Introduction to Internet Applications

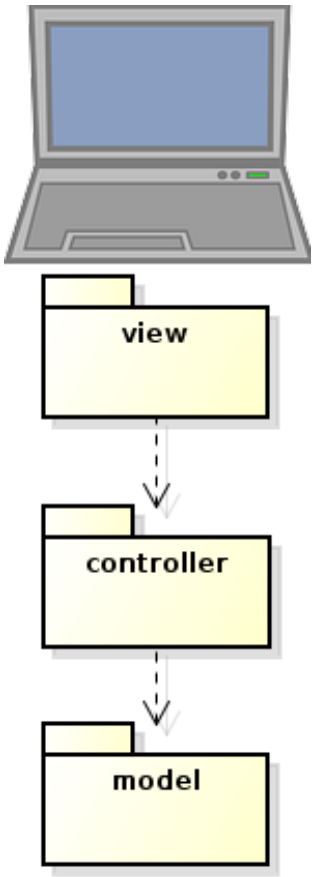
Internet Applications, ID1354

Contents

Section

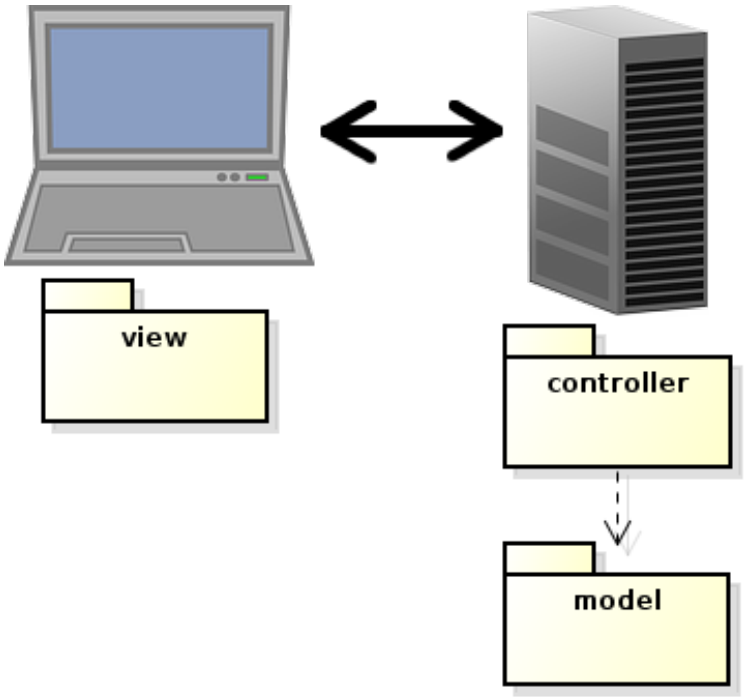
- Distributed Architectures
- Tools
- User Interface Design

Local Application



- We are familiar with an architecture where the entire application resides on the same computer.

Introducing a Server



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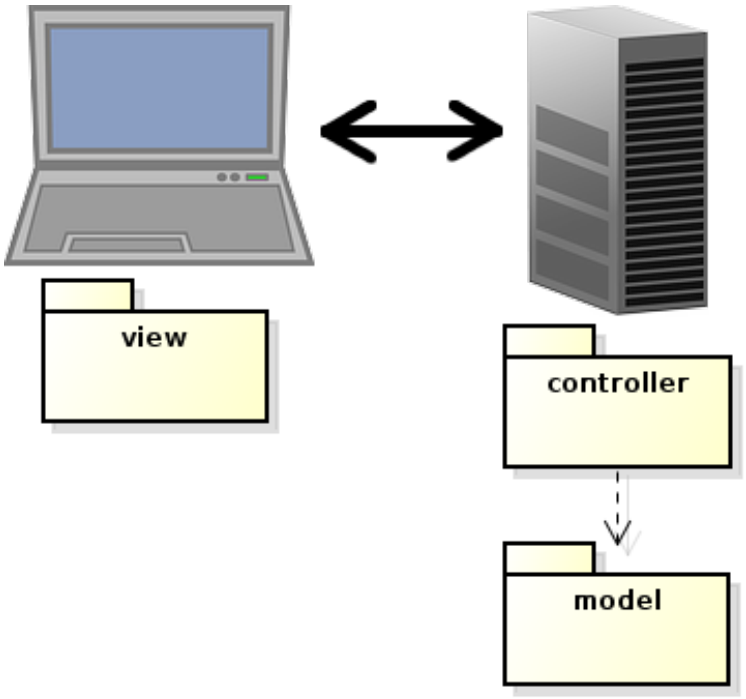

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- A client that has the view and a server that has controller and model.

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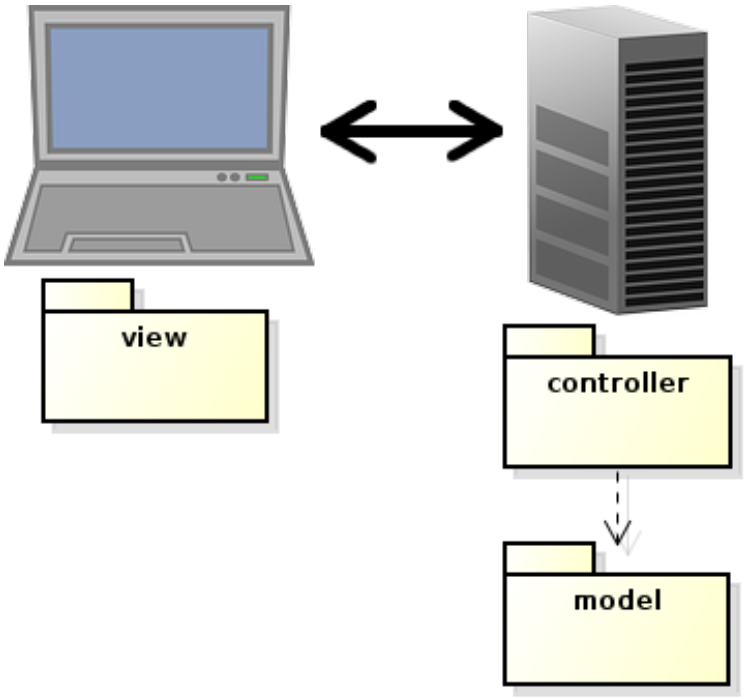

