Introduction to Internet Applications

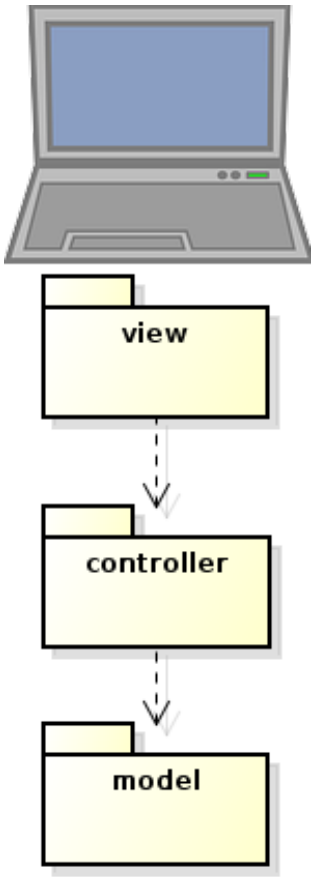
Internet Applications, ID1354

Contents

Section

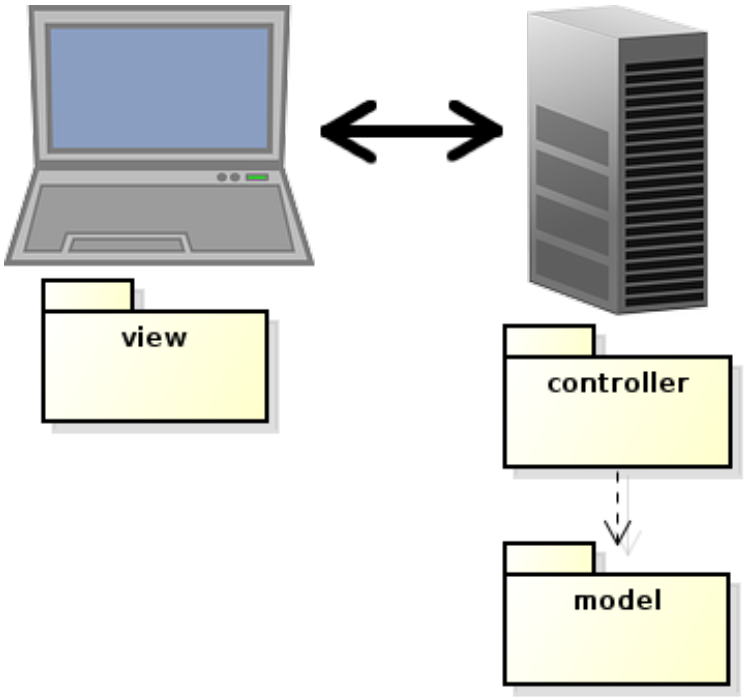
- Distributed Architectures
- User Interface Design
- Tools

Local Application



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

Introducing a Server



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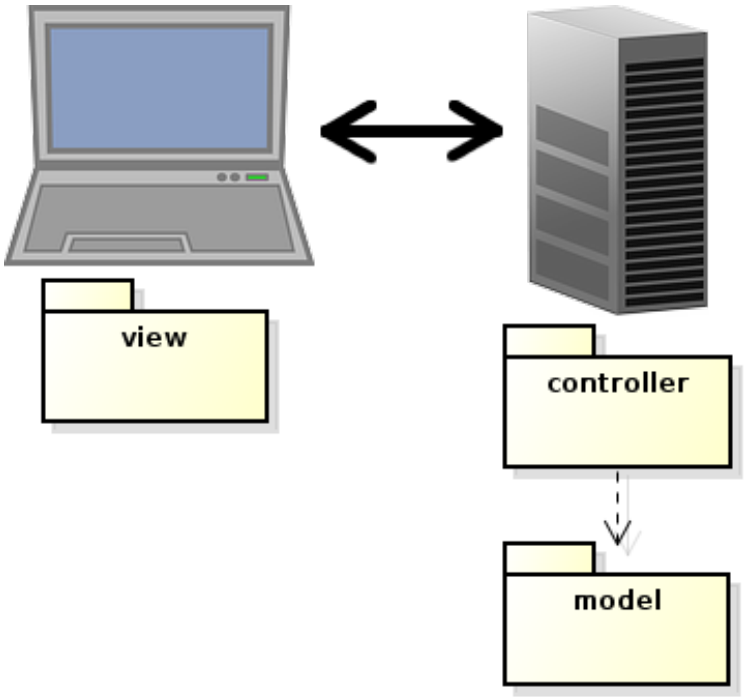

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- A client that has the view and a server that has controller and model.

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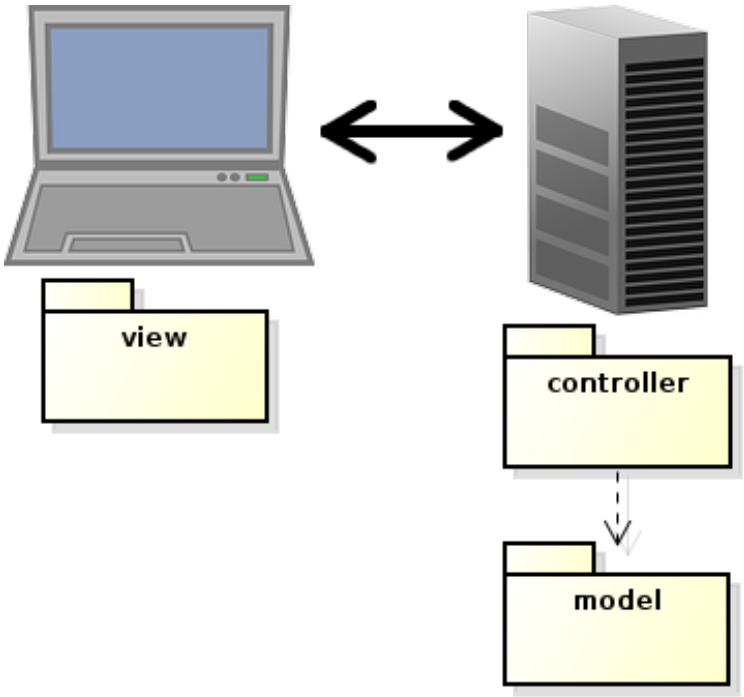

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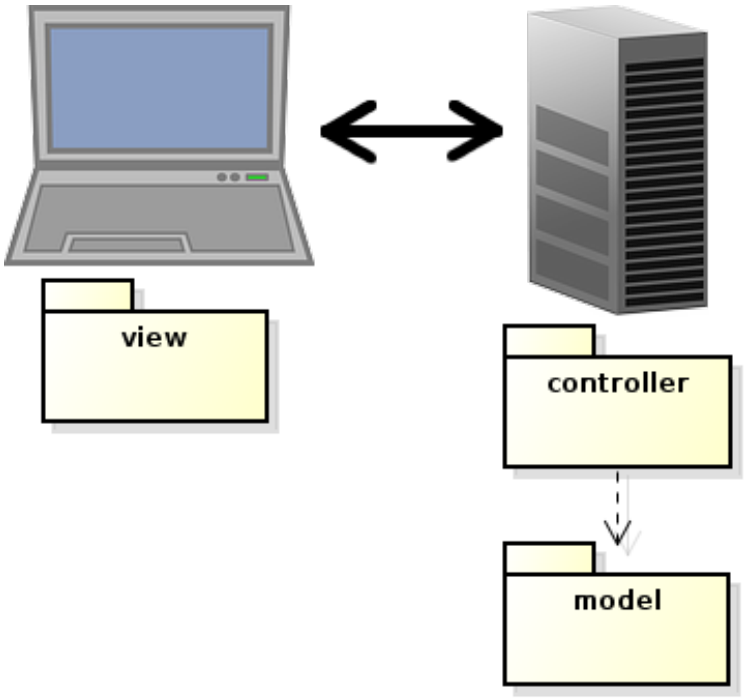

