Instructions to start draw.io**

- Open browser. Type following URL and open **draw.io**  
<https://www.draw.io/>

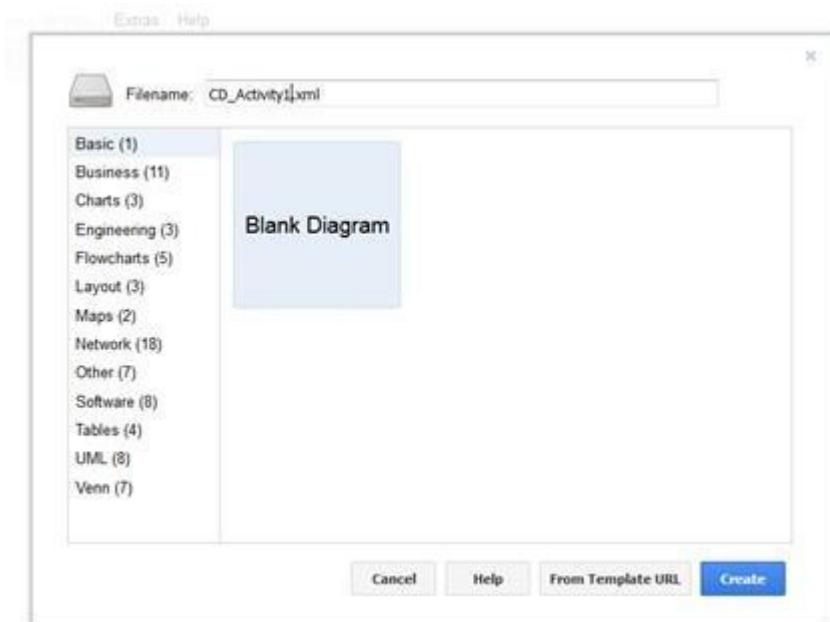


- Click on “Create New Diagram”

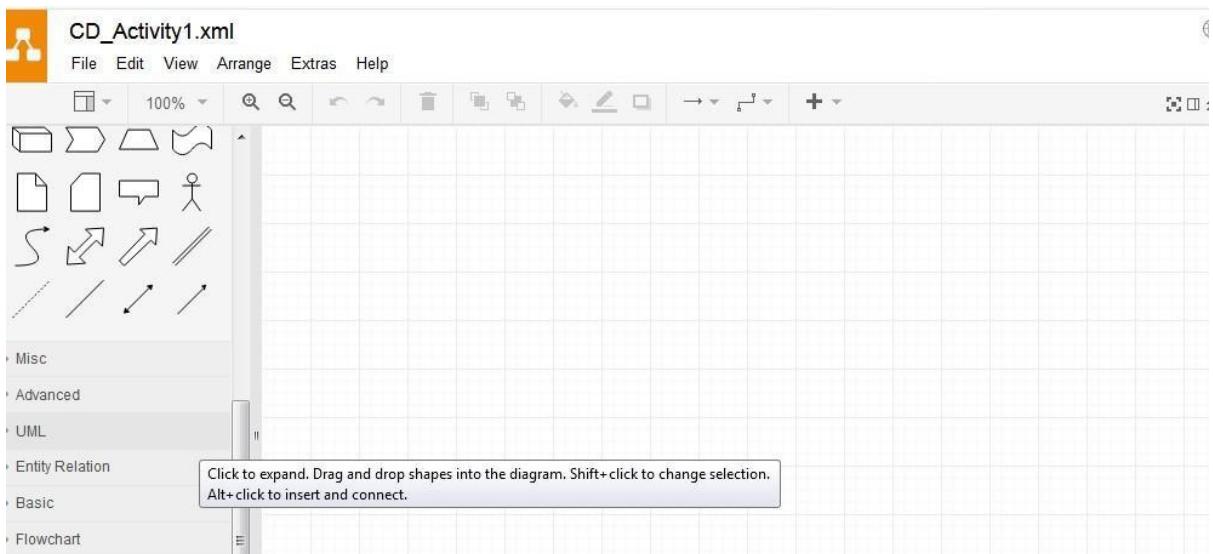
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- Give a file name and select “Blank Diagram” and then click “Create”.