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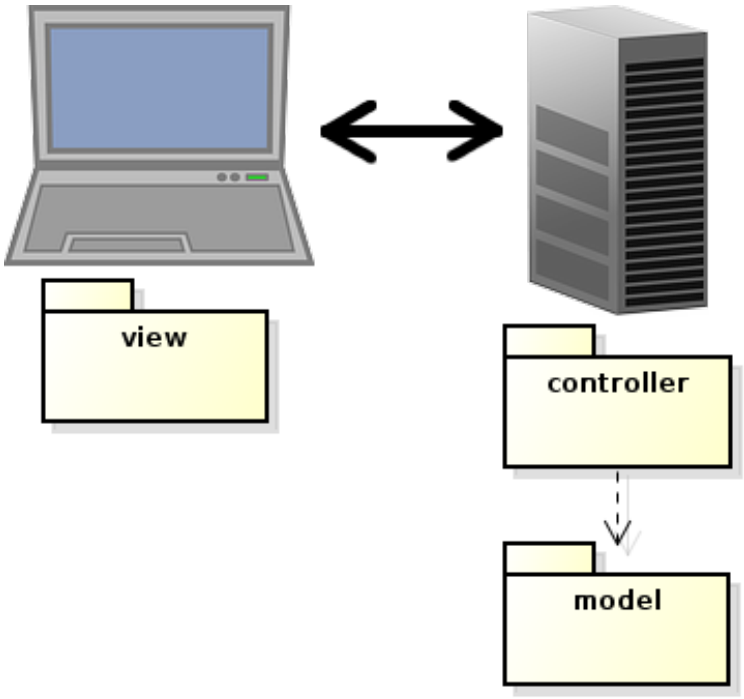

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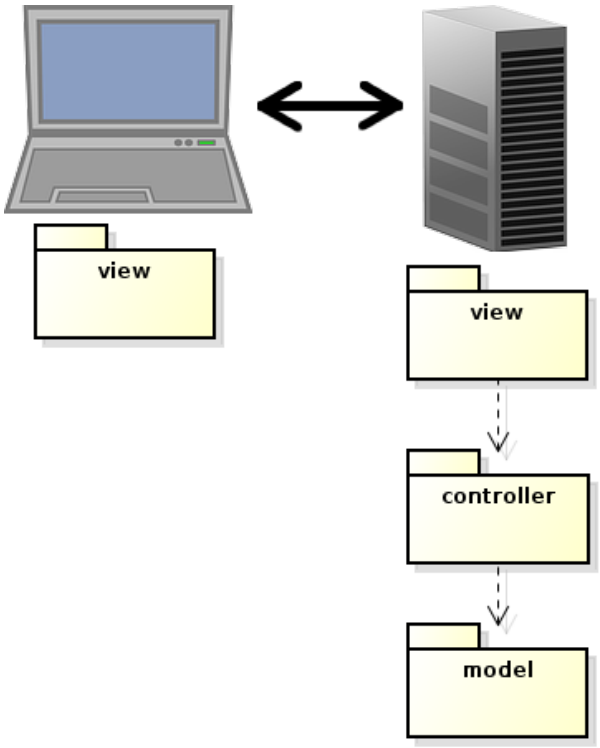
This architecture is not good, we also need layers for communication.

Server-Side Communication



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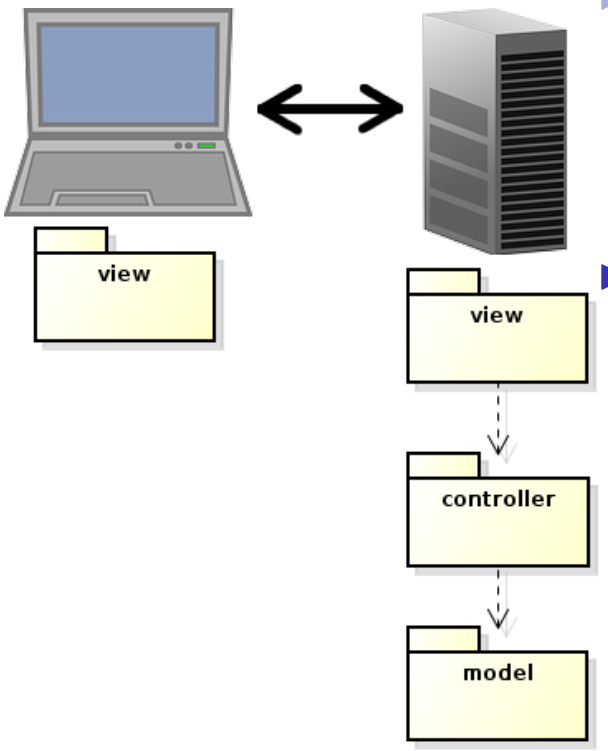

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- However, the server side view layer performs tasks typical of a view:

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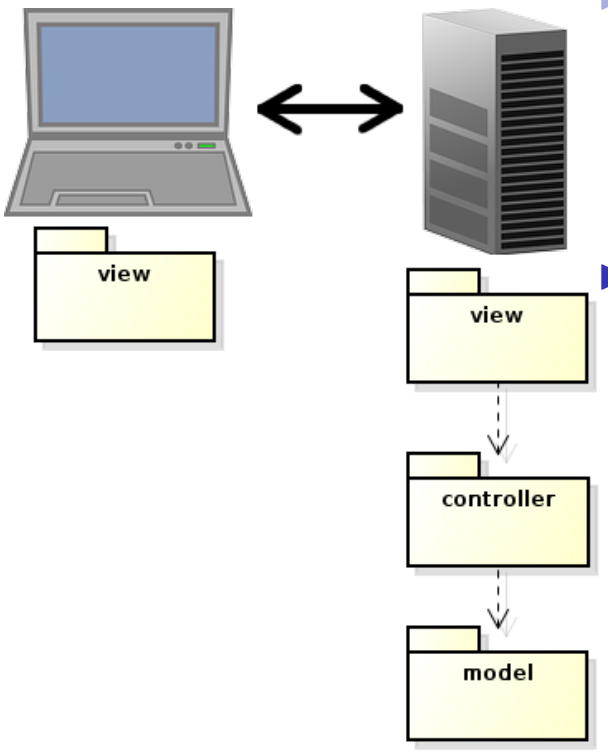

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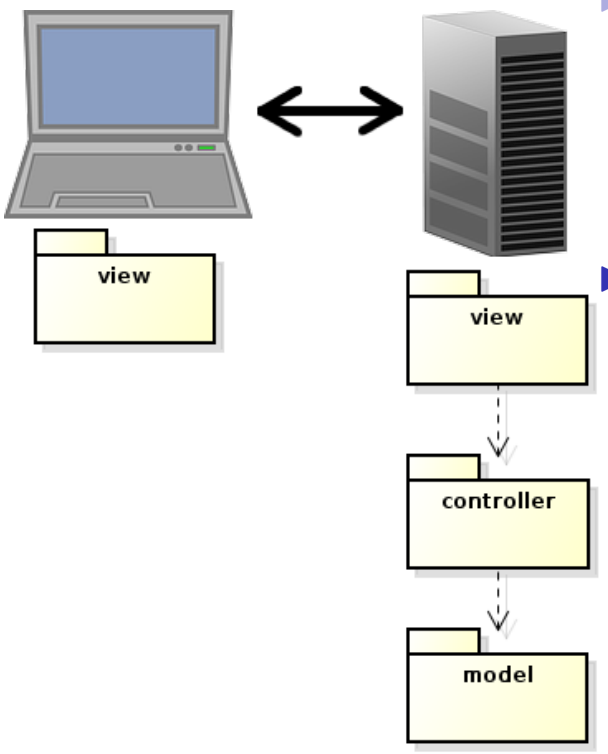

