

<https://www.halvorsen.blog>



Web Server

<https://web01.usn.no>

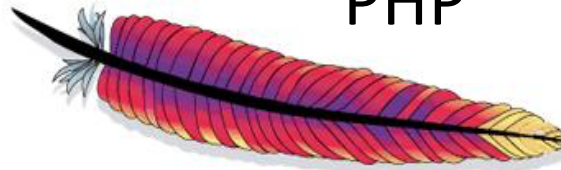
Hans-Petter Halvorsen

Web Server Platforms



(pronounced "engine x")
- Has become very popular lately

Cross-platform: UNIX, Linux, OS X, Windows, ...



PHP

Apache



Microsoft IIS

Internet Information Services

ASP.NET

The term web server can refer to either the hardware (the computer) or the software (the computer application) that helps to deliver web content that can be accessed through the Internet.

The most common use of web servers is to host websites, but there are other uses such as gaming, data storage or running enterprise applications.

Web Servers Market share*

Product	Vendor	Platform	Percent
Apache	Apache	Open Source Cross Platform	45.9%
Nginx	Nginx, inc	Free + Paid versions Cross Platform	39.0%
IIS (Internet Information Services)	Microsoft	Windows, Included with Windows (Windows Server, Windows 10 Pro)	9.5%
LiteSpeed	LiteSpeed	Proprietary, Linux	3.4%
GWS (Google Web Server)	Google	Custom Linux-based Web server that Google uses for its online services	1.0%

https://en.wikipedia.org/wiki/Web_server

*July 2018

Web Server - <https://web01.usn.no>

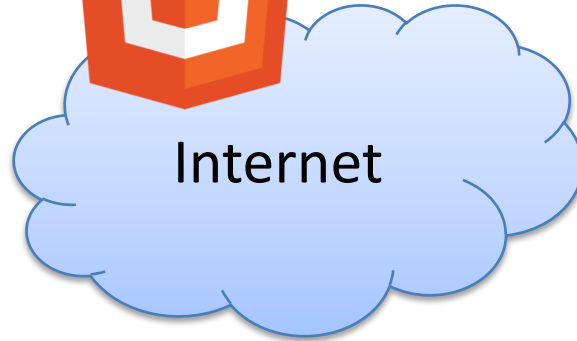
Server-side



HTML



CSS



Clients



Apache

HTTP SERVER



PCs with Web Browsers

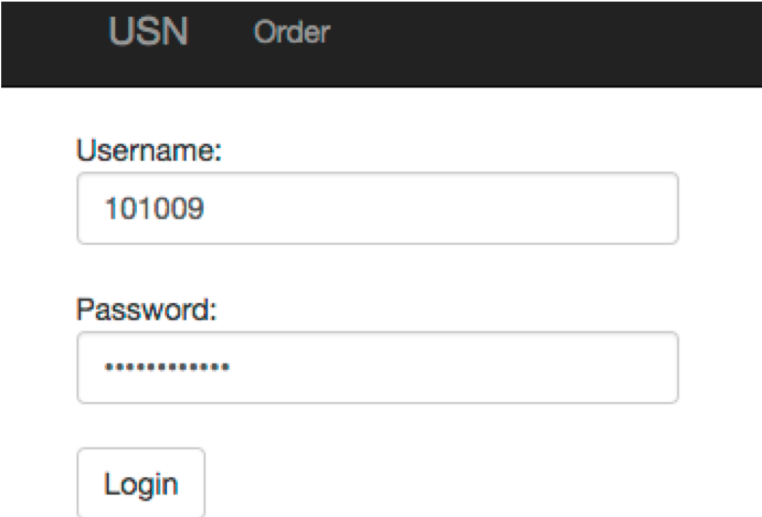
https://web01.usn.no

- Server
 - Operating System: Linux
 - Web Server: Apache
 - Database: MySQL
 - Supported Languages: HTML, CSS, PHP
- <https://web01.usn.no/~username>
- User Name = Student Number (or Login name)
- Example: <https://web01.usn.no/~hansha/>
- Start Page: **index.html** (or index.php)

Getting Started

In order to use **web01.usn.no** for hosting a web page, following is required:

Log into <https://web01order.usn.no>



The image shows a login interface for 'USN Order'. At the top, there is a dark header bar with 'USN' and 'Order' in light grey text. Below the header, the text 'Username:' is followed by a text input field containing '101009'. Below that, the text 'Password:' is followed by a password input field filled with dots. At the bottom, there is a 'Login' button.

