CSCC09
Programming on the Web

Thierry Sans

1991

Sir Tim Berners-Lee

info.cern.ch/hypertext/WWW/TheProject.html

World Wide Web

The WorldWideWeb (W3) is a wide-area hypermedia information retrieval initiative aiming to give universal access to a large universe of documents.

Everything there is online about W3 is linked directly or indirectly to this document, including an executive summary of the project, Mailing lists , Policy , November's W3 news , Frequently Asked Questions .

What's out there?
Pointers to the world's online information, subjects , W3 servers, etc.
Help
on the browser you are using
Software Products
A list of W3 project components and their current state. (e.g. Line Mode ,X11 Viola , NeXTStep , Servers , Tools , Mail robot , Library)
Technical
Details of protocols, formats, program internals etc
Bibliography
Paper documentation on W3 and references.
People
A list of some people involved in the project.
History
A summary of the history of the project.
How can I help ?
If you would like to support the web..
Getting code
Getting the code by anonymous FTP , etc.

Web Portals

2025

Customer Resources Management

Accounting and Billing

E-Health

E-Learning

Collaboration

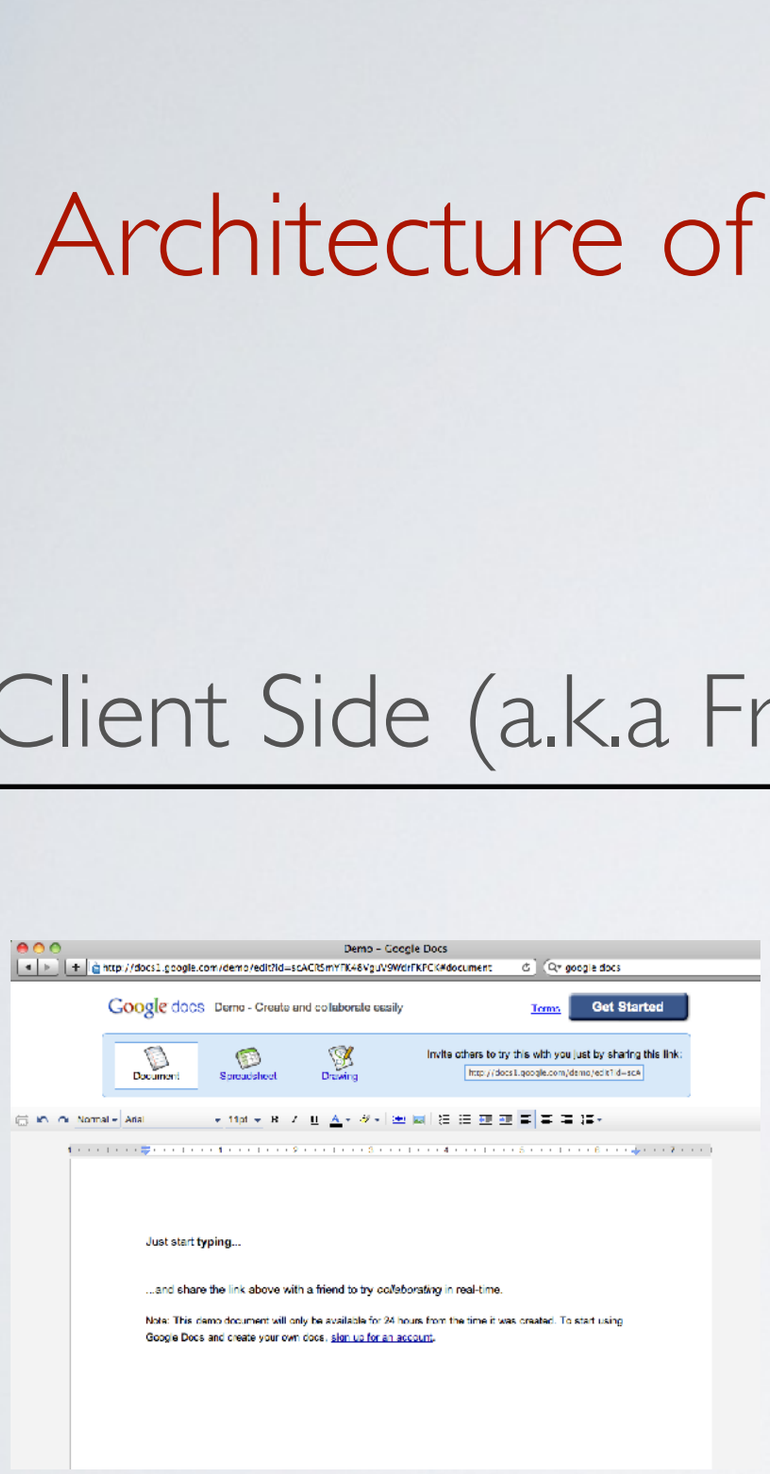
Content Management

Social Networks

Publishing

Architecture of a Web Application

Client Side (a.k.a Frontend)



Web Browser

Server Side (a.k.a Backend)