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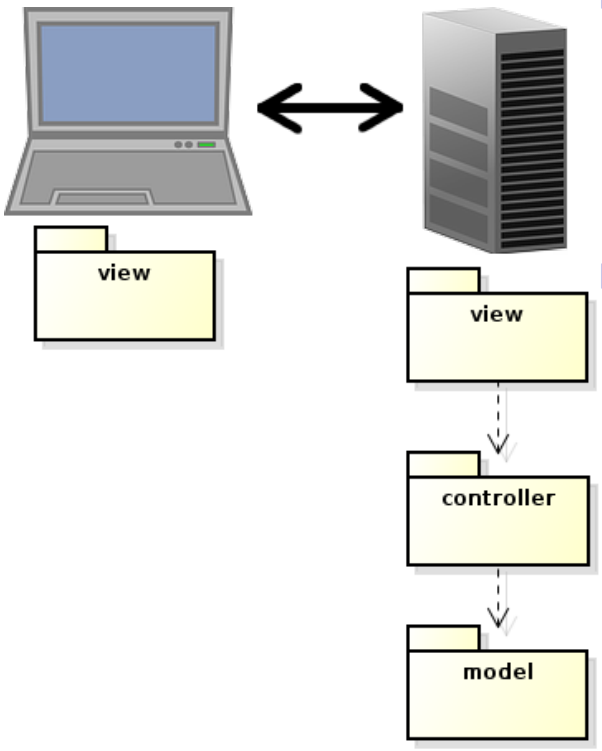

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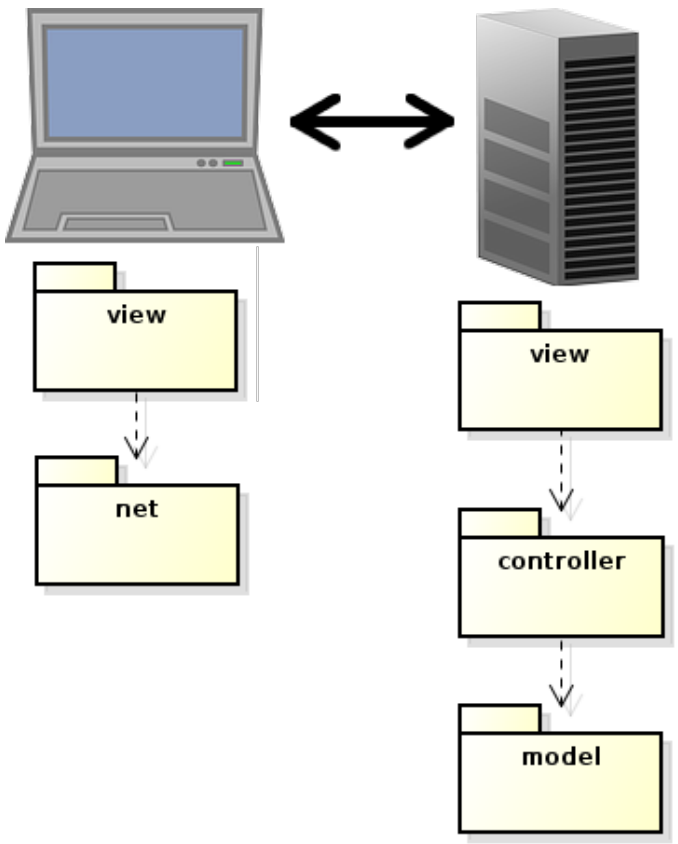
It might seem that we need yet a layer, for network handling. There is such a layer, but it is in the web server. We don't write it ourselves.

Client-Side Communication



- Next, we add a client layer for communication, the net layer.

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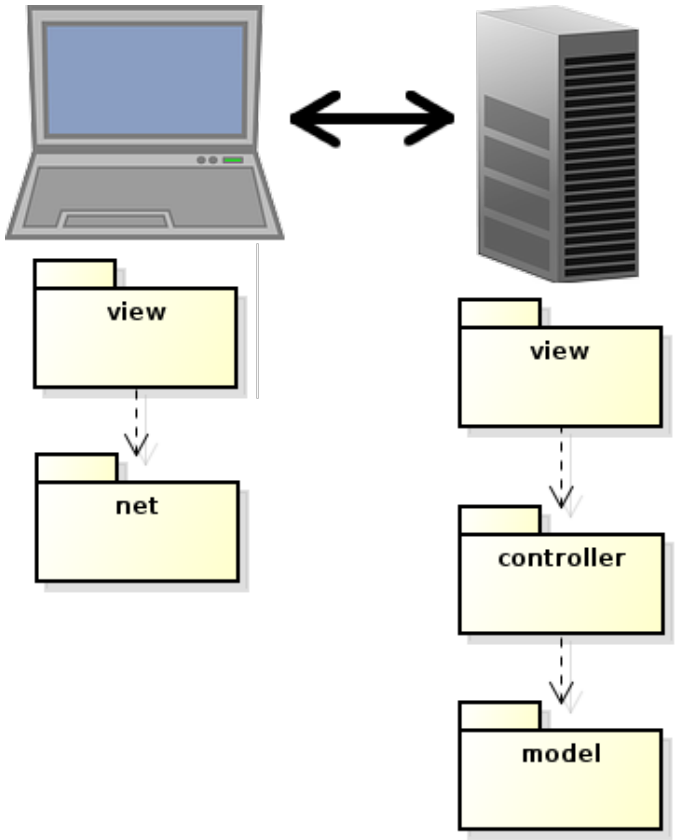

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- Actually, the browser handles most of the communication.
  - The small network code written by us is normally considered part of the client-side view, the net layer is omitted.

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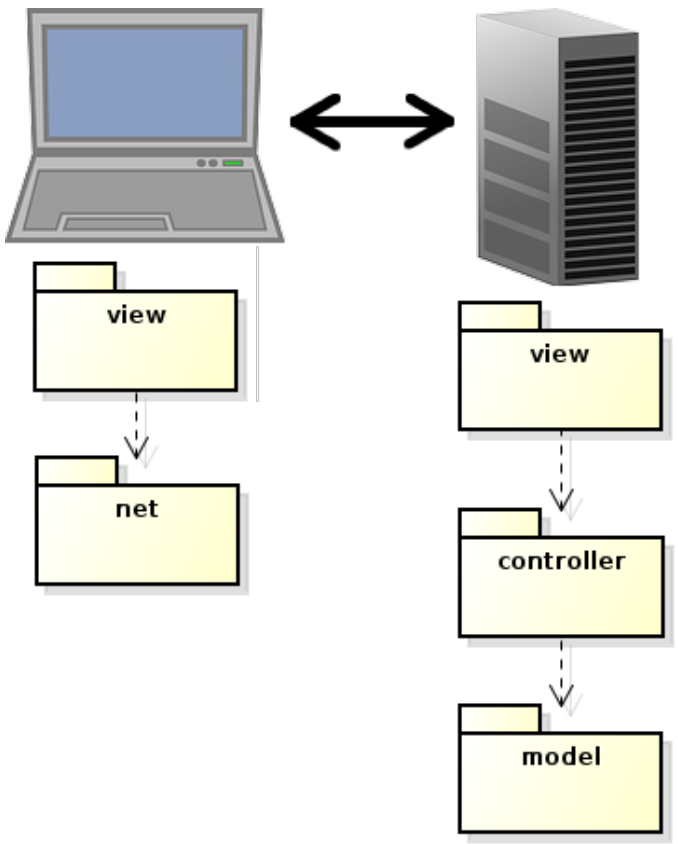