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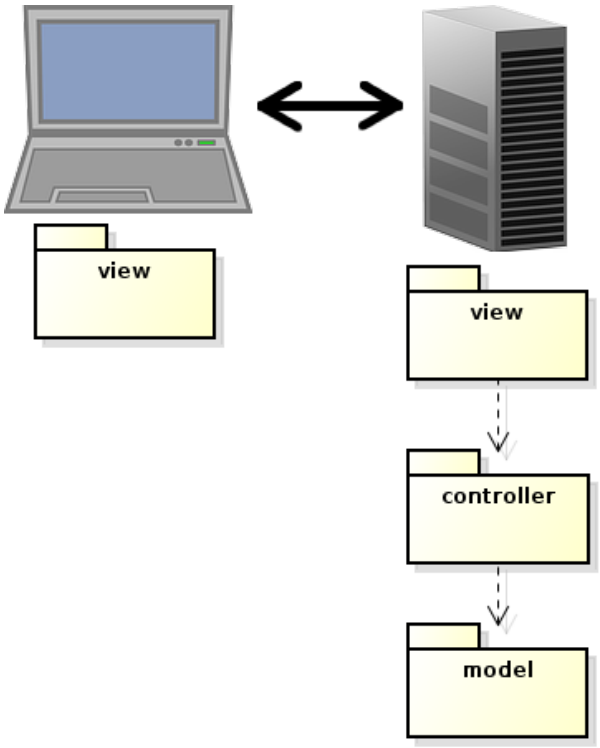
This architecture is not good, we also need layers for communication.

Server-Side Communication



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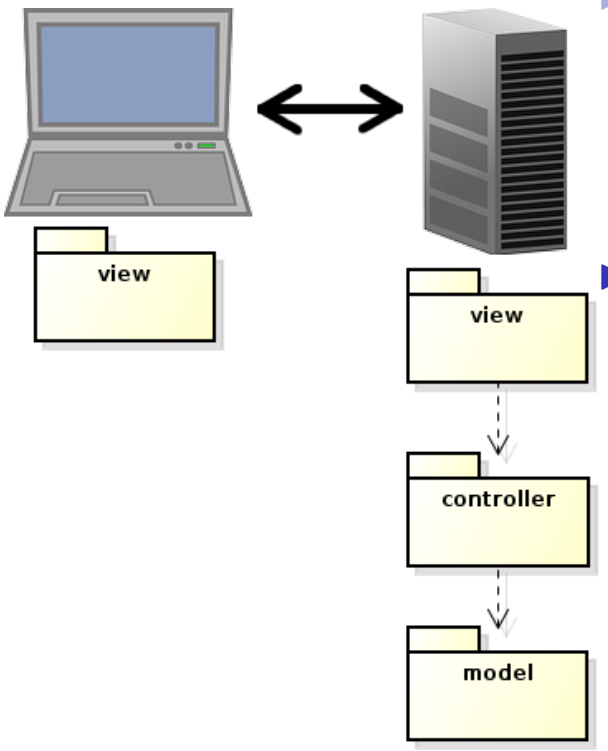

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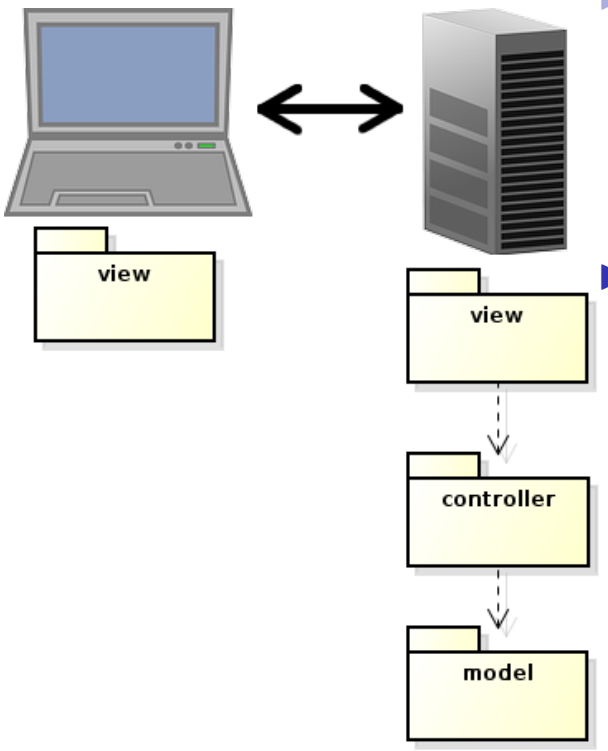

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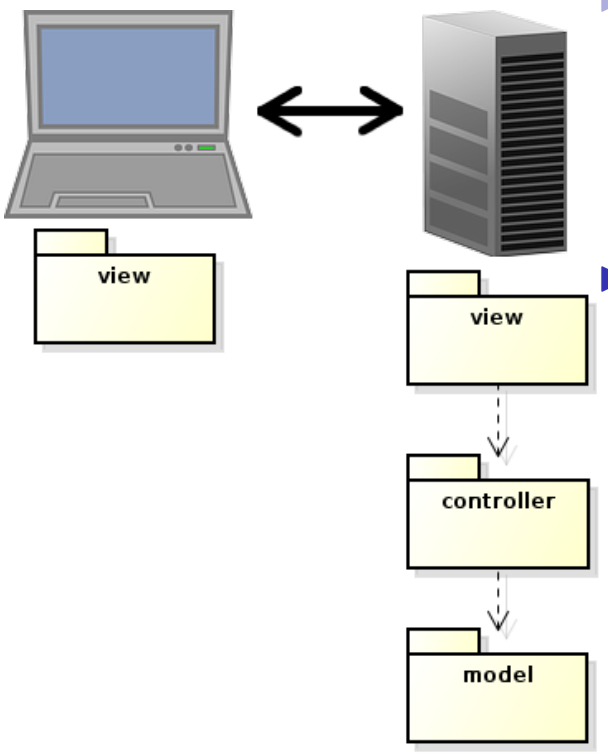

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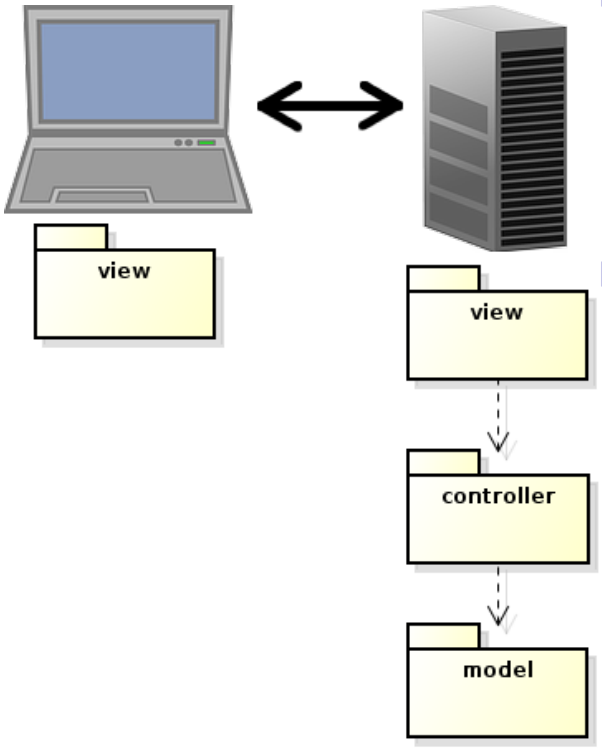

