HTML Introduction Lab

IMPORTANT! Save all your work to a safe location such as OneDrive.

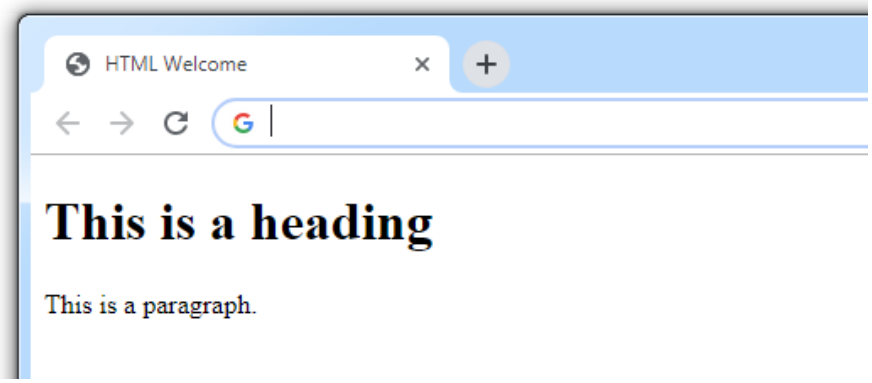
Create a folder for GUI & Web Development into which you will save all your work for this module, arranged how you wish. Ideally you should create a folder each week for your lab exercises. Note that you should create **a separate file** for each exercise.

Exercise 1: Create a Welcome HTML Web Page

1. Open Notepad++ and enter the following text:

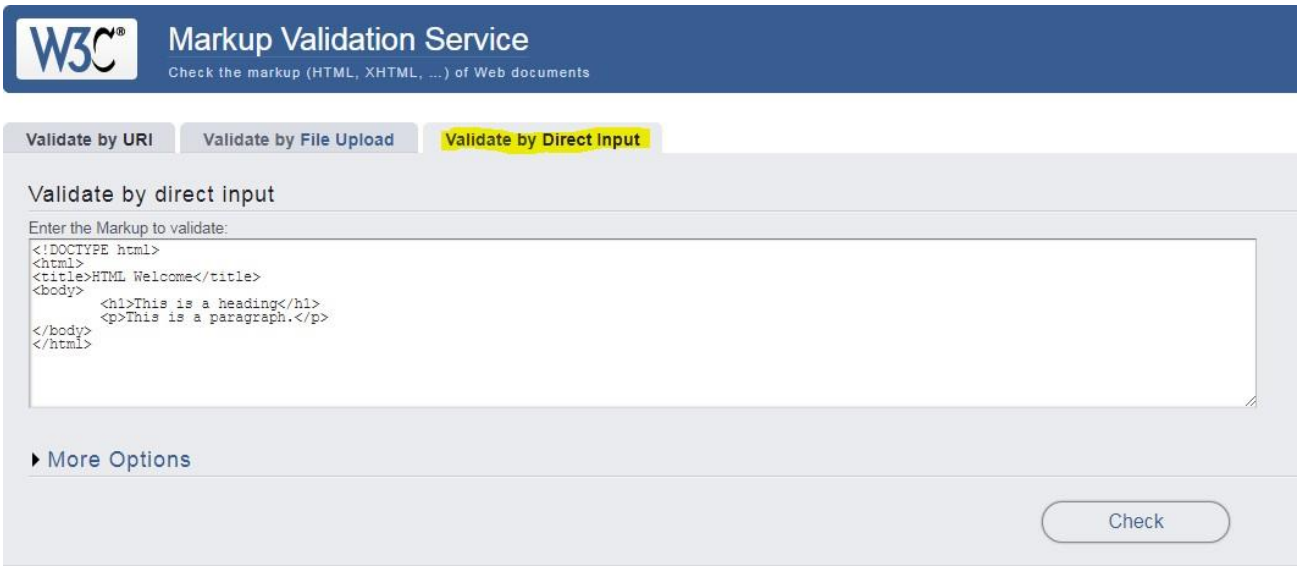
```
<!DOCTYPE html>
<html>
<head>
    <title>HTML Welcome</title>
</head>
<body>
    <h1>This is a heading</h1>
    <p>This is a paragraph.</p>
</body>
</html>
```

2. Save the file as `welcome.html`
3. Open the webpage in your default browser (view -> view current file in -> chrome)
4. Ensure your page runs properly, it should be similar to as shown below:



5. Next you will validate/check your code using the World Wide Web Consortium code validator. To do this, copy your code from notepad++.