USN Order

Username:
101009

Password:
.....

Login

Enable PHP and MySQL

USN Order Logout

Options for your account on web01.usn.no

I want PHP enabled on my account

I want MySQL database and user

Submit

If you plan to use PHP and develop your web page, you have to check for "I want PHP enabled on my account".

Questions? Contact: it-support@usn.no

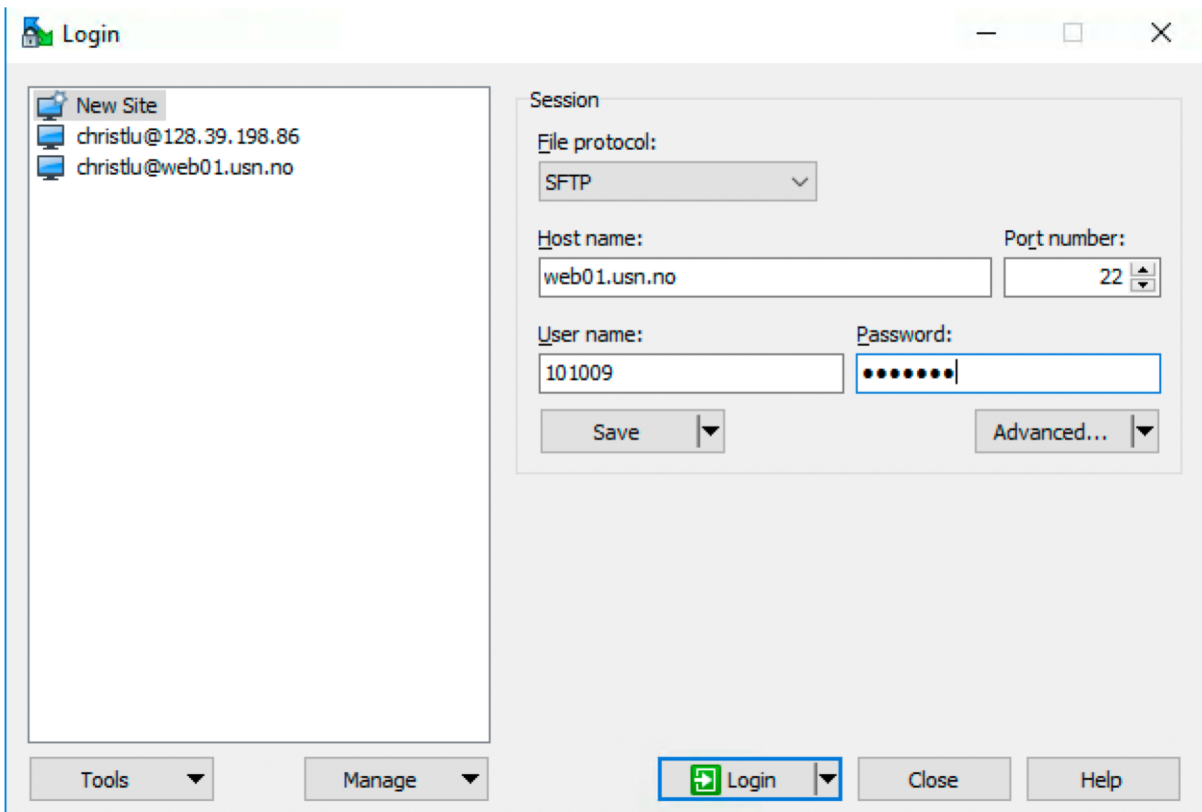
By checking "I want MySQL database and user" you will get a database and the user will be the same as your student number/user name. Your password will be stored in your home folder at the server.