Web Server

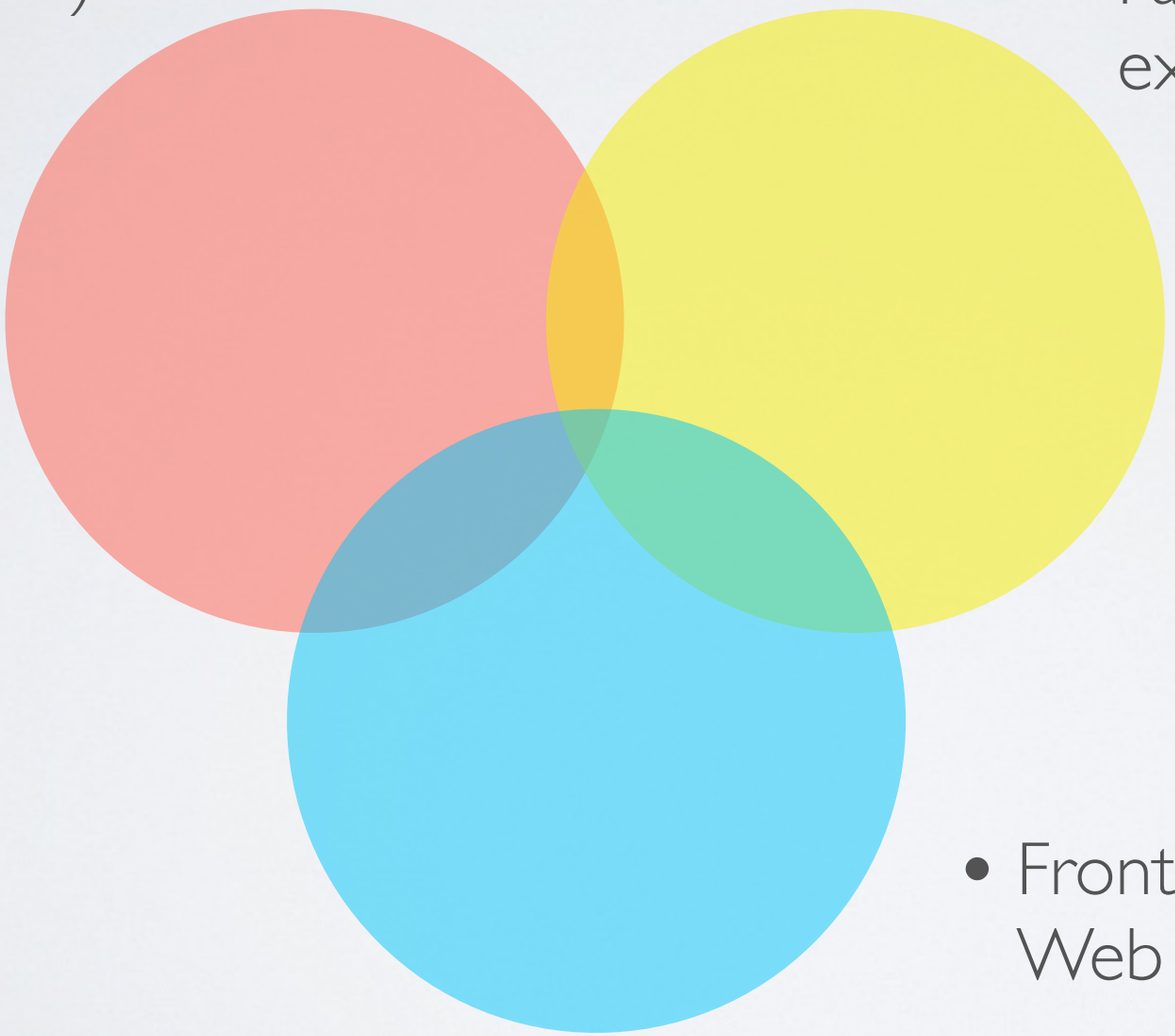
The Virtuous Circle

faster, better technology

new usage

How web technologies have changed?

- Javascript (interactivity)