6. Navigate to http://validator.w3.org/#validate_by_input to validate as HTML 5. Paste your code into the "Validate by Direct Input" window, and press "Check". This will check your code for errors and see if it meets W3C standards



7. You are likely to see the following warning:

Note that this is a warning and not an error, so your page will still run with this warning. This warning is suggesting that a language is specified for the page. To specify a language, amend the opening "html" tag as shown:

```
<html lang="en">
```

Validate your code again and check to see if it now passes without any warnings or errors.

Exercise 2: Create a Web Page using Heading Elements

1. Open Notepad (or Notepad++) and enter the following text

```
1  <!DOCTYPE html>
2  <html>
3  <head>
4      <title>HTML Headings</title>
5  </head>
6  <body>
7      <h1>Heading 1</h1>
8      <h2>Heading 2</h2>
9      <h3>Heading 3</h3>
10     <h4>Heading 4</h4>
11     <h5>Heading 5</h5>
12     <h6>Heading 6</h6>
13 </body>
14 </html>
```

For information on headings in HTML, go to:
https://www.w3schools.com/html/html_headings.asp

2. Save the file as `headings.html` on your oneDrive.
3. Open the webpage in your default browser.
4. Submit to http://validator.w3.org/#validate_by_input to validate as HTML
5. Correct errors, if any. Warnings about language can be ignored.
6. Add the following comments into your code on lines 2 and 3:

```
1  <!DOCTYPE html>
2  <!-- HTML Headings Exercise 2 -->
3  <!-- Author: (Your name here) -->
4  <html>
5  <head>
6      <title>HTML Headings</title>
7  </head>
8  <body>
9      <h1>Heading 1</h1>
10     <h2>Heading 2</h2>
11     <h3>Heading 3</h3>
12     <h4>Heading 4</h4>
13     <h5>Heading 5</h5>
14     <h6>Heading 6</h6>
15 </body>
16 </html>
```

7. Validate your code again to ensure that there are no errors.

Exercise 3: Recreate the world's first webpage

Apply HTML to the following text

You can copy and paste the text below and apply HTML tags to it to create the required structure. The next page shows how your finished page should look. Use H1 and H2 heading for the headings, and paragraph tags for the plain text.

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.