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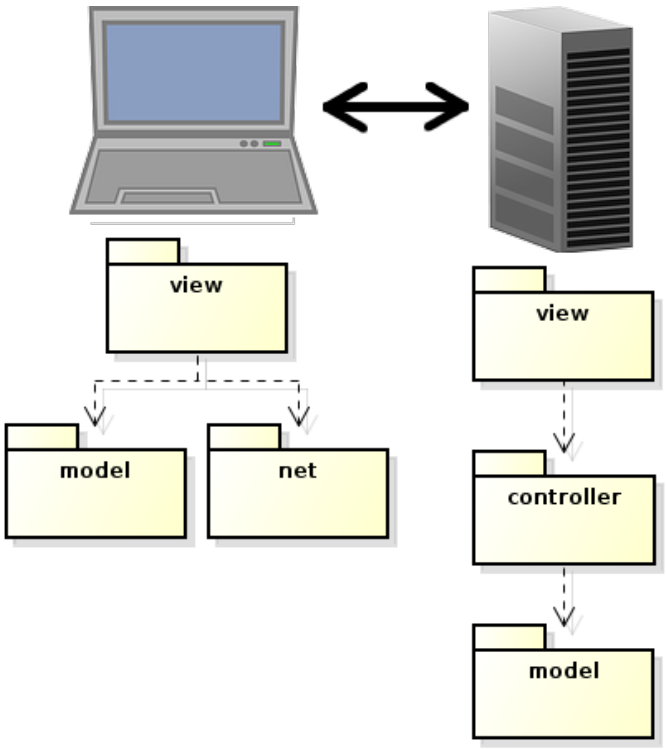
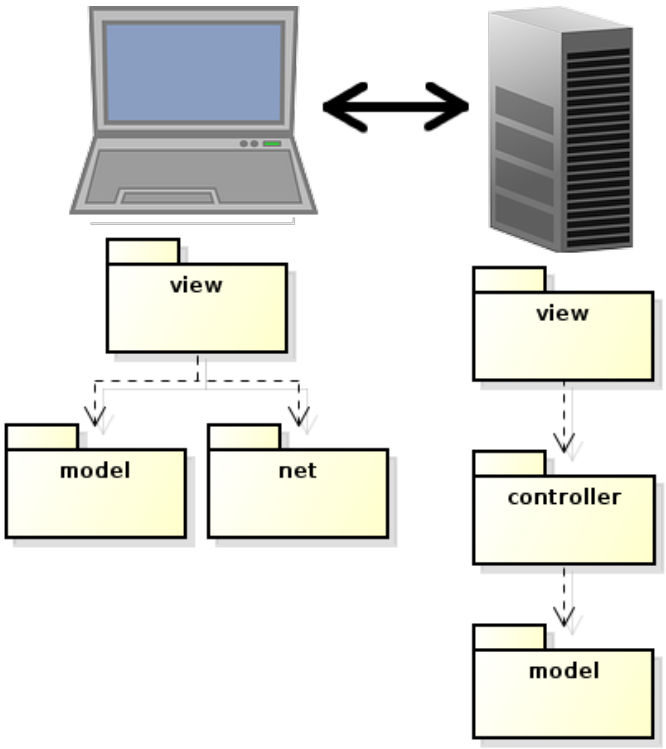
- This is a traditional web application.

The MVVM Pattern



- The trend is that data is stored also on the client, therefore we get a client-side model.

The MVVM Pattern



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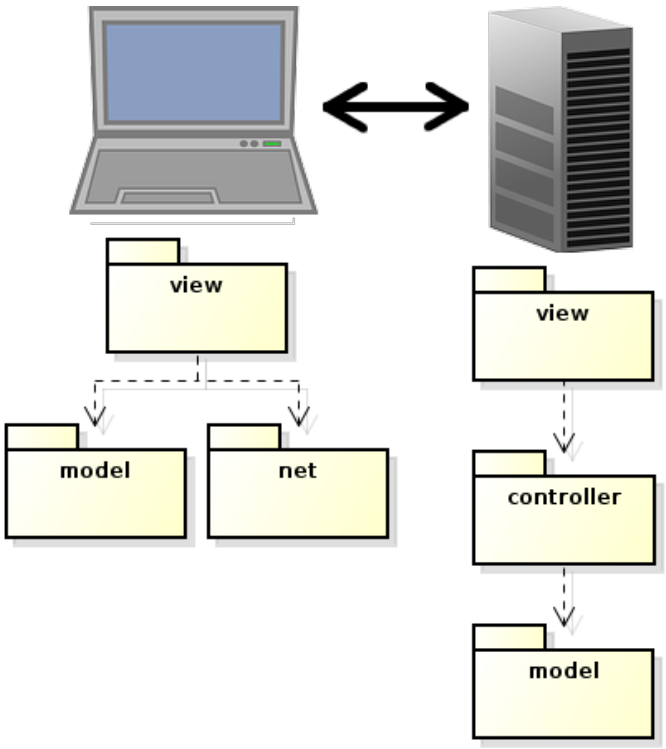

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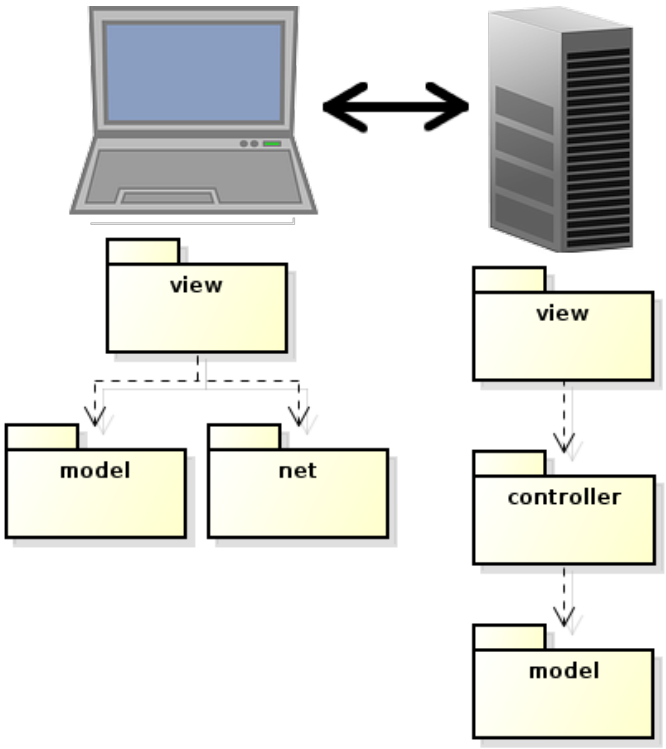