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- However, the server side view layer performs tasks typical of a view:
  - Creates views (HTML), which are sent to the client.
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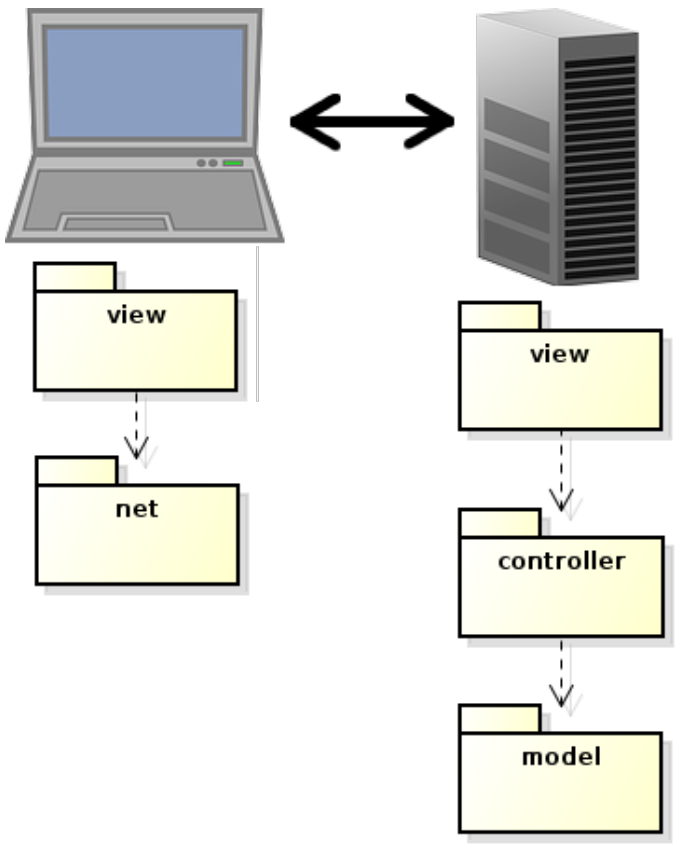
It might seem that we need yet a layer, for network handling. There is such a layer, but it is in the web server. We don't write it ourselves.

Client-Side Communication



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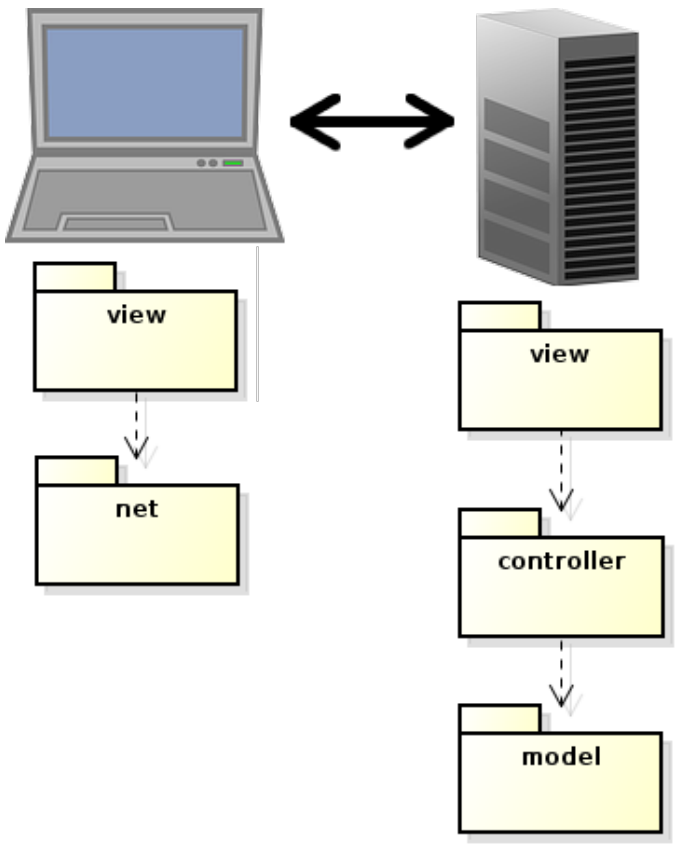

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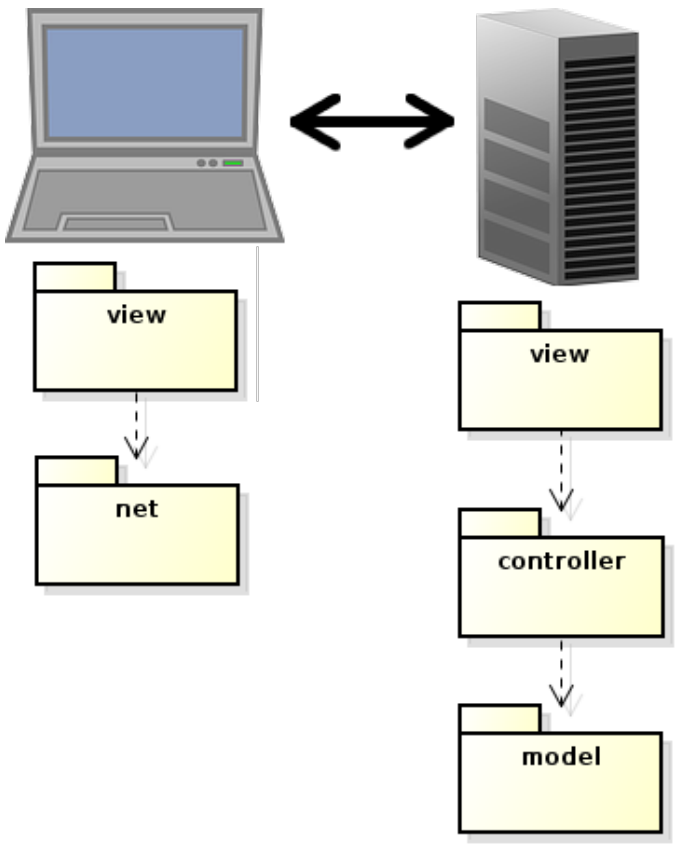

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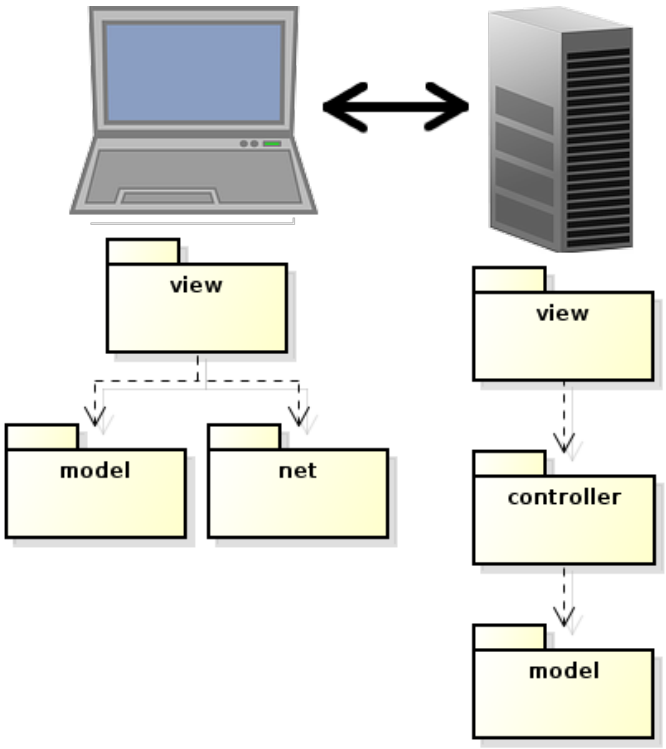
- This is a traditional web application.