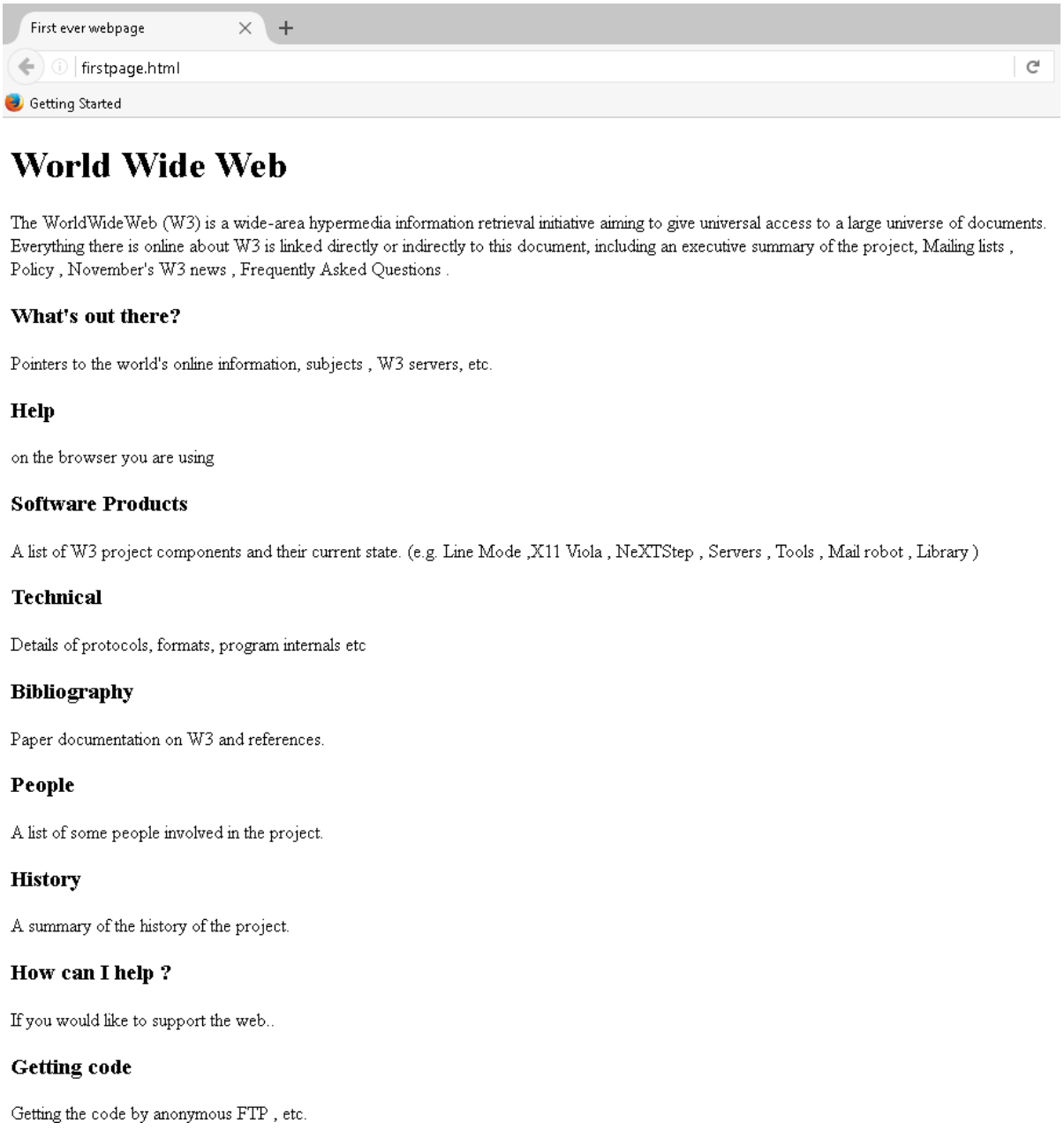
How can I help ?

If you would like to support the web..

Getting code

Getting the code by anonymous FTP , etc.

Your finished page should look like what is shown below:

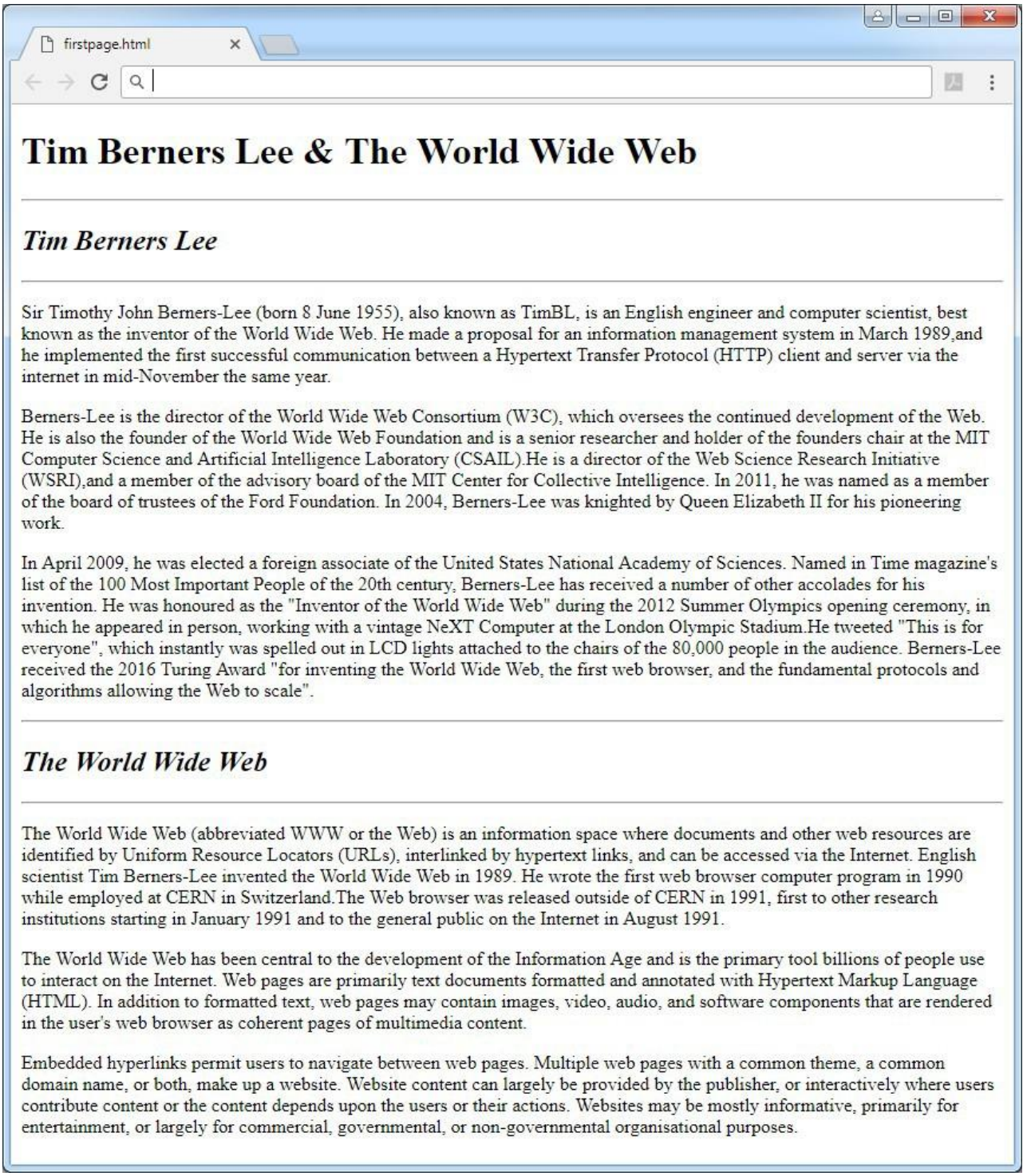


Save the file as *firstweb.html*

Validate your HTML5 at: http://validator.w3.org/#validate_by_input and ensure that your code is error free (The warning about language can be ignored).

Exercise 4: Create a biography webpage on Tim Berners Lee

1. Recreate the web page shown below.



You can copy and paste the text from here (on next page) and apply HTML tags to it to add the required structure.

Hint: *a horizontal rule* can be created using the <hr> tag, see link below for more information: https://www.w3schools.com/tags/tag_hr.asp

Tim Berners Lee & the World Wide Web

Tim Berners Lee

Sir Timothy John Berners-Lee (born 8 June 1955), also known as TimBL, is an English engineer and computer scientist, best known as the inventor of the World Wide Web. He made a proposal for an information management system in March 1989, and he implemented the first successful communication between a Hypertext Transfer Protocol (HTTP) client and server via the internet in mid-November the same year.

Berners-Lee is the director of the World Wide Web Consortium (W3C), which oversees the continued development of the Web. He is also the founder of the World Wide Web Foundation and is a senior researcher and holder of the founders chair at the MIT Computer Science and Artificial Intelligence Laboratory (CSAIL).He is a director of the Web Science Research Initiative (WSRI), and a member of the advisory board of the MIT Center for Collective Intelligence. In 2011, he was named as a member of the board of trustees of the Ford Foundation. In 2004, Berners-Lee was knighted by Queen Elizabeth II for his pioneering work.

In April 2009, he was elected a foreign associate of the United States National Academy of Sciences. Named in Time magazine's list of the 100 Most Important People of the 20th century, Berners-Lee has received a number of other accolades for his invention. He was honoured as the "Inventor of the World Wide Web" during the 2012 Summer Olympics opening ceremony, in which he appeared in person, working with a vintage NeXT Computer at the London Olympic Stadium. He tweeted "This is for everyone", which instantly was spelled out in LCD lights attached to the chairs of the 80,000 people in the audience. Berners-Lee received the 2016 Turing Award "for inventing the World Wide Web, the first web browser, and the fundamental protocols and algorithms allowing the Web to scale".

The World Wide Web

The World Wide Web (abbreviated WWW or the Web) is an information space where documents and other web resources are identified by Uniform Resource Locators (URLs), interlinked by hypertext links, and can be accessed via the Internet. English scientist Tim Berners-Lee invented the World Wide Web in 1989. He wrote the first web browser computer program in 1990 while employed at CERN in Switzerland. The Web browser was released outside of CERN in 1991, first to other research institutions starting in January 1991 and to the general public on the Internet in August 1991.