- HTML5 - CSS3 (multimedia)

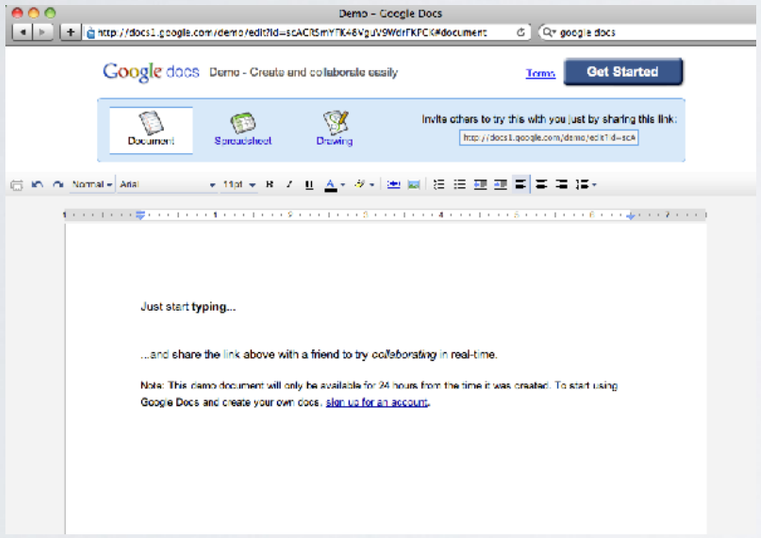


- Homogeneous implementation of the standards
- Faster rendering and Javascript execution