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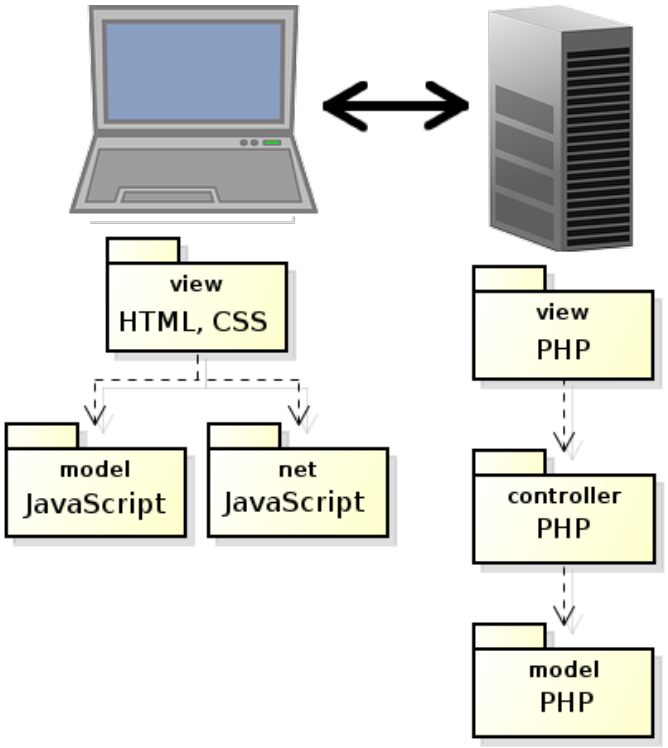
- This is referred to as the MVVM, model-view-viewmodel pattern.

Programming Languages



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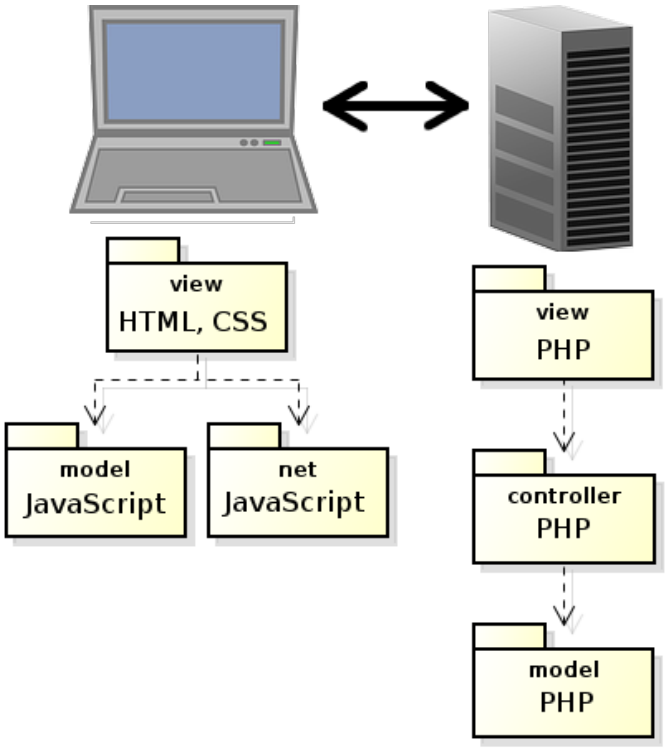
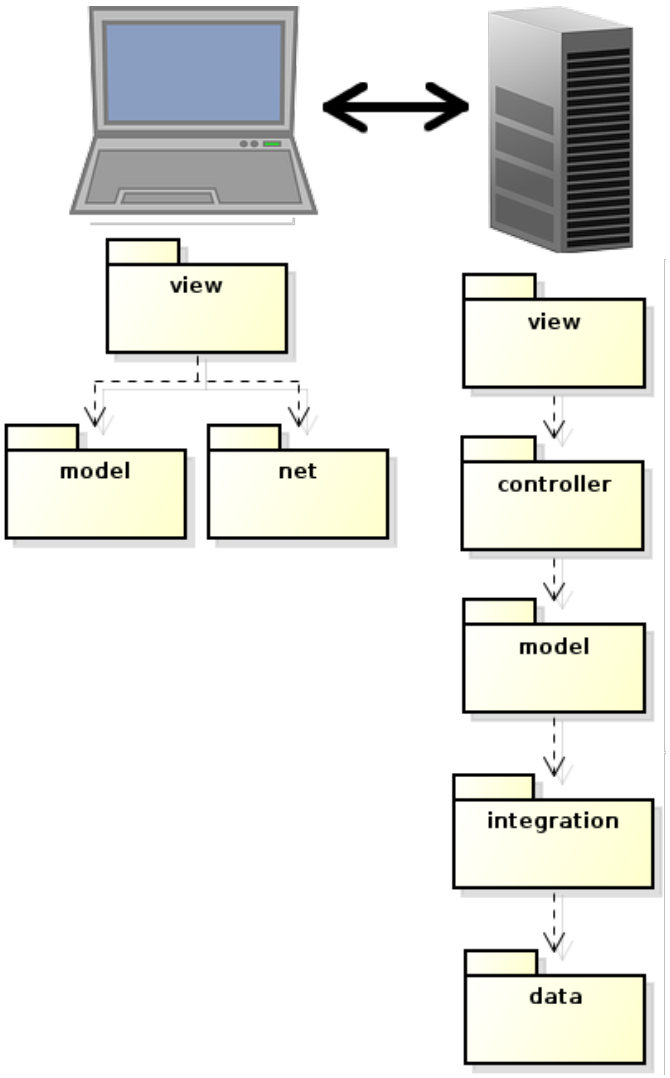


- This is the architecture we will normally use during the course.
- The view is programmed in HTML and CSS, client side behavior is programmed in JavaScript and the entire server side code is written in PHP.

