Revision Exercises

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.

The exercises included in this document are to help to prepare for the HTML/CSS Lab Practical on week 14 (next week). In the assessment you will get three exercises to complete and submit.

Exercise 1: Create a basic web page