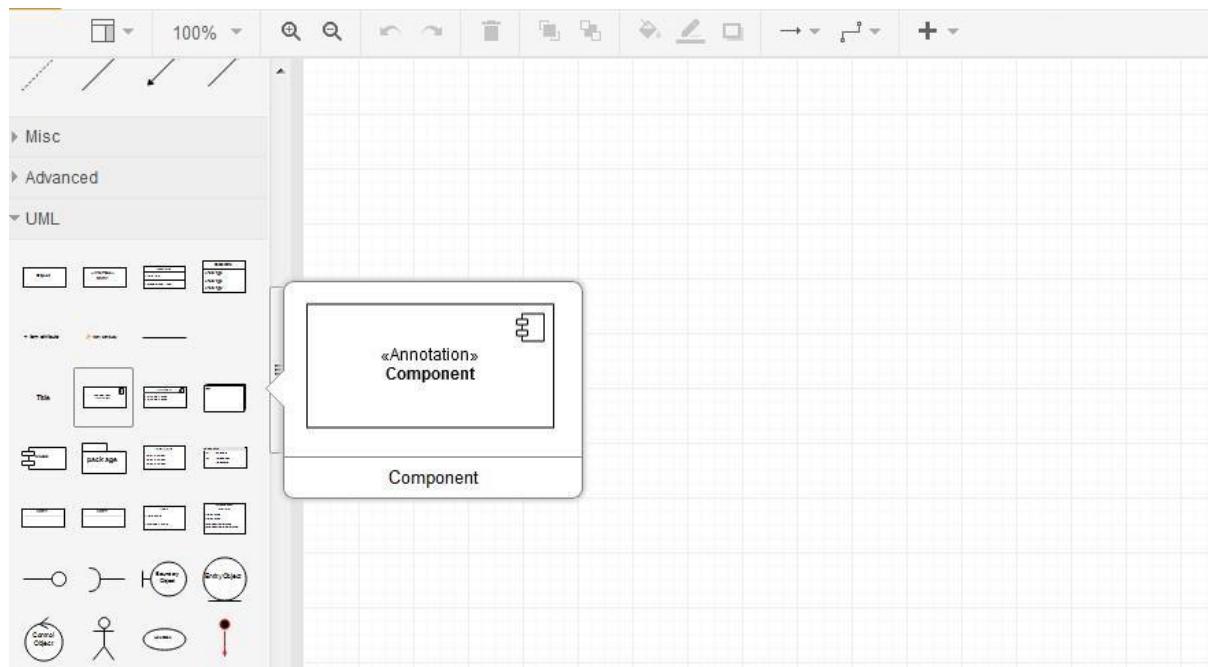
- Select “UML” from left hand side list.
- Click on suitable notations to draw the diagram.

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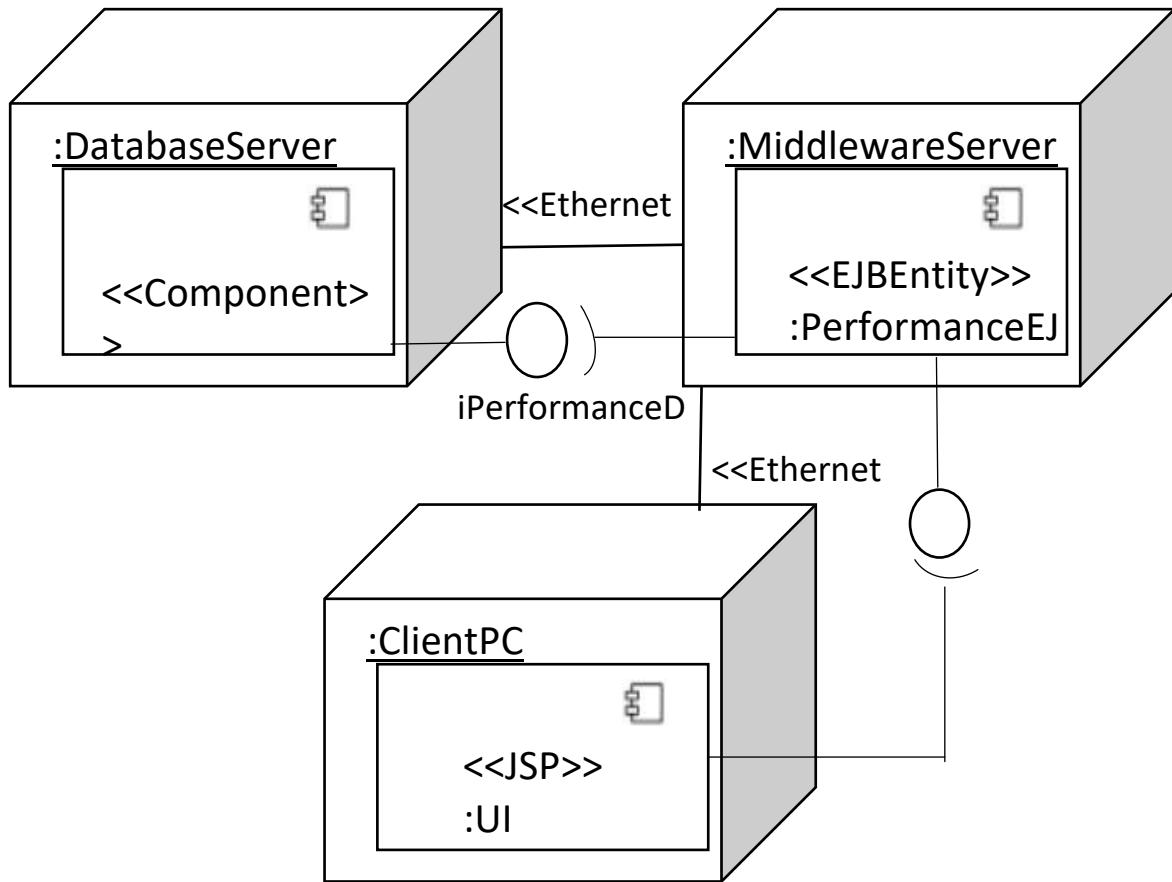
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**Activity 1:** Draw the deployment diagram given below, by using draw.io software.