The MVVM Pattern



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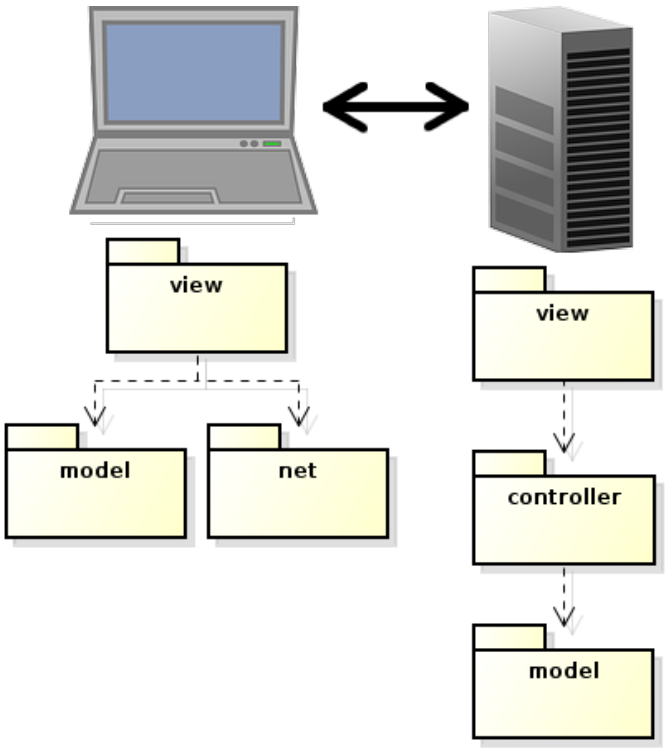

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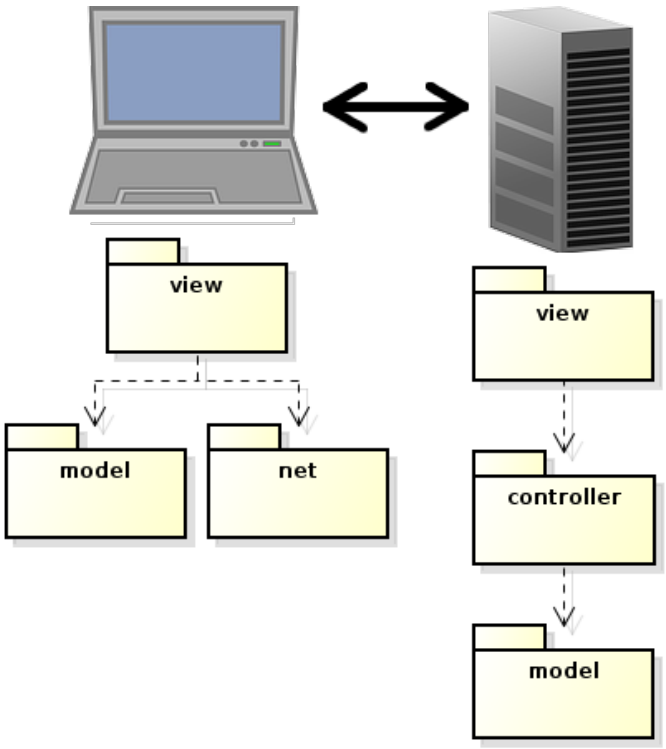

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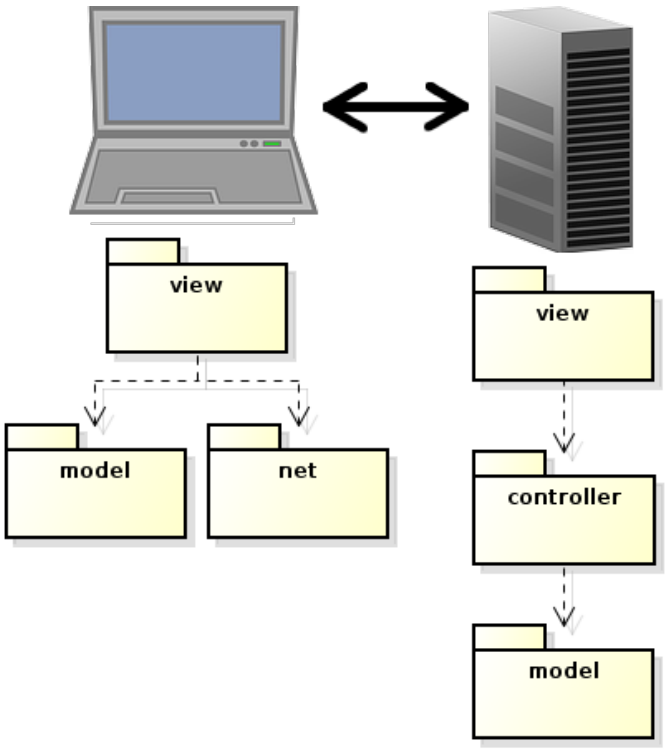

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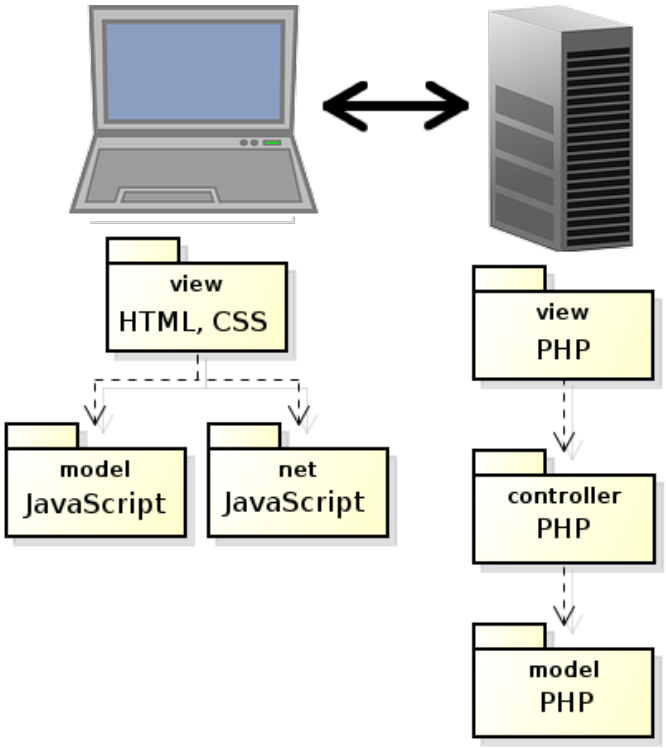
- This is referred to as the MVVM, model-view-viewmodel pattern.