The World Wide Web has been central to the development of the Information Age and is the primary tool billions of people use to interact on the Internet. Web pages are primarily text documents formatted and annotated with Hypertext Markup Language (HTML). In addition to formatted text, web pages may contain images, video, audio, and software components that are rendered in the user's web browser as coherent pages of multimedia content.

Embedded hyperlinks permit users to navigate between web pages. Multiple web pages with a common theme, a common domain name, or both, make up a website. Website content can largely be provided by the publisher, or interactively where users contribute content or the content depends upon the users or their actions. Websites may be mostly informative, primarily for entertainment, or largely for commercial, governmental, or non-governmental organisational purposes.

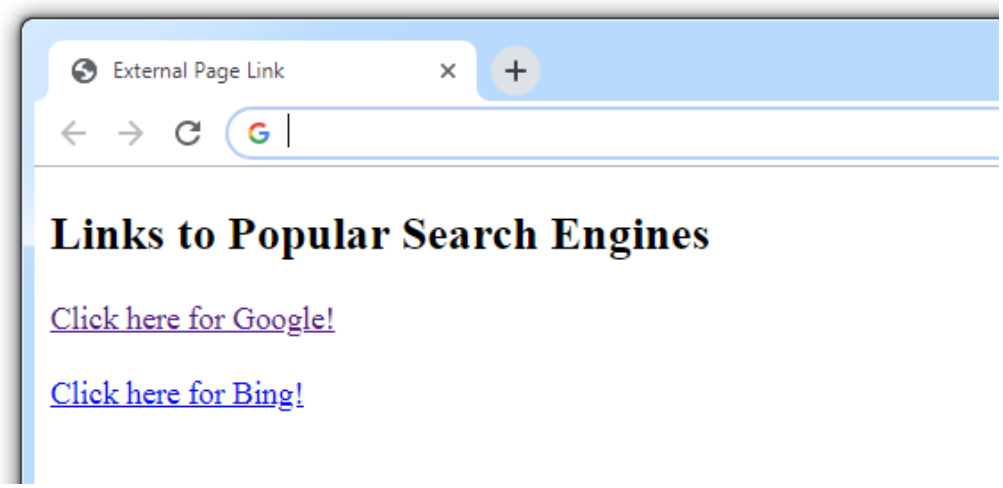
Exercise 5: Create a link to google

1. Open Notepad++ and enter the following text:

```
<!DOCTYPE html>
<!-- HTML Links Exercise 5 -->
<!-- Author: (Your name here) -->
<html>
<head>
    <title>External Page Link</title>
</head>
<body>
    <h2>Links to Popular Search Engines</h2>
    <a href="http://www.google.ie">Click here for Google!</a>
</body>
</html>
```

2. Save and run your page. Your page should have hypertext that links to google.

3. Add a link to the *bing* search engine (http://www.bing.com). Ensure that there is a gap between the 2 links (so the 2 links aren't on the same line). Your finished page should look similar to as shown below. Note that you can use the
 tag to add line breaks between text. See here for more information.



Exercise 6: Create links on an existing page

1. Open the web page you created in exercise 4 about Tim Berners Lee. Save it as "TimLinks.html".
2. Make the following changes to this page:
   - Anywhere Tim Berners Lee's name appears, make his name a hyperlink, linking to his Wikipedia.org page
   - Anywhere CERN is mentioned, make it a hyperlink, linking to https://home.cern/about
   - Add a title attribute to the heading of the page so that when you hover your mouse over it, it displays "About Tim Berners Lee!". For details on how to achieve this, see here.
   - Make all instances of the text "World Wide Web" bold.
3. Test your page to ensure that all links work.
4. Amend your code so that when a link is clicked, it opens in a new browser tab. This can be achieved using the "target" attribute. For example, to ensure that the link to google opens in a new tab, the target attribute is used as following:

```
<a href="http://www.google.ie" target="_blank">Click here for Google!</a>
```

Exercise 7: Create links for Computer Networks page

Add the four paragraphs below to a web page:

A computer network is a set of computers sharing resources located on or provided by network nodes. Computers use common communication protocols over digital interconnections to communicate with each other. These interconnections are made up of telecommunication network technologies based on physically wired, optical, and wireless radio-frequency methods that may be arranged in a variety of network topologies.