**Activity 02:**

Model the Physical Diagram for the scenario given below.

- User access the reporting tool by using a browser running on their local machine.
- This tool physically runs on the Application Server named w3reporting.myco.com.
- IBM\_WebSphere, <<workflow engine>> is installed inside the w3reporting.myco.com application Server.
- Reporting Tool component resides within IBM WebSphere.
- The Reporting Tool connects to its reporting database via the JDBC component. The JDBC component is installed in IBM WebSphere.

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- JDBC component provides the IJDBC interface whereas the reporting tool uses the IREPORT interface to access the IJDBC interface.
- The Actual reporting database is running on a DB2 server named db1.myco.com.
- In addition to talking to the reporting database, the Report Tool component communicates via SOAP over HTTPS to the Billboard Service.
- Billboard service is installed in a Billboard server named soap.billboard.com.
- Browser is connecting via HTTP over their company's intranet to the Reporting Tool.
- User machine is connected to the Application server through the company's 1000 BASE-T Ethernet connection.
- Both Billboard Server and DB2 Server are linked to the IBM WebSphere server through company's Ethernet.

**Self-Study Activities**

Following activities need to tryout by students.

**Activity 03:**

Model a Component diagram for the below given scenario.

- A Movie Ticket Booking Application is to be developed for Skylight 3D Movie Theater, Colombo.
- When the system requirements analyzed, it was found that three entities namely, **Ticket**, **MovieDirectory** and **MovieSchedule** are to be used to implement main functions of the application.
- Each of these entities will be implemented using Java Programming Language.
- These components are grouped into a sub-system called **TicketBookingAdminSystem**.
- There are other components in the system implemented using Java namely, **AdminApplicationUI** and **MovieScheduleDBApplication** respectively.
- **MovieScheduleDBApplication** consists of three components named as **TransactionHandler**, **MovieDB** and **ScheduleMgr**.
- In order for the **TrasactionHandler** to function it requires to access the **MovieDB** component using **IMovieDB** interface.

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- **Ticket** and **MovieDirectory** components access the **TransactionHandler** component using the **ITransactionMgr** implemented by **TransactionHandler**.
- To prepare the movie schedule the **MovieSchedule** component required to access **MovieDB** and **ScheduleMgr** components using the **IMovieDB** and **IScheduleMgt interfaces**.
- The **TransactionHandler** component needs to access the service implemented by **PaymentHandler** component, through the **IPayment** interface.
- The AdminApplicationUI component will get the service of TicketBookingAdminSystem through **IBooking** interface.

**Activity 04:**

Given below is a detailed description of a web based application developed for an online shopping store “EasyBuy”. Model a **physical diagram** according to the given description.

This application can be used by both mobile and desktop users to order goods. Desktop is installed with Windows operating system. Desktop users can access the system through browser using “EasyBuy” web application while the mobile users need to install this “EasyBuy” mobile application which will run inside the android OS.

The main WebStore application runs in an Application Server, which is installed in the Dell PowerEdge Server. WebStore application contains three sub components SearchEngine, ShoppingCart and Authentication related to online shopping. SearchEngine component allows to search or browse items by ProductSearch interface to both desktop and mobile users. Also, SearchEngine component uses SearchInventory interface of Inventory component. Inventory component resides inside Linux operating system of IBMServer. Authentication component implements UserSession interface for ShoppingCart component to use.

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Accounting application which contains three sub components Orders, Customers and Accounts is installed in a separate HardwareServer which runs SunSolaris operating system.

ShoppingCart component uses ManageOrders interface provided by Orders component during checkout. Authentication component access Customers components through ManageCustomers interface. Furthermore, inventory components realizes ManageInventory interface which is accessed by Orders component.

ApplicationServer is connected with Desktop users and mobile user through http protocol. Dell PowerEdge Server is connecting with IBM Server and HardwareServer through a wide area network.