How to get Access

How to access web server web01.usn.no:

- Typically you use a FTP program for transferring files between the development PC and the Server
- **WinSCP**, FileZilla, etc.
- Username and password are the same as you used for web01order.usn.no

WinSCP

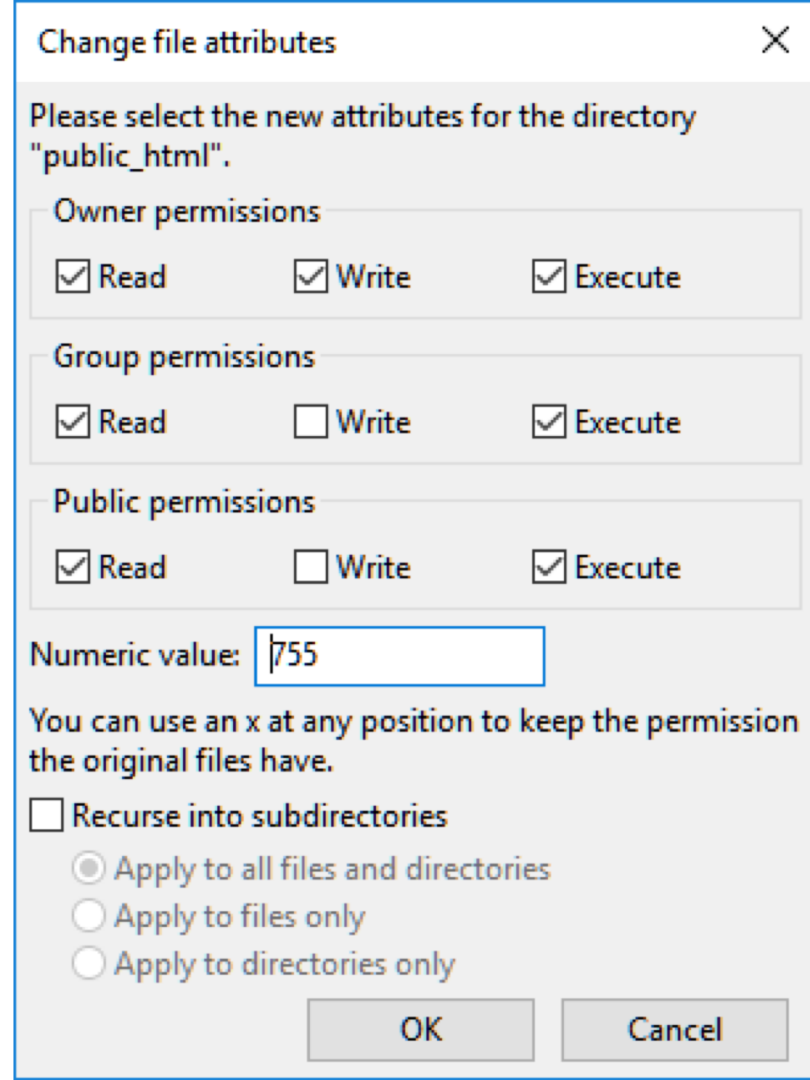


Username
(Studentnumber) and
password are the
same as you used for
web01order.usn.no

Set proper Access Rights for folder public_html

Right-click on this folder, select “File Permissions” and set permissions so anyone can “Read” and “Execute” the content so that your webpages will be accessible to everyone.

Note! It is important that only you (Owner) have “Write” rights.