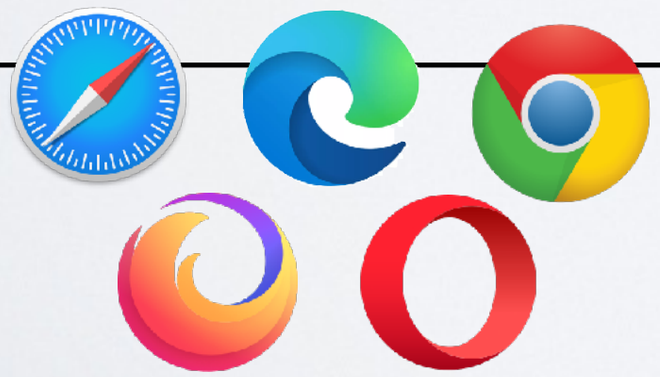
- Frontend and Backend Web frameworks

Traditional Web Platform

Client Side



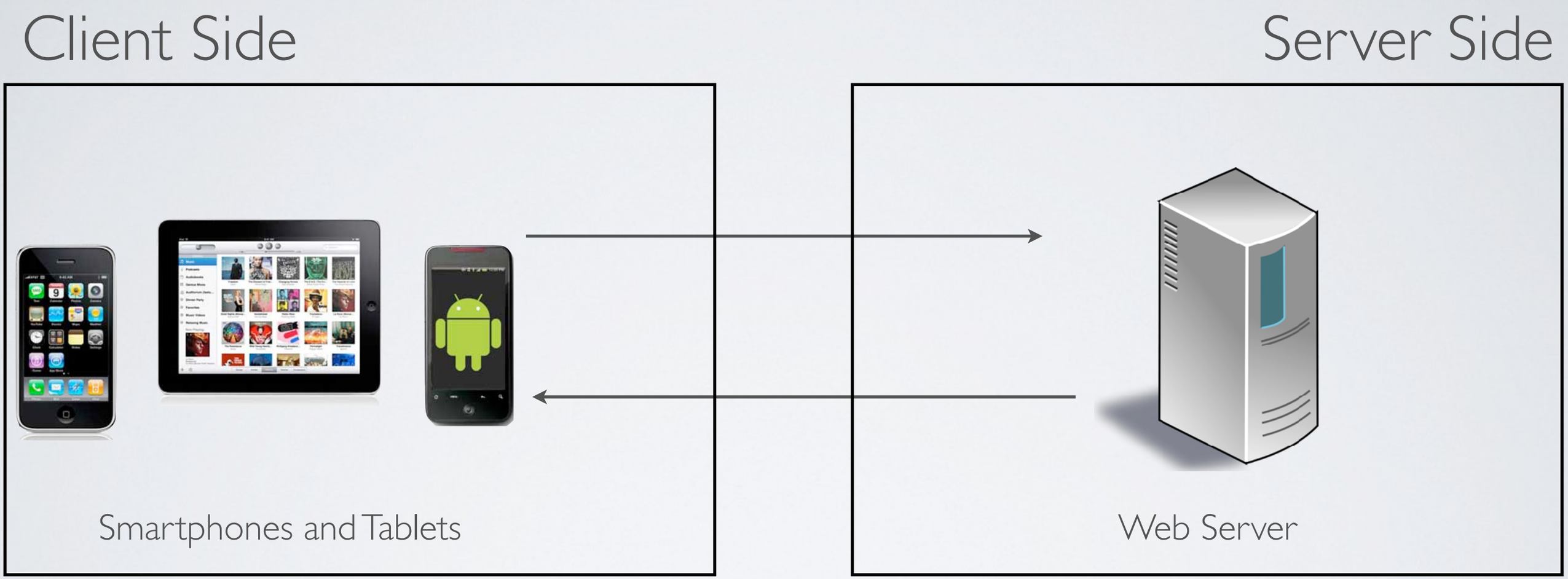
Web Browsers



Server Side

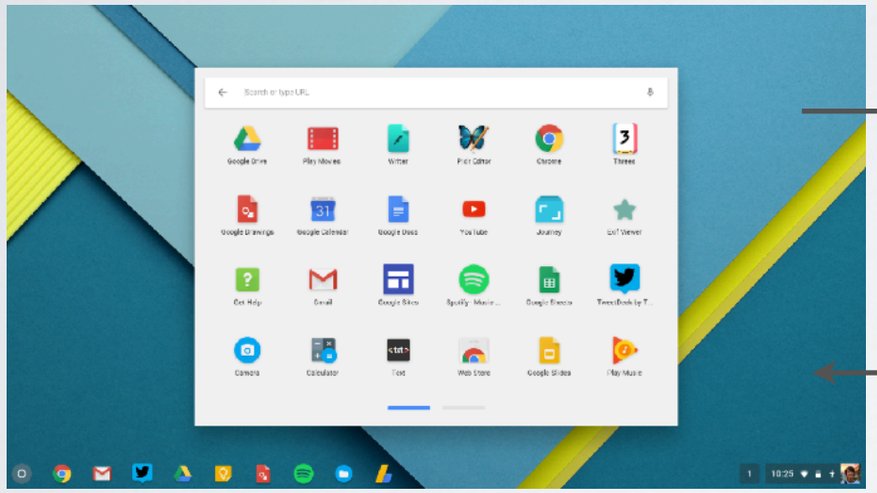
Web Server

Modern Web Platform



Emerging Web Platform

Client Side



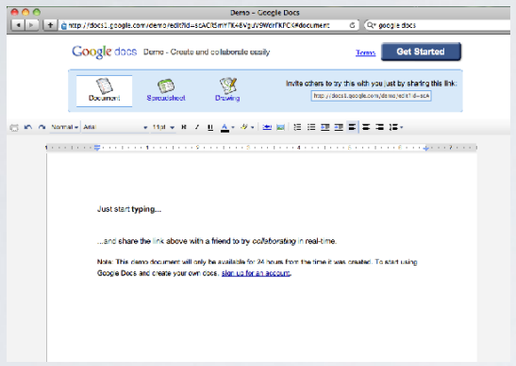
Web-based Operating System

Server Side

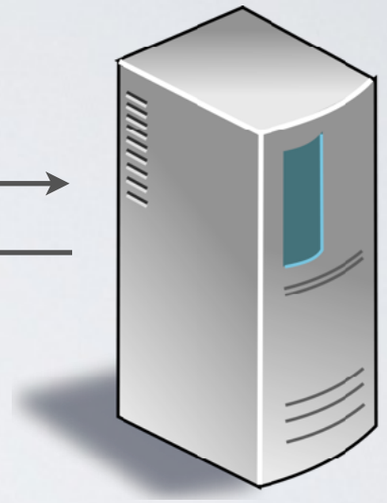
Web Server

Web applications from the developer's perspective

Web Technologies



HTTP protocol



HTML

Content

CSS

Presentation

JS

Client Side Processing

.NET Java php

RAILS node python

GO

Resources management

Why are web applications so popular?

- Easy to deploy
- Easy to maintain
- Fast and reliable technology (especially browsers)

What is challenging about web development

- A large collection of languages, framework and dev tools
- Technology evolves fast
- Event-based programming (concurrency)
- Asynchronous communication
- Debugging

About this course

What you will learn in this course?