The nodes of a computer network can include personal computers, servers, networking hardware, or other specialized or general-purpose hosts. They are identified by network addresses and may have hostnames. Hostnames serve as memorable labels for the nodes and are rarely changed after initial assignment. Network addresses serve for locating and identifying the nodes by communication protocols such as the Internet Protocol.

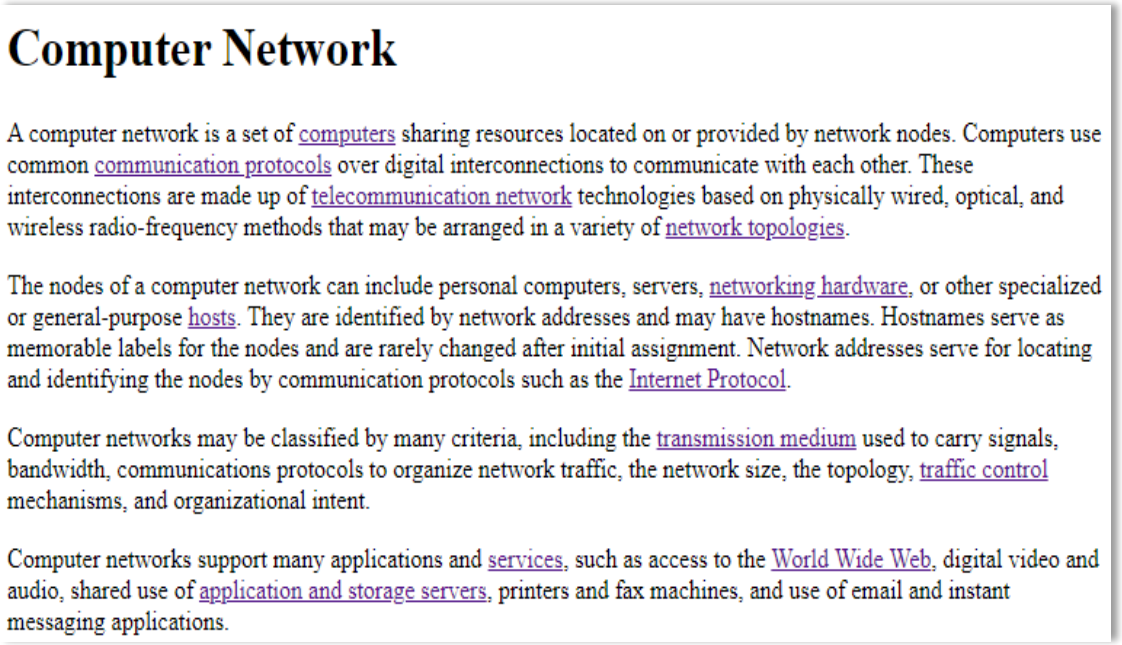
Computer networks may be classified by many criteria, including the transmission medium used to carry signals, bandwidth, communications protocols to organize network traffic, the network size, the topology, traffic control mechanisms, and organizational intent.

Computer networks support many applications and services, such as access to the World Wide Web, digital video and audio, shared use of application and storage servers, printers and fax machines, and use of email and instant messaging applications.

Add links to the paragraphs for the following text (urls are included):

computers - https://en.wikipedia.org/wiki/Computer
communication protocols - https://en.wikipedia.org/wiki/Communication_protocol
telecommunications network - https://en.wikipedia.org/wiki/Telecommunications_network
network topologies - https://en.wikipedia.org/wiki/Network_topology
networking hardware - https://en.wikipedia.org/wiki/Networking_hardware
hosts - https://en.wikipedia.org/wiki/Host_(network)
Internet Protocol - https://en.wikipedia.org/wiki/Internet_Protocol
transmission medium - https://en.wikipedia.org/wiki/Transmission_medium
traffic control - https://en.wikipedia.org/wiki/Network_traffic_control
services - https://en.wikipedia.org/wiki/Network_service
World Wide Web - https://en.wikipedia.org/wiki/World_Wide_Web
application and storage servers - https://en.wikipedia.org/wiki/File_server

Include a heading for this page. An example screenshot of completed page is as follows:



Computer Network

A computer network is a set of computers sharing resources located on or provided by network nodes. Computers use common communication protocols over digital interconnections to communicate with each other. These interconnections are made up of telecommunication network technologies based on physically wired, optical, and wireless radio-frequency methods that may be arranged in a variety of network topologies.

