Object Oriented Methodology

Week – *10*, Lecture – *1*

Using Allocation Diagrams

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What do we know so far?

We know that a system's design can be broadly categorised along two dimensions

- The Structural details show the static aspects of a system – they usually remain the same throughout
- The Behavioural details indicate system's working while it executes – the various changes to be precise

Class Diagrams contribute towards the structural understanding of the system

The State Diagrams and Interaction Modelling tools show the behavioural facets of the system

- Interaction Modelling tools included Sequence Diagrams, Use Case Diagrams and Activity Diagrams

There is one more diagram that may be helpful for communicating structural information

- This diagram only makes sense, if the system's boundaries span across multiple machines

Allocation Diagrams display the relationship between Software and Hardware components

- They are used to indicate which software element is "allocated" to what hardware in the system

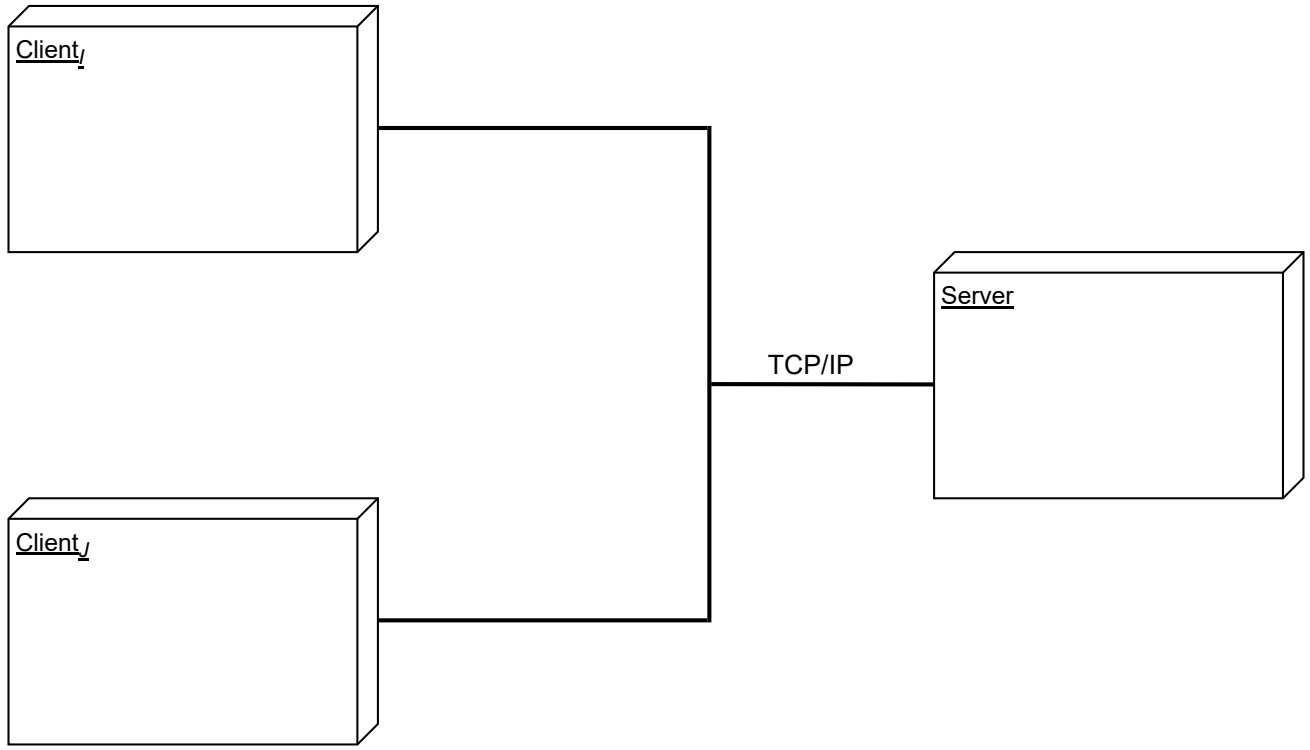
Allocating Modules to Machines

In case you have multiple machines as part of your project setup, Allocation Diagrams are relevant

The Hardware Components can be shown as *boxes* in the shape of cuboids

- They can be connected to each other, to show the communication between them

Showing Hardware Components



Showing hardware elements of a system

Allocating Modules to Machines

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- They can be connected to each other, to show the communication between them