Programming Languages



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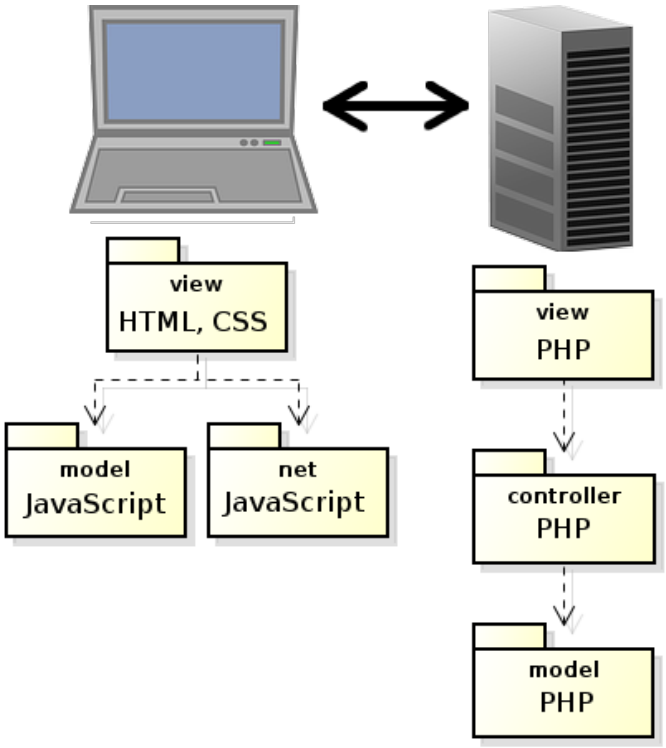
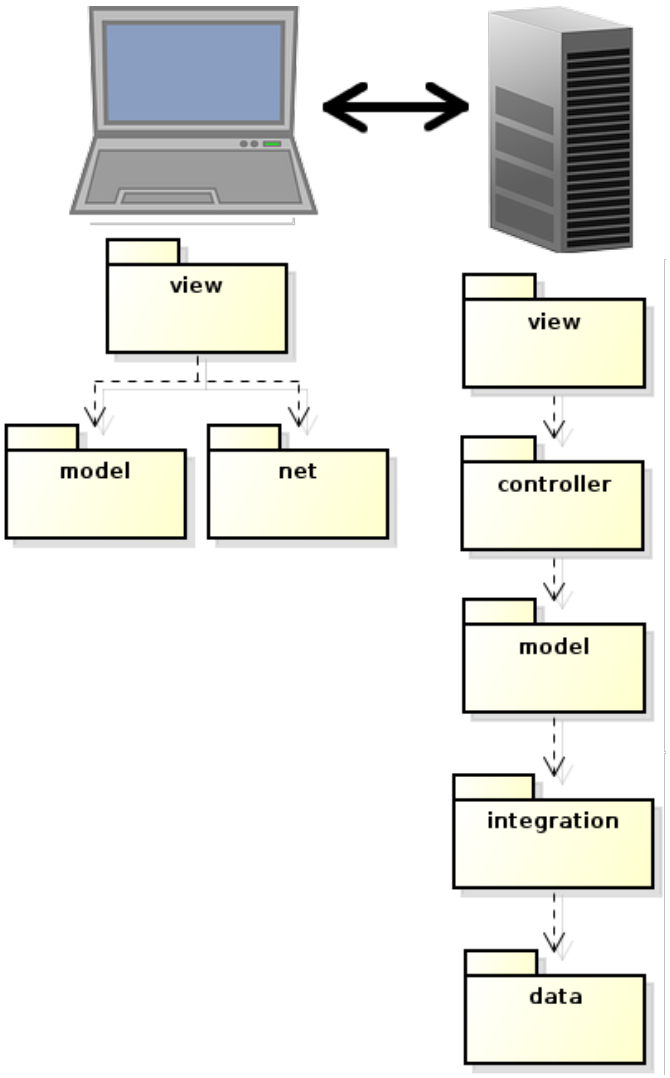


- This is the architecture we will normally use during the course.
- The view is programmed in HTML and CSS, client side behavior is programmed in JavaScript and the entire server side code is written in PHP.

Three-Tier Architecture



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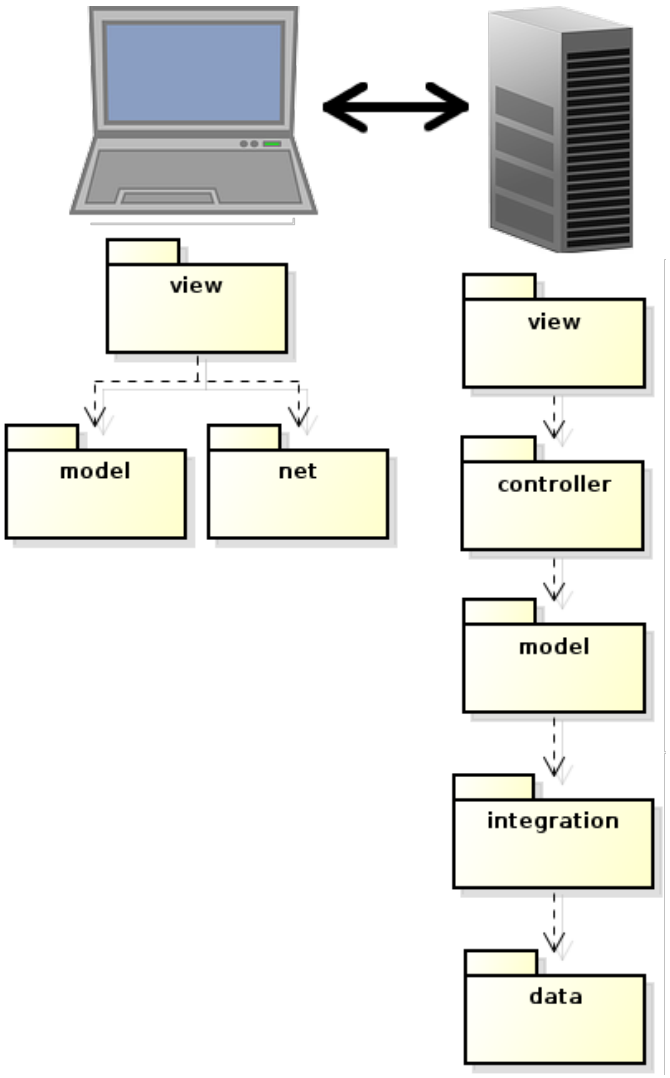

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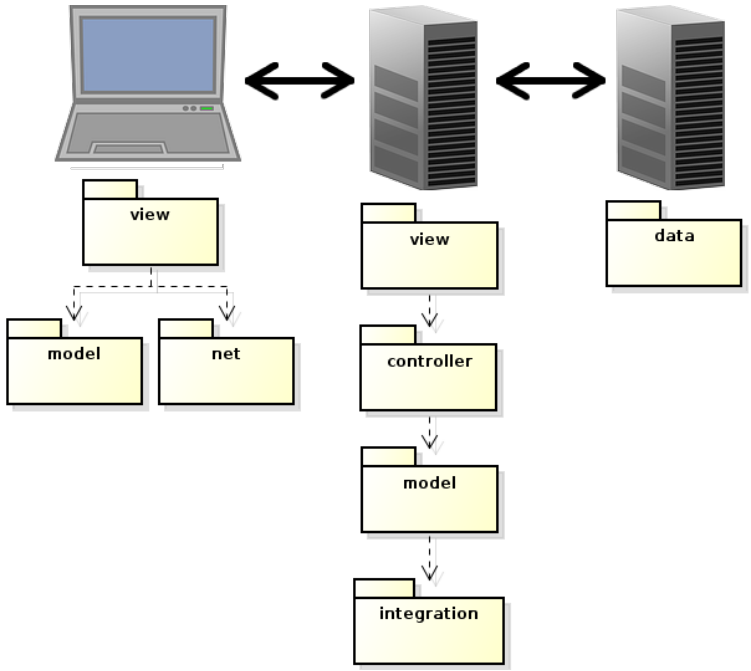
- We also introduce the integration layer, to handle the database calls.