Three-Tier Architecture



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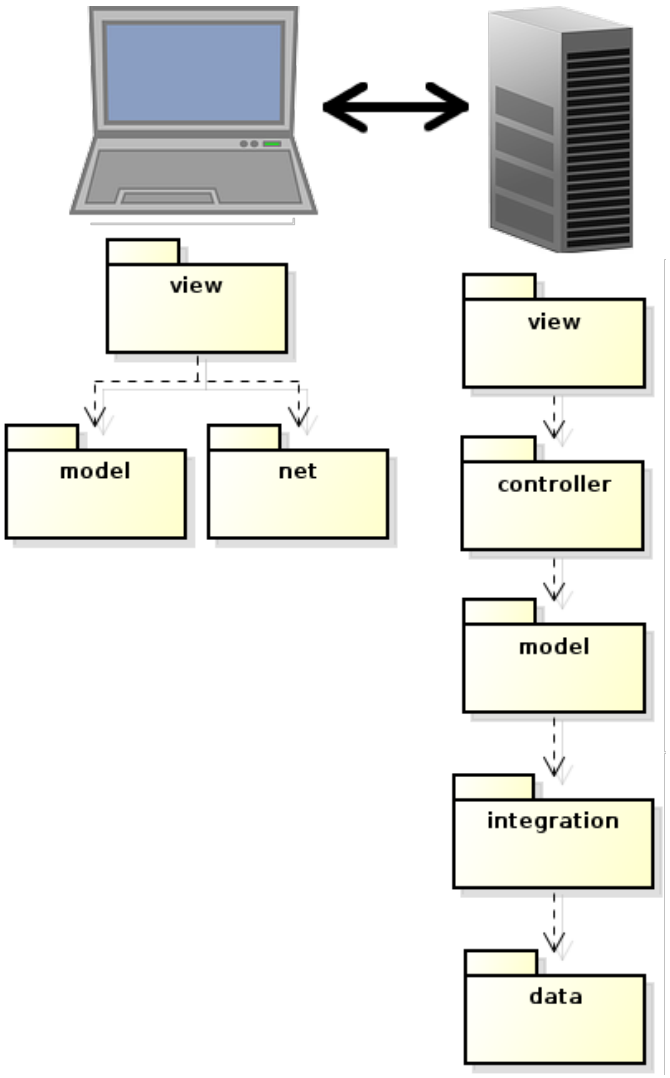

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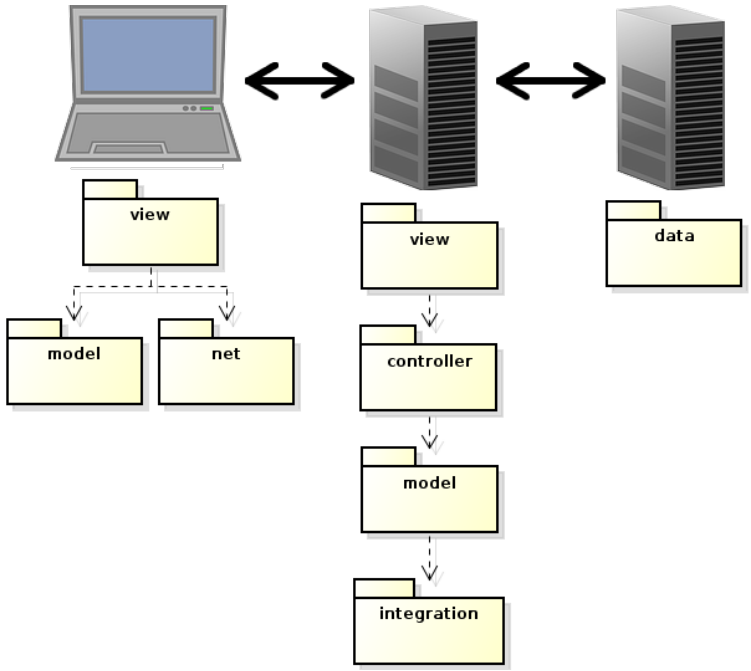
- We also introduce the integration layer, to handle the database calls.

Three-Tier Architecture (Cont'd)



- In a bigger application, we would most likely place the database in a separate node.

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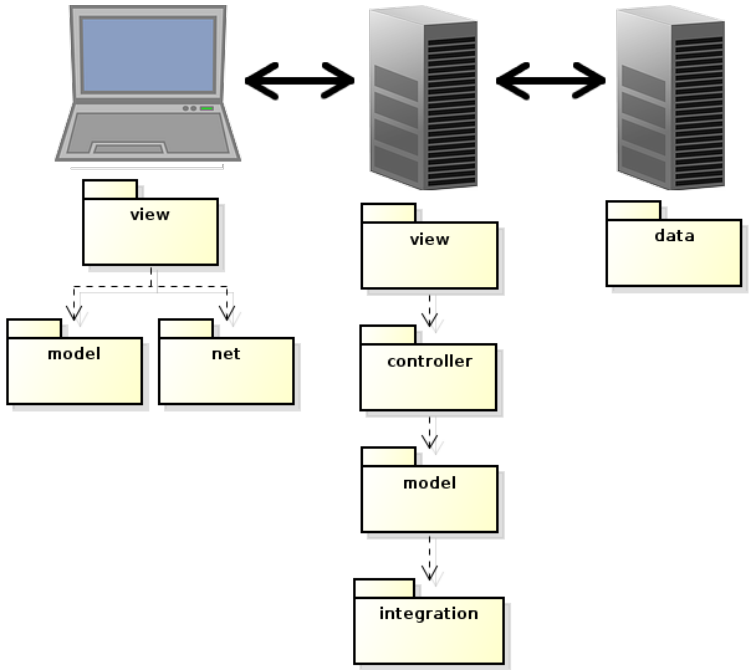
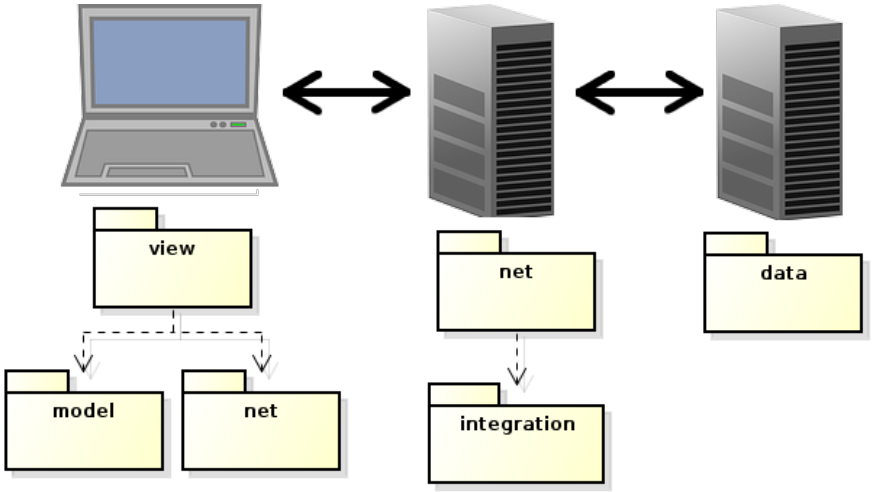


- In a bigger application, we would most likely place the database in a separate node.
- This is called three-tier architecture and is, since long time, the dominating architecture for web applications.