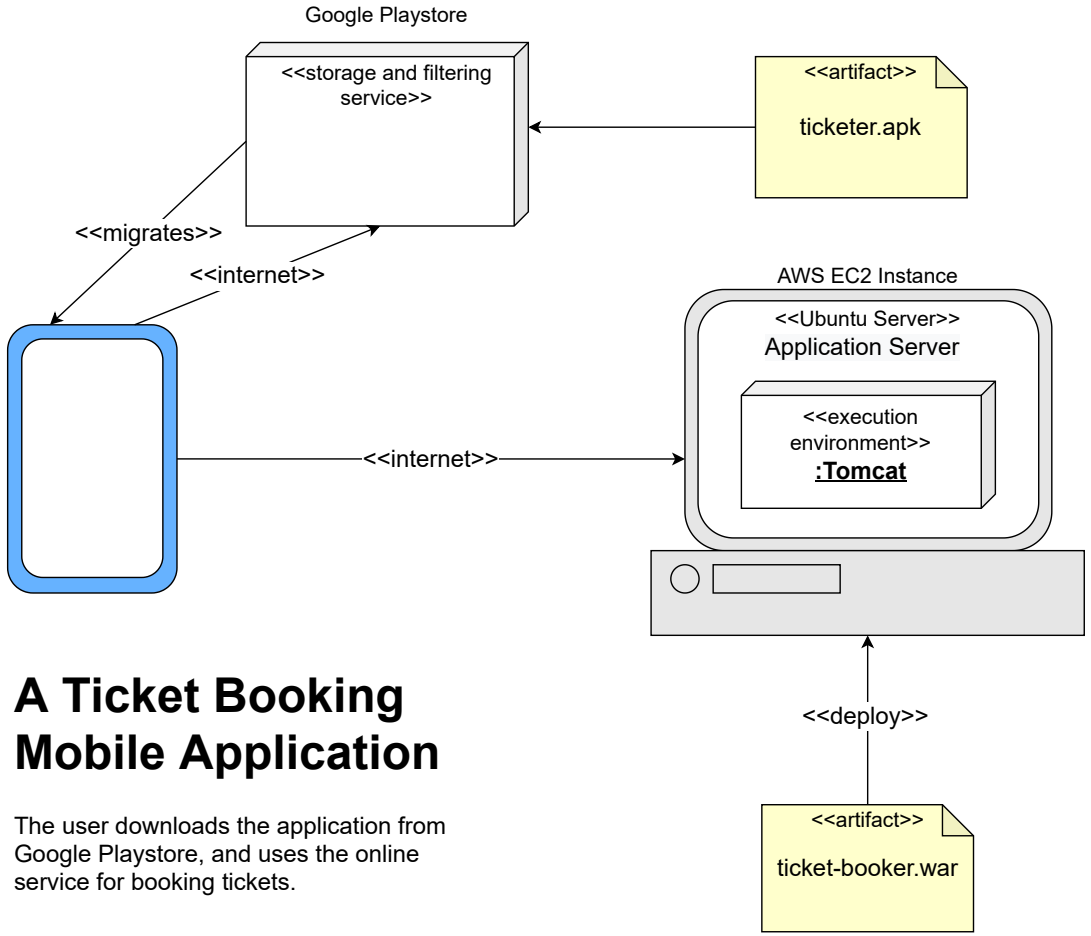
Not only hardware, Deployment diagrams can also be used to show VMs or Containers

- Online platforms are also often shown in a similar fashion
- Thus, you may see nesting, e.g. a VM being shown “inside” a physical machine

Software components are “allocated” to these elements by putting *artefacts* inside them …

- … or using a «`deploy`» connection
- An artefact is a software deliverable – a JAR file, a ZIP file, Executables etc.
- You can also have *custom* connections using the stereotype notation (i.e., including text between « and »)

Example Deployment Diagram



A Ticket Booking Mobile Application

The user downloads the application from Google Playstore, and uses the online service for booking tickets.

Homework !!

Figure out if your project can be benefitted by a Deployment Diagram

- **If so, create one and add it to your project report**

It is possible to show even more information in an Deployment Diagram …

- … see the diagram at the following link and try to interpret it: https://www.uml-diagrams.org/web-application-uml-deployment-diagram-example.html?context=depl-examples