Three-Tier Architecture (Cont'd)



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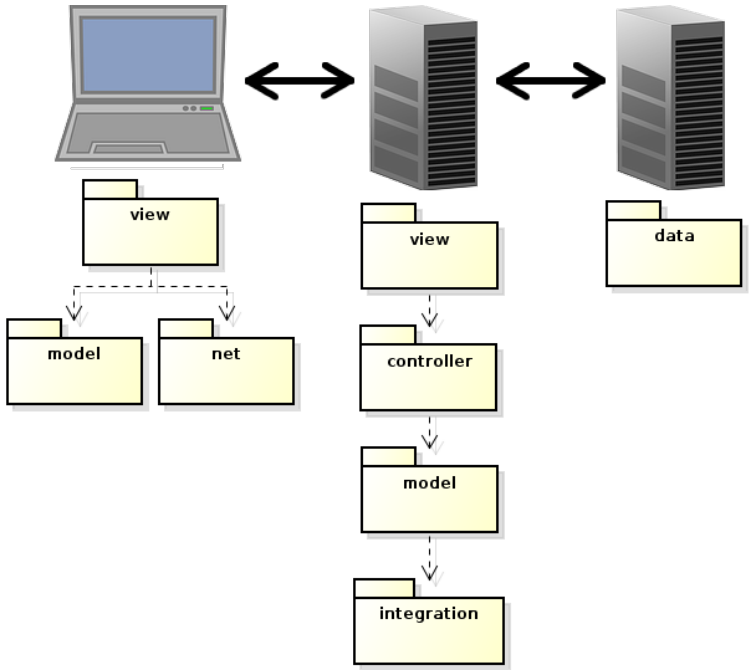
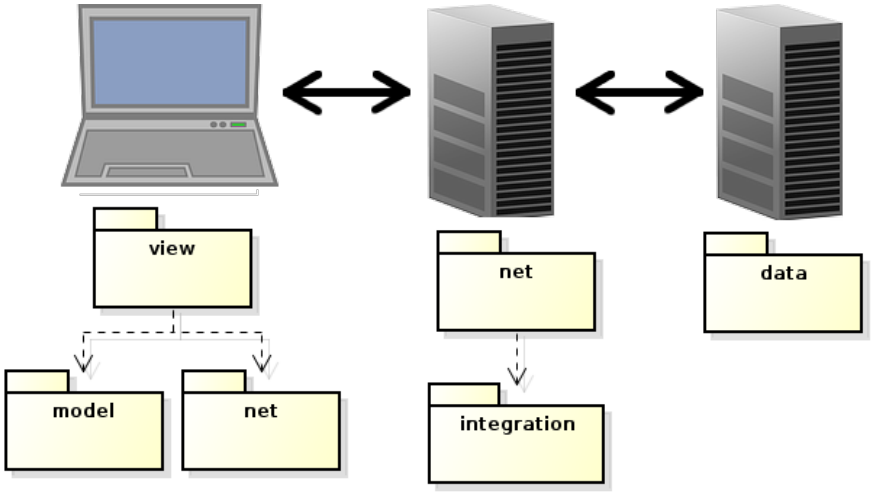


- In a bigger application, we would most likely place the database in a separate node.
- This is called three-tier architecture and is, since long time, the dominating architecture for web applications.

Question 1

Event-Driven Architecture



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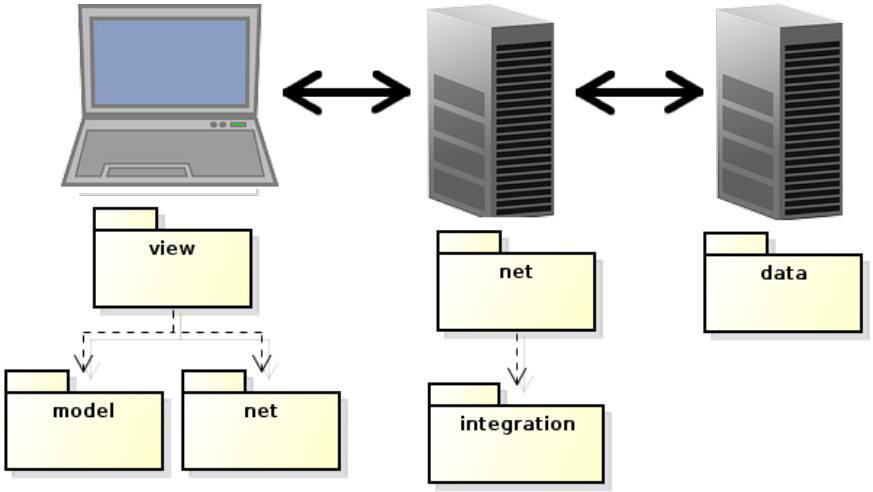

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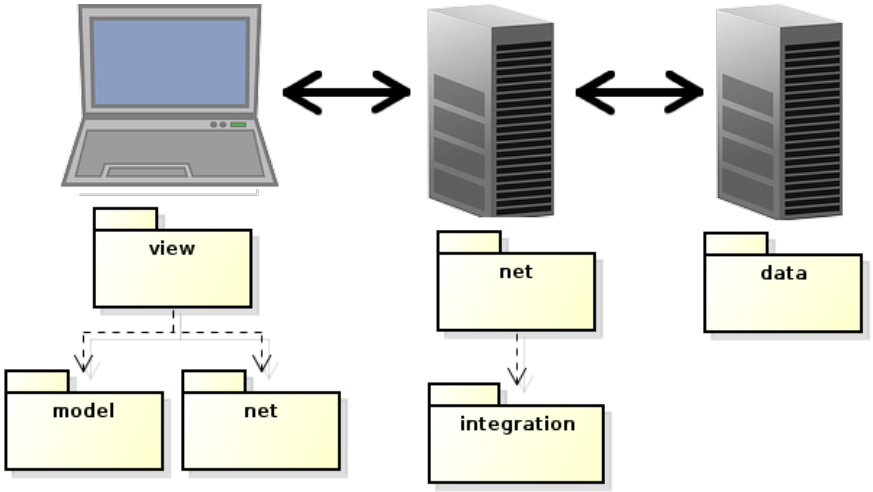

- In the latest year, there is a growing tendency to move business logic to the client, perhaps completely remove the server-side model.
- This is made possible with web sockets, which enable full duplex browser-server communication.
- The motive is to reduce communication latency. The browser informs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

Section

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- User Interface Design
- Tools

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J. Nielsen's 10 Usability Heuristics

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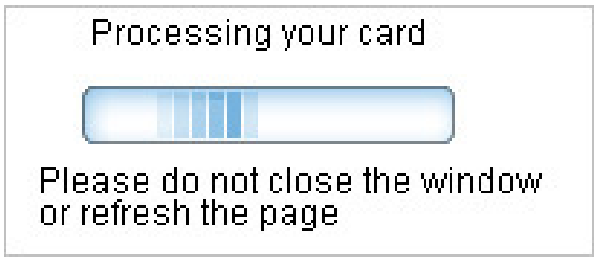