FileZilla

The screenshot displays the FileZilla interface with the following components:

- Title Bar:** home.usn.no - ftpes://home.usn.no%7Cusn.no%5Chansha@home.usn.no - FileZilla
- Menu Bar:** File, Edit, View, Transfer, Server, Bookmarks, Help
- Toolbar:** Standard icons for file operations and connection management.
- Connection Fields:** Host, Username, Password, Port, and a Quickconnect dropdown menu.
- Status Log:** A scrollable area showing connection progress: TLS connection established, Logged in, Retrieving directory listing..., Calculating timezone offset of server..., Timezone offset of server is 7200 seconds, and Directory listing of "/" successful.
- Local Site:** sers\hansha\OneDrive\Video Creation\Video Projects\Web\home.usn.no\Example\MyWebSite\
- Remote Site:** /
- Local Site Tree:** MyWebSite, PowerPoint, HTML, USN Web Server - web01.usn.no
- Remote Site Tree:** documents, Private
- Local Site Table:**

Filename	Filesize	Filetype	Last modified
..			
css		File folder	2018-08-23 13:18:02
doc		File folder	2018-08-23 13:18:02
html		File folder	2018-08-23 13:18:02
images		File folder	2018-08-23 13:18:02
js		File folder	2018-08-23 13:19:19
Index.html	109	HTML File	2018-08-23 13:33:13
- Remote Site Table:**

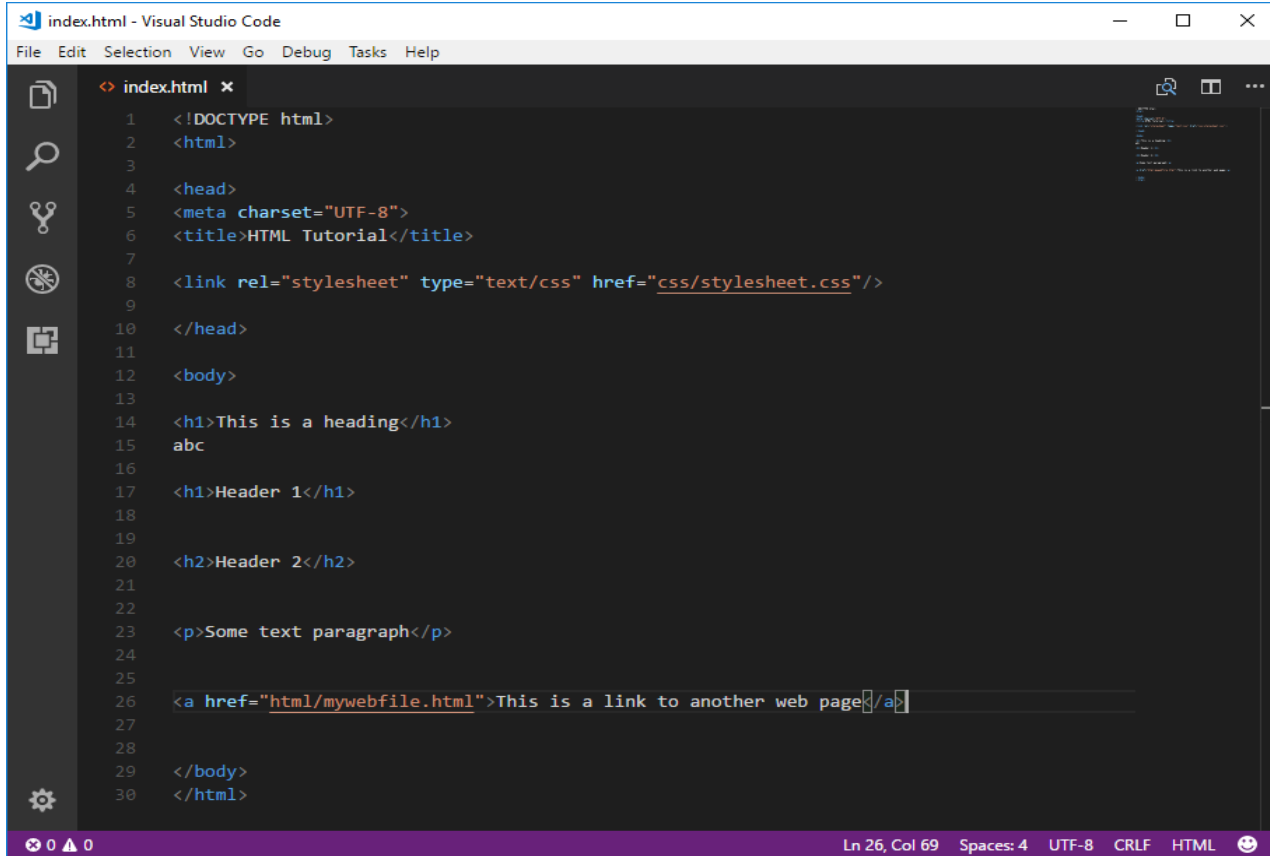
Filename	Filesize	Filetype	Last modified	Permissions	Owner/Gro
..					
documents		File folder	2018-08-23 13:...		
Private		File folder	2017-08-28 08:...		
Index.html	109	HTML File	2018-08-23 13:...		
- Summary:** Local site: 1 file and 5 directories. Total size: 109 bytes. Remote site: 1 file and 2 directories. Total size: 109 bytes.
- Transfer Queue:** Queued files, Failed transfers, Successful transfers. Queue: empty