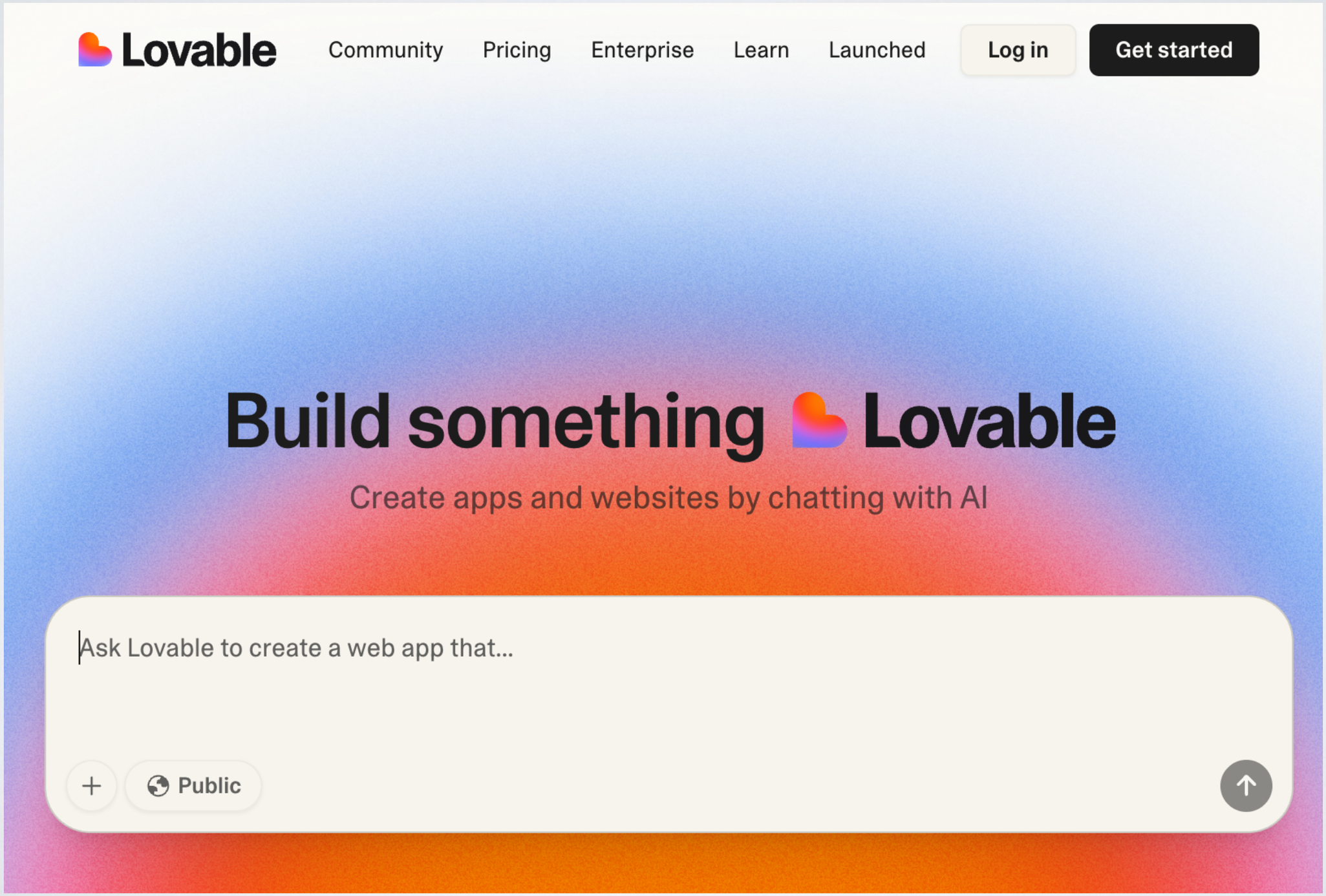
✓ Web development

- **The foundations of web programming**
- The new trends in web application development

◉ ~~Web design~~

CSCC10 Human-Computer Interaction

Why learning web development at the age of AI?



Learning Outcome

- **Learn the fundamentals** to design, improve and maintain new and existing applications

- This course will make you ready for the **rapid changes of web technologies**

- This course will provide you with an experience that is **beyond junior web developer**

Course Syllabus

Let's look at the course webpage:

https://thierrysans.me/CSCC09/

Course Work

7-8 Labs (5% best of 5)

- You must show your work in-person to the TA within that week either by attending your enrolled practical or go your TA office hours (except lab 1)
- No late submission

3 Assignments (30% in total)

- Must be deployed in production and code will be reviewed
- 4 late days which may be spent in units of one day and that can spread into 3 homework

Project (40%)

- Webapp must be deployed in production and code will be reviewed
- Must submit a design report and demo video
- No late submission

Exam (25%)

On the use of AI

Labs and Assignment

- ◉ You are not allowed to use AI at all

Project

- ✓ You are allowed to use AI

How to succeed in this class?

- Learn and gain experience by doing labs, homework and project
- Start to work early,
  web applications are hard to develop and hard to debug
- Come to the lectures, do not rely solely on the slides
  or code snippets
- Be smart about using resources from the web
- Go beyond, be curious, experiment, get your hands dirty
- Start thinking about your project now

Web Development tools

- **Chrome** (recommended) or Firefox
- **Code editor** with syntax highlighting for HTML, CSS, Javascript
- Web Accounts
  - **Github**
  - **Piazza**
- Command Line Tools
  - **Git**
  - **NodeJS and NPM**