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- Use words, phrases and concepts familiar to the user, rather than system-oriented terms. Follow real-world conventions, making information appear in a natural and logical order.
- Good example ("How can we help you?" better than "FAQ"):
- Bad example ("Continue if enabled" is system oriented language):

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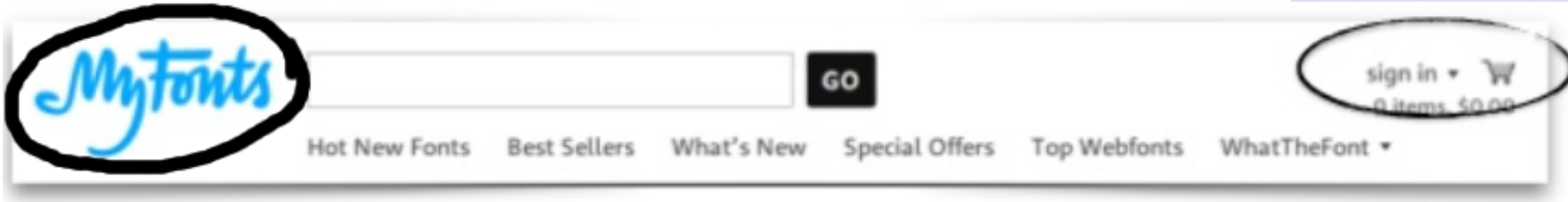
- Good example (Sign in at top right, logo with link to index page at top left):



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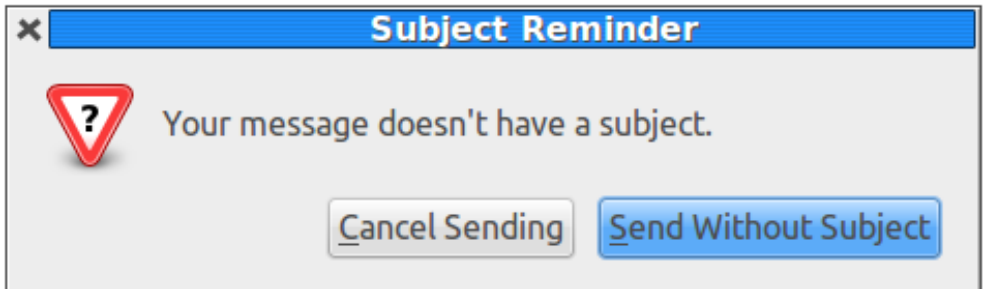

6. Recognition rather than recall

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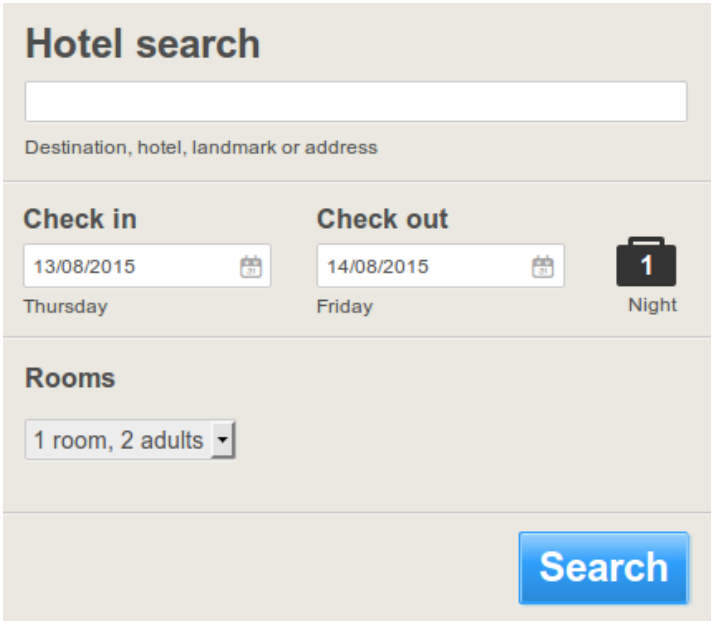

- Clear headline.
- No doubt where to click to start the search.

7. Flexibility and efficiency of use

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- Accelerators, unseen by the novice user, may often speed up the interaction for the expert user such that the system can cater to both inexperienced and experienced users. Allow users to tailor frequent actions.

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- Examples are
  - *Saved searches*
  - *Items you recently looked at*
  - *Save query for later*

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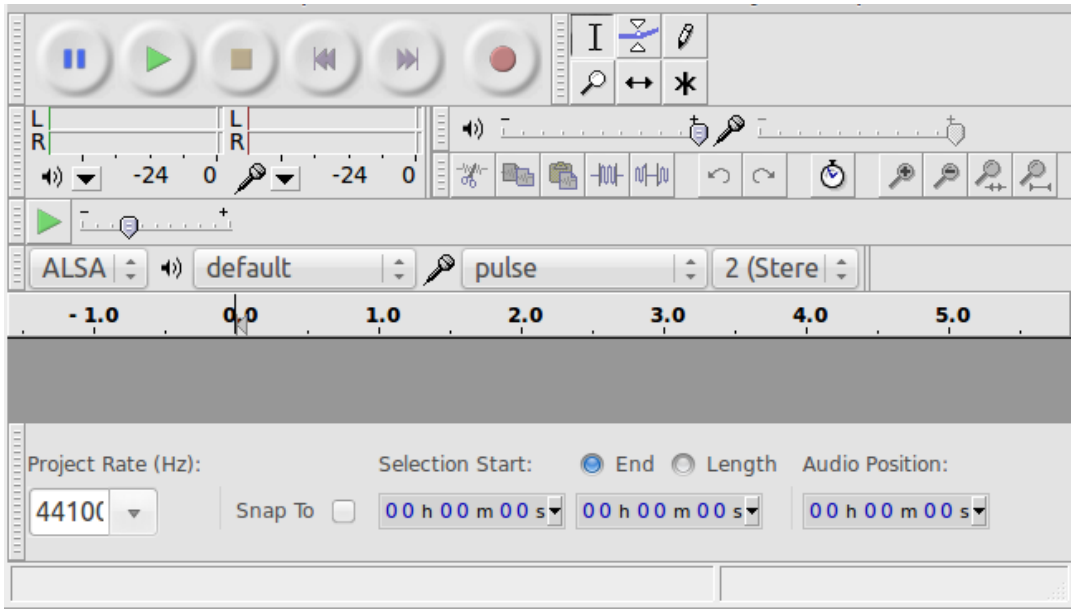

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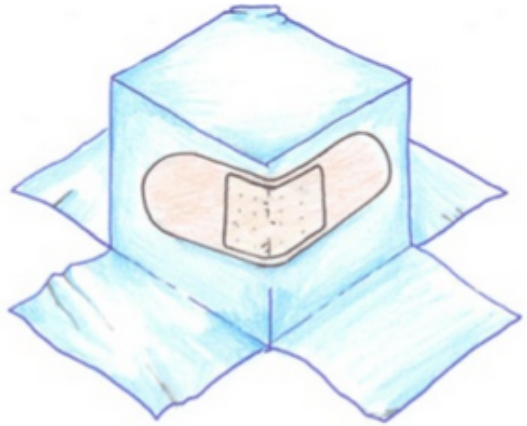

Error

Something went wrong. Don't worry, your files are still safe and the Dropboxers have been notified. Check out our Help Center and forums for help, or head back to home.