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Check all links work as expected.

Exercise 8: Create a *personal links* page

Create a personal links page that includes links to sites and pages that you use regularly. Find the link (URL) and cut and paste this into your webpage.

You should have links for at least the following items (add in others as you see fit).

- The Moodle URLs to the modules you are taking this semester
- ATU website
- Student Services
- Students Union
- Bus Eireann timetables
- Clubs and Societies websites (choose a few)
- Galway city general information

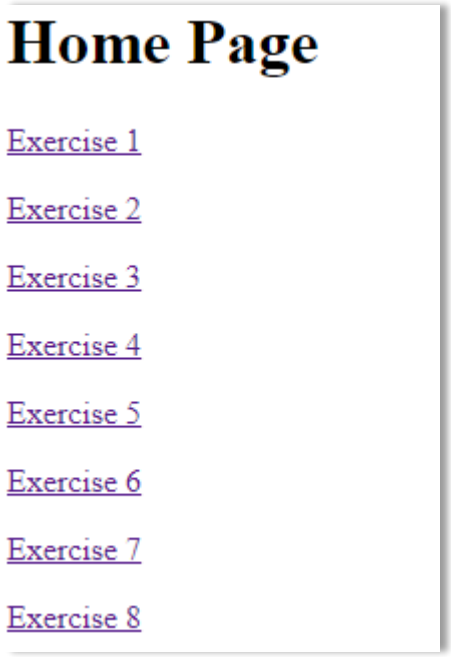
Exercise 9: Create a *Home Page*

1. Create a web page which contains links to all the web pages you have created in this lab.

   Each of the links should be put into separate paragraphs. For example:

   ```
   <p><a href="ex1.html">Exercise 1</a></p>
   ```

   An example screenshot of this web page is as follows:

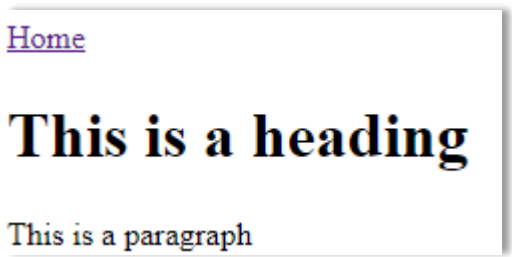
   

2. Update each of the web pages you created in the previous exercises so that they include links to navigate back to this home page.

   Each of these links should be put into separate paragraphs at the top of each of your webpages. For example:

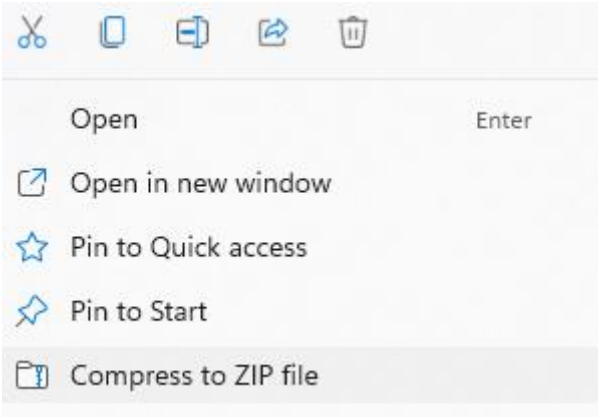
   ```
   <p><a href="home.html">Home</a></p>
   ```

   An example screenshot of updated exercise 1 webpage is as follows:

Upload your work to Moodle

1. Navigate to the location of the folder where you saved all your work for today's lab.
2. Right-click on the folder and select "Compress to ZIP file". This will create a compressed version of any files you have worked on for the lab.



3. There should be a new compressed file created. This is the file that you will need to upload to Moodle.
4. In Moodle, click the ***upload*** link which is available with this alongside this lab.
5. Click "add submission" and add the ZIP file you created here. Make sure you complete the submission process. Your lab work has been submitted.