Event-Driven Architecture



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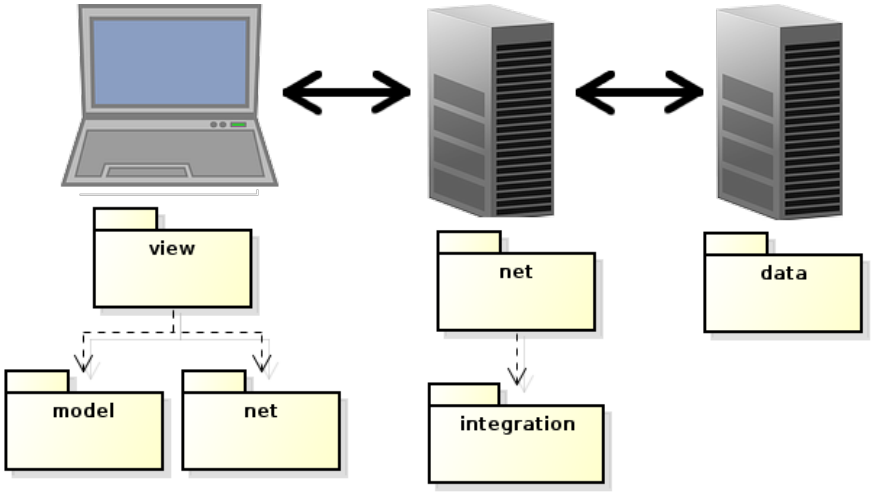

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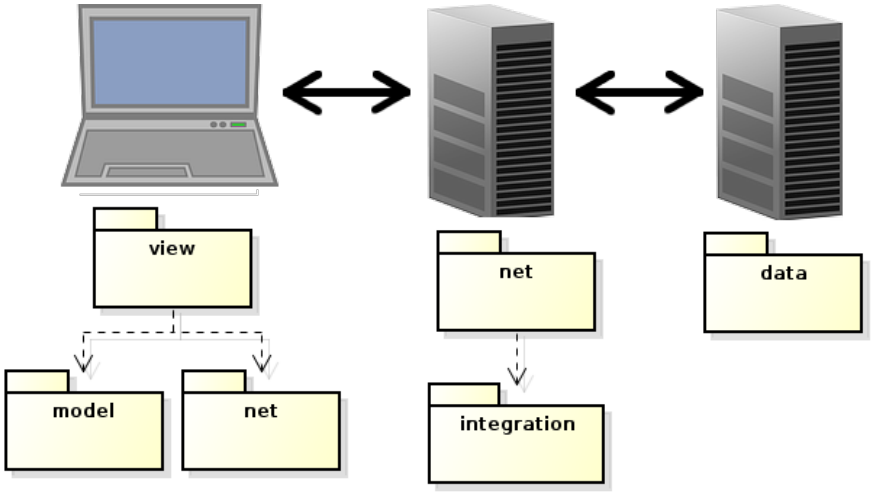

- In the latest year, there is a growing tendency to move business logic to the client, perhaps completely remove the server-side model.
- This is made possible with web sockets, which enable full duplex browser-server communication.
- The motive is to reduce communication latency. The browser informs the server about user actions, but does not wait for response before updating the view.

Section

- Distributed Architectures
- Tools
- User Interface Design

Web Development Tools

- There are many tools that facilitates developing web applications.

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- You are strongly advised to start using some of the following tools, they will help you a lot.

Browser Web Console

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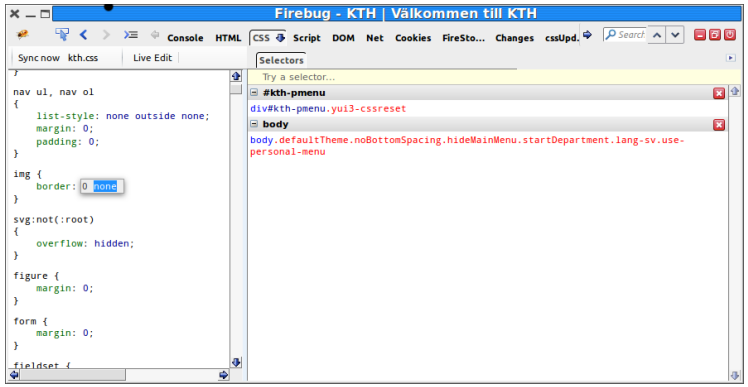
- It enables you to run JavaScript expressions in the web page.
- It also lets you choose elements from the web page and have their HTML and CSS displayed.

Browser Web Console (Cont'd)

- The console is opened with **`Ctrl-Shift-K`** in Firefox and **`Ctrl-Shift-J`** in Chrome.

Firebug



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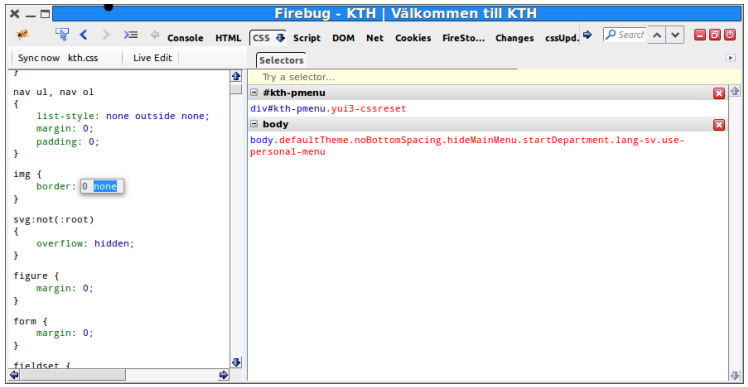

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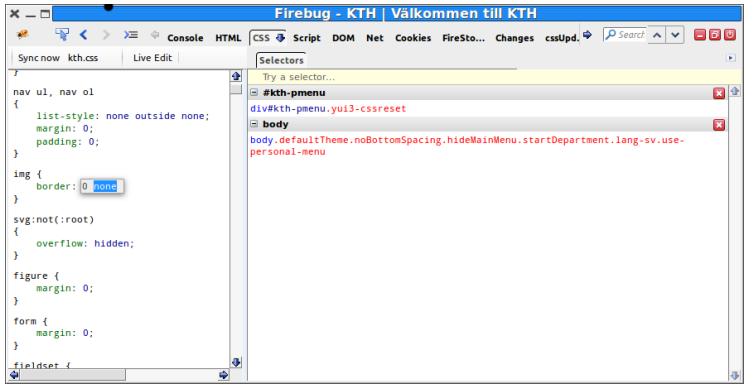

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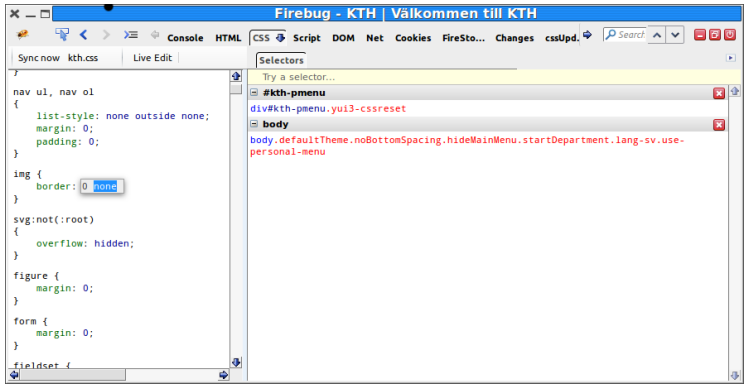

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- There is a cross-browser version of Firebug, written in JavaScript, that offers a subset of the functionality for most other browsers.