10. Help and documentation

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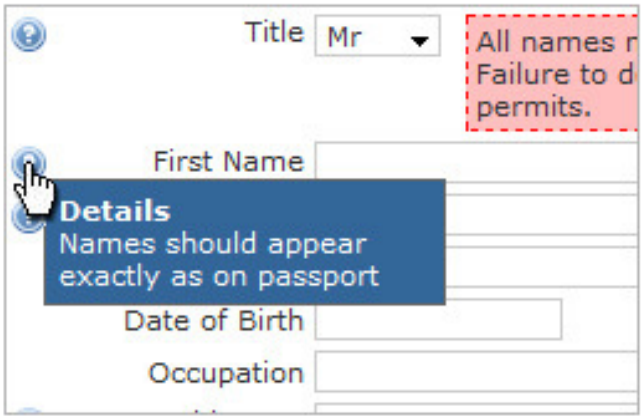

Question 2

Section

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Web Development Tools

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

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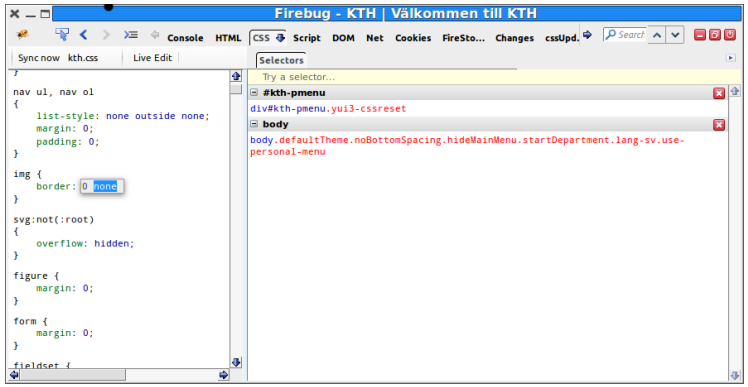
- It enables you to run JavaScript expressions in the web page.
- It also lets you choose elements from the web page and have their HTML and CSS displayed.

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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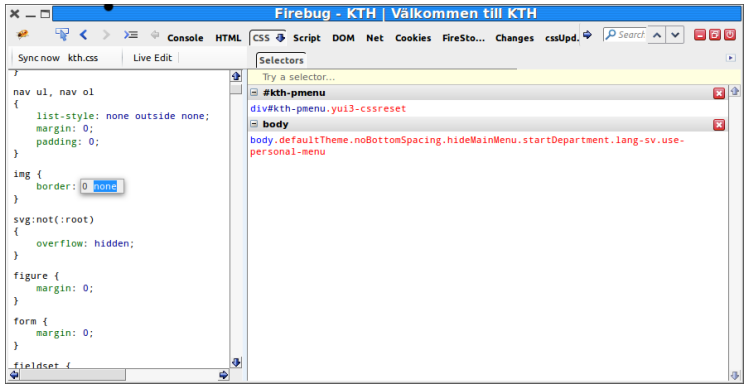

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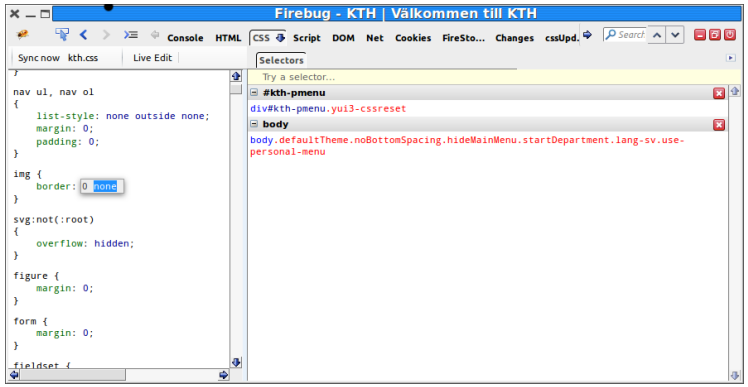

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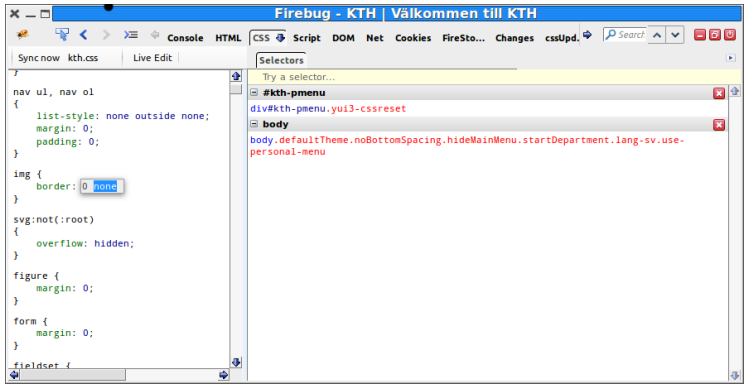

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- In addition to console features, you can for example debug JavaScript, mark HTML elements, edit CSS and log network traffic.
- There are also many plug-ins to Firebug.
- There is a cross-browser version of Firebug, written in JavaScript, that offers a subset of the functionality for most other browsers.

Web Developer

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  - Validate HTML and CSS.
- 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

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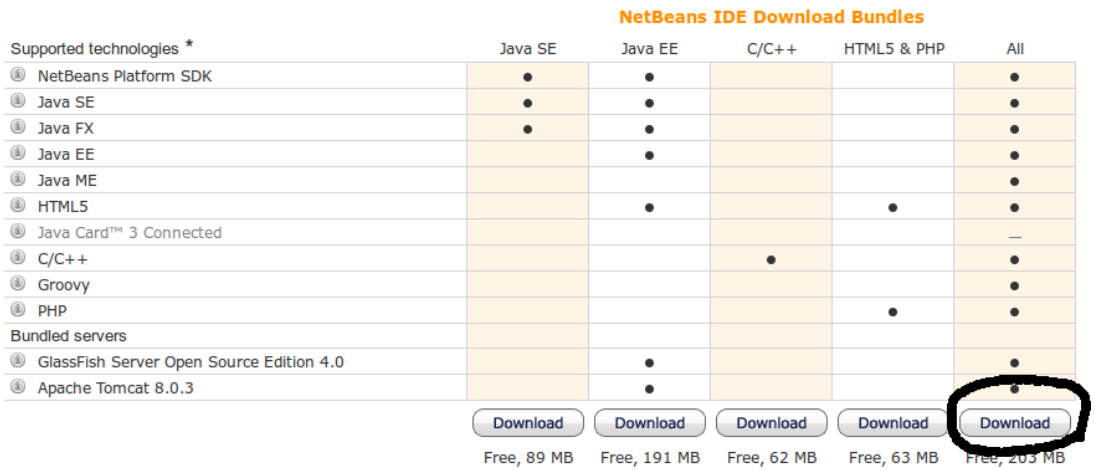
NetBeans



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		•			•
	Download	Download	Download	Download	Download
	Free, 89 MB	Free, 191 MB	Free, 62 MB	Free, 63 MB	Free, 203 MB

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- NetBeans will be used for examples during the course. Make sure to download the All version, see image above.

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- NetBeans will be used for examples during the course. Make sure to download the All version, see image above.
- Most important is that you actually use an IDE, do not program in a text editor unless you are really sure it is what you prefer.

JSFiddle and JSLint

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- All examples are presented with an online editor where you can experiment with your code.