Start creating your Web Site

Now you are ready to start creating your Web Site

- Use, e.g., Visual Studio Code or similar
- Test your files in your local Browser
- Upload your files to the Web Server using FTP (e.g., WinSCP)
- Test it in your Browser

Visual Studio Code



```
index.html - Visual Studio Code
File Edit Selection View Go Debug Tasks Help

index.html x
1 <!DOCTYPE html>
2 <html>
3
4 <head>
5 <meta charset="UTF-8">
6 <title>HTML Tutorial</title>
7
8 <link rel="stylesheet" type="text/css" href="css/stylesheet.css"/>
9
10 </head>
11
12 <body>
13
14 <h1>This is a heading</h1>
15 abc
16
17 <h1>Header 1</h1>
18
19
20 <h2>Header 2</h2>
21
22
23 <p>Some text paragraph</p>
24
25
26 <a href="html/mywebfile.html">This is a link to another web page</a>
27
28
29 </body>
30 </html>
```

Ln 26, Col 69 Spaces: 4 UTF-8 CRLF HTML

Simple, lightweight and
easy to use Editor
Cross-platform

Download: <https://code.visualstudio.com/>

Creating Web Pages

A modern Web Page typically consist of a mix of 3 languages:

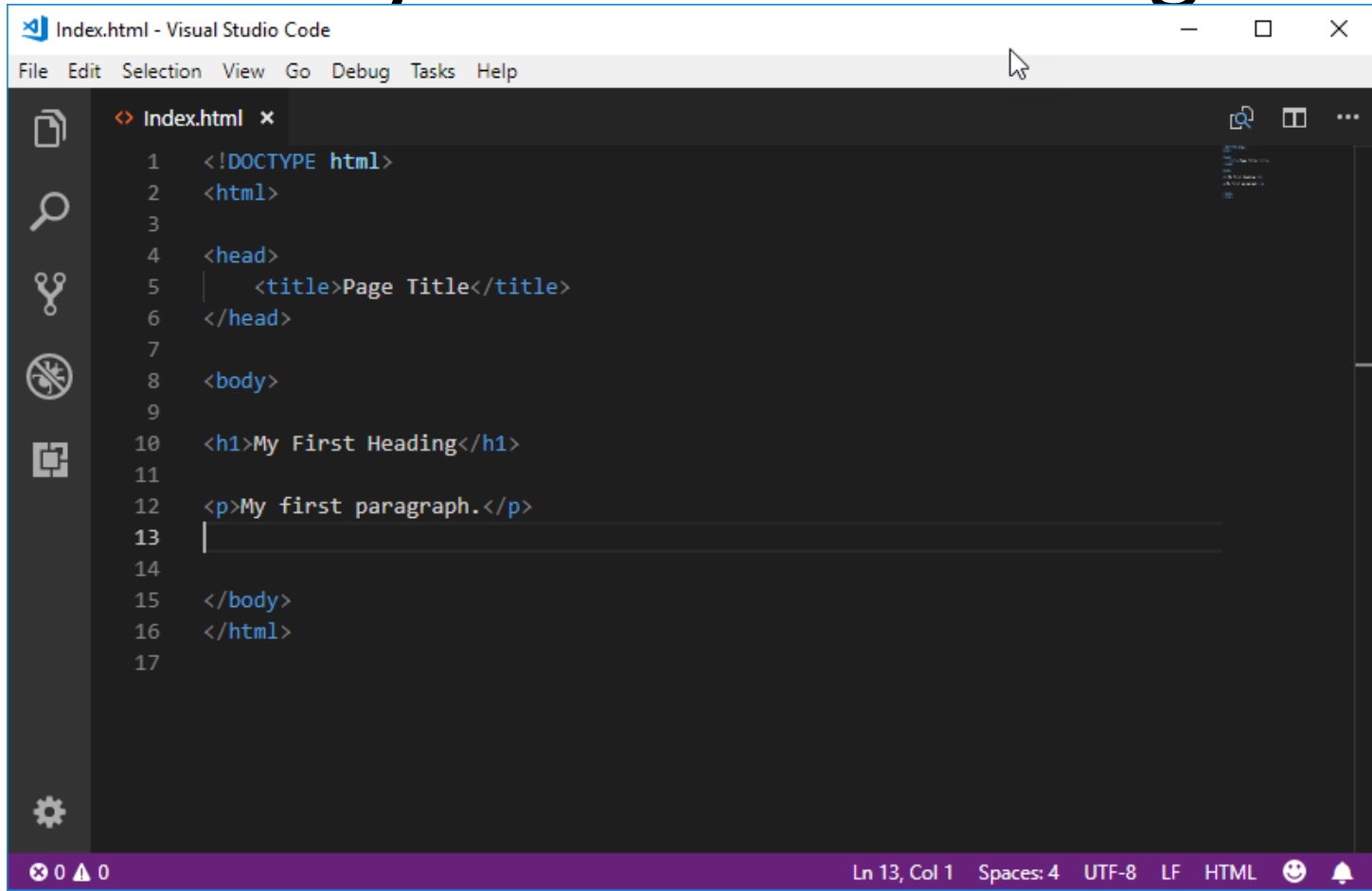
- 1. **HTML** to define the content of web pages
- 2. **CSS** to specify the layout of web pages
- 3. **JavaScript** to program the behavior of web pages

More Advanced Web Pages use in addition the following:

- A **Database**, such as **MySQL**, SQL Server, etc.
- A **Server-side Scripting language/framework** for creating more dynamic contents, communication with the Database, etc. Some examples are **PHP**, **ASP.NET** (C#), Django (Python), Node.js (JavaScript), etc.

