

Software Engineering

Tutorial 6 & 7 – 2020

This tutorial is designed to revise your knowledge on Component and Deployment Diagrams.

Activity 1:

Draw a component diagram.

- Seminar Management <<UI>> is an Application component which makes use of different components interfaces.
- A facility is a component which implements FacilityDataAccess and Facilities interfaces.
- Facilities interface is used by Seminar Management.
- Student component implements StudentDataAccess and student interfaces and student interface is used by Seminar Management.
- Seminar component implements the SeminarDataAccess and Seminar interfaces.
- Seminar Management component makes use of the Seminar interface.
- Persistence <<infrastructure>> component implements Persistence interface which is needed by the Facilities, Student and Seminar components.
- University DB <<database>> component implements the JDBC interface which is needed by the Persistence component.

Activity 2:

Given below is a detailed description of an Integrated Shopping System (ISS) developed for Sri Lanka. Model a physical diagram for ISS.

- Any mobile user or a desktop user can order online goods.
- Mobile users have to install the ISSMOB app running inside the Android OS while desktop users access the central web server using the browser.
- The backend application of ISS is an EAR (Enterprise Archive) application named **ISSpackage.ear**.
- It is deployed in a GlassFish server named ISS.
- **ISSpackage.ear** runs inside Sun Solaris 10 Operating System.
- This EAR application consists of Order, Inventory and Payment core modules.
- The deployment specifications of the core modules are stored in a XML file named EAR_XML, which will be used in their deployment.
- ISS maintains a separate database server named ISS_Data_Server.
- In it "Java MongoDB Driver" is installed which runs the database named MongoDB.
- MongoDB is a NO SQL database. MongoDB implements the iMDB interface where the ISS_DataAccess component communicates.
- Furthermore the ISS_DataAccess is also deployed in the EAR application.
- Order, Inventory and Payment uses the ISS_DataAccess component to retrieve data.
- Web server is an Oracle-iplanet web server 7, and is deployed in the same GlassFish server.
- The User Interface (UI) of ISS is developed using JSP web pages and deployed in the web server.
- UI communicates with the Order class through the iOrder interfaces, and payment class through iPayment interface implemented by the respective core modules.
- UI component implements the ISSUI interface, which ISSMOB mobile app will use.
- GlassFish server and the Data Base server are connected through a LAN. Both desktop and the mobile devices connect to the web server via http over internet.

Activity 3:

“Neo-Safe-Health” (NSH) is a new E-Health application developed under the vision of empowering health consumers and assisting health professionals. Given below is a detailed description of the deployment of NSH application. Model a physical diagram for NSH.

- NSH is a web application which is accessible for any user via a mobile phone or a desktop. Mobile users need to download and install the NSH_M_Client application from the respective app stores (Android or IOS), while desktop users can access the system using the browser.
- NSH's backend applications is named as NSH_Service, which is implemented in java and is deployed in an NGINX web server. NGINX runs in Ubuntu 16.04LTS which is installed in a Dell PowerEdge-T130 Hardware Server.
- This NSH_Service application consists of three core modules (components) such as UI, Patient_Services and Doctor_Services.
- The User Interface (UI) of NSH is developed using JSP web pages. UI component implements “I_NSH” interfaces which can be accessible by both mobile and desktop users. Other core-components (Patient_Services and Doctor_Services) implements their own interfaces such as iPatient_Services and iDoctor_Services respectively. UI component will retrieve information using these when needed.
- Both desktop and the mobile devices connect to the web server via http over internet.