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- Web Developer has been ported to Chrome.

Validators

- There are online validators for both HTML and CSS. Links can be found on the course web site.

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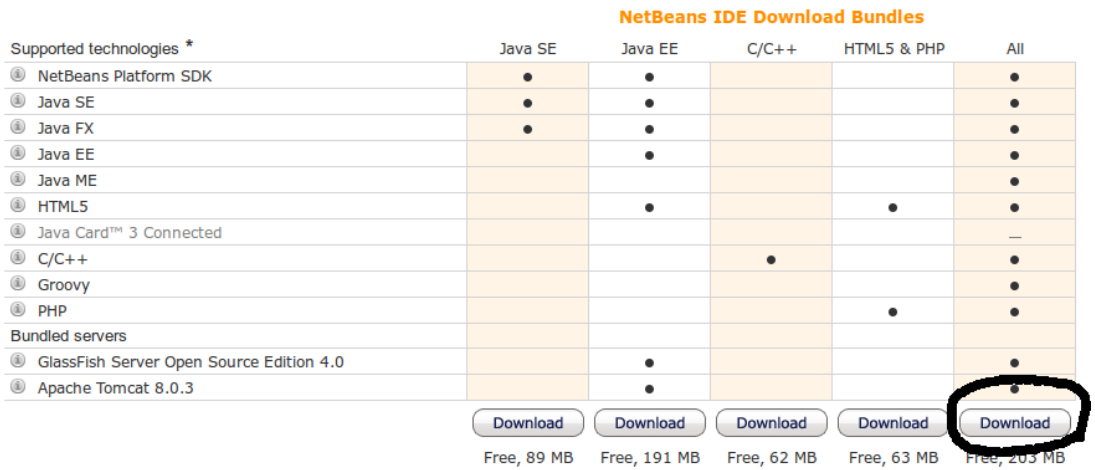
- Remember to always validate your HTML and CSS code.

NetBeans



NetBeans IDE Download Bundles

Supported technologies *	Java SE	Java EE	C/C++	HTML5 & PHP	All
NetBeans Platform SDK	•	•			•
Java SE	•	•			•
Java FX	•	•			•
Java EE		•			•
Java ME					•
HTML5		•		•	•
Java Card™ 3 Connected					–
C/C++			•		•
Groovy					•
PHP				•	•
Bundled servers					
GlassFish Server Open Source Edition 4.0		•			•
Apache Tomcat 8.0.3		•			•
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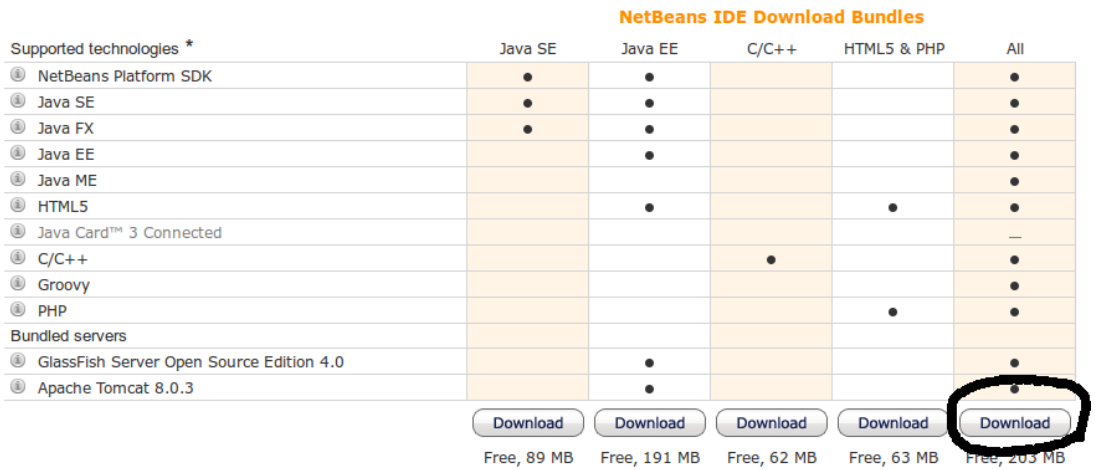

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NetBeans Platform SDK	•	•			•
Java SE	•	•			•
Java FX	•	•			•
Java EE		•			•
Java ME					•
HTML5		•		•	•
Java Card™ 3 Connected					–
C/C++			•		•
Groovy					•
PHP				•	•
Bundled servers					
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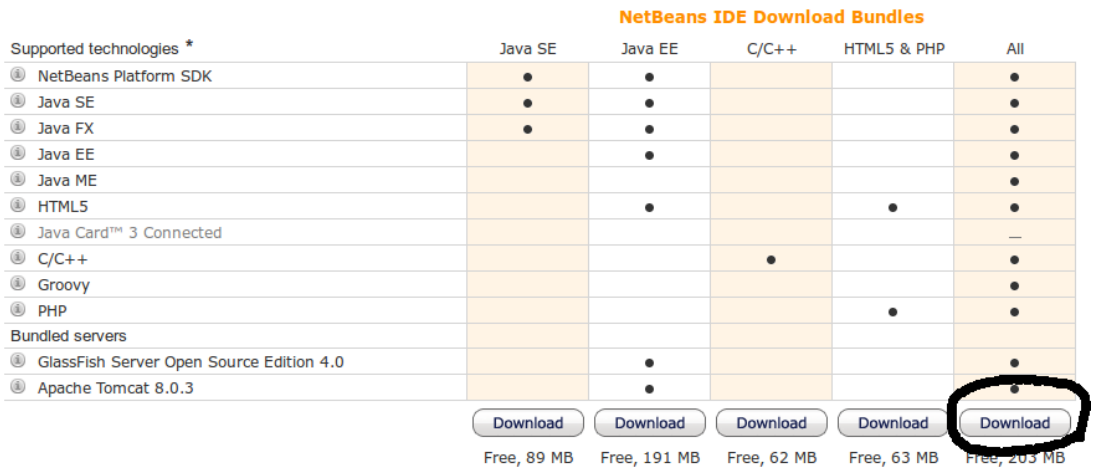

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Java EE		•			•
Java ME					•
HTML5		•		•	•
Java Card™ 3 Connected					–
C/C++			•		•
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- User Interface Design

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- Here follows the 10 usability heuristics mentioned above.

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2. Use words, phrases and concepts familiar to the user, rather than system-oriented terms.
3. Implement undo and redo.
4. Follow platform conventions, users should not have to wonder whether different words, situations, or actions mean the same thing.

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8. Remove irrelevant information.

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10. If necessary, provide help and documentation. The help should be easy to search, focused on the user's task, and list concrete steps to be carried out.