<https://www.halvorsen.blog/documents/programming/web/>

Create your first Web Page

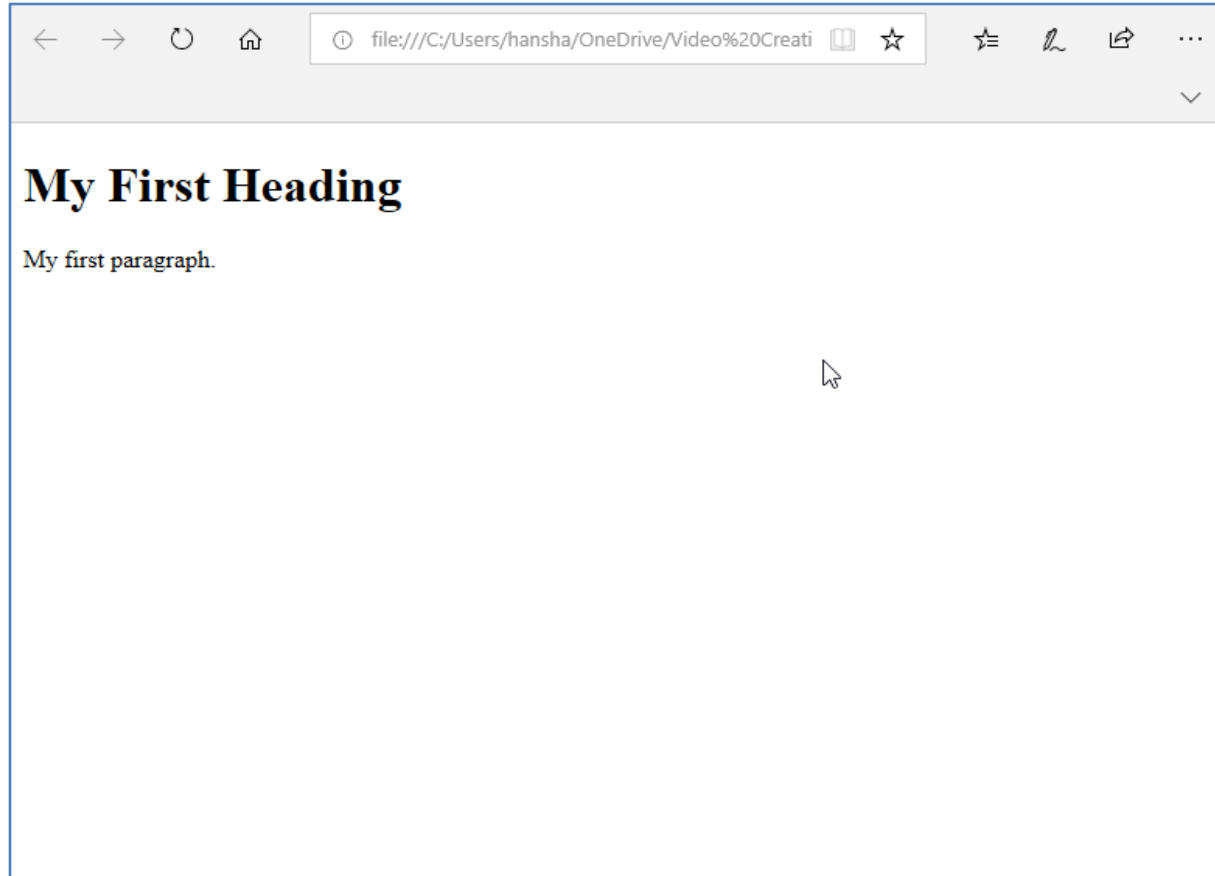


The image shows a screenshot of the Visual Studio Code editor window. The title bar reads "Index.html - Visual Studio Code". The menu bar includes "File", "Edit", "Selection", "View", "Go", "Debug", "Tasks", and "Help". The editor displays a file named "Index.html" with the following HTML code:

```
1 <!DOCTYPE html>
2 <html>
3
4 <head>
5   <title>Page Title</title>
6 </head>
7
8 <body>
9
10 <h1>My First Heading</h1>
11
12 <p>My first paragnaph.</p>
13
14
15 </body>
16 </html>
17
```

The status bar at the bottom indicates "Ln 13, Col 1", "Spaces: 4", "UTF-8", "LF", "HTML", and shows icons for error, warning, and information.

Test in Web Browser



HTML

- HTML is the standard markup language for creating Web pages.

```
<!DOCTYPE html>
<html>
<head>
<title>Page Title</title>
</head>
<body>

<h1>My First Heading</h1>
<p>My first paragraph.</p>

</body>
</html>
```

<https://www.w3schools.com/html/>

<https://www.halvorsen.blog/documents/programming/web/html.php>

CSS

- CSS is a language that describes the style of an HTML document.
- CSS describes how HTML elements should be displayed.

```
body {  
    background-color: lightblue;  
}  
  
h1 {  
    color: white;  
    text-align: center;  
}  
  
p {  
    font-family: verdana;  
    font-size: 20px;  
}
```

CSS Frameworks

- Create user-friendly and good-looking Web pages are time-consuming.
- You may need to use lots of time getting the visual appearance look the way you want.
- You get a lots for free using one of the many existing CSS Frameworks that are available for free.
- Examples:
 - Bootstrap
 - <http://getbootstrap.com>
 - <https://www.w3schools.com/bootstrap4/>
 - W3.CSS
 - <https://www.w3schools.com/w3css/>

JavaScript

- JavaScript is the programming language of HTML and the Web.
- For more advanced and dynamically web pages you typically need to use JavaScript

```
<!DOCTYPE html>
<html>
<body>

<h1>My First Web Page</h1>
<p>My First Paragraph</p>

<p id="demo"></p>

<script>
document.getElementById("demo").
innerHTML = 5 + 6;
</script>

</body>
</html>
```

Additional Features

USN Order Logout

Options for your account on web01.usn.no

want PHP enabled on my account

I want MySQL database and user

Submit

Questions? Contact: it-support@usn.no

- If you need a more advanced Web Site, you typically want to include a database such as **MySQL** and use **PHP** to create more dynamic web pages where the contents is dynamically created based on database contents, etc.

MySQL Database

USN Order Logout

Options for your account on web01.usn.no

want PHP enabled on my account

I want MySQL database and user

Submit

Questions? Contact: it-support@usn.no

By checking "I want MySQL database and user" you will get a database and the user will be the same as your student number/user name. Your password will be stored in your home folder at the server.

Database Management with **phpMyAdmin**:
<https://web01.usn.no/dbadmin>



Welcome to phpMyAdmin

Language

English

Log in

Username:

Password:

Go

https://www.w3schools.com/php/php_mysql_intro.asp

phpMyAdmin

The screenshot displays the phpMyAdmin web interface. At the top, a navigation bar includes tabs for Databases, SQL, Status, Export, Import, Settings, Variables, Charsets, Engines, and Plugins. The main content area is divided into several panels:

- General settings:** Includes a 'Change password' link and a 'Server connection collation' dropdown menu set to 'utf8mb4_unicode_ci'.
- Appearance settings:** Includes a 'Language' dropdown set to 'English', a 'Theme' dropdown set to 'pmahomme', and a 'Font size' dropdown set to '82%'. A 'More settings' link is also present.
- Database server:** Lists server details: Server: Localhost via UNIX socket, Server type: MariaDB, Server version: 10.1.26-MariaDB-0+deb9u1 - Debian 9.1, Protocol version: 10, User: hansha@localhost, and Server charset: UTF-8 Unicode (utf8).
- Web server:** Lists software versions: Apache/2.4.25 (Debian), Database client version: libmysql - mysqlnd 5.0.12-dev - 20150407 - \$Id: b5c5906d452ec590732a93b051f3827e02749b83 \$, PHP extension: mysqli, curl, mbstring, and PHP version: 7.0.30-0+deb9u1.
- phpMyAdmin:** Provides version information (4.6.6deb4) and links to documentation, official homepage, contribute, get support, list of changes, and license.

A left sidebar shows the user 'hansha' and the selected database 'information_schema'. The browser address bar shows 'Server: localhost:3306'.

Here you can manage your database, i.e., add tables, execute SQL commands and scripts, etc.

SQL

- SQL is a standard language for storing, manipulating and retrieving data in databases.
- All relational databases such as MySQL, SQL Server, etc. use SQL.
- SQL stands for Structured Query Language

<https://www.w3schools.com/sql/>

<https://www.halvorsen.blog/documents/technology/database/>

PHP

- PHP is a server scripting language, and a powerful tool for making dynamic and interactive Web pages.
- Used to retrieve or manipulate data stored in a database

```
<!DOCTYPE html>
<html>
<body>

<?php
echo "My first PHP script!";
?>

</body>
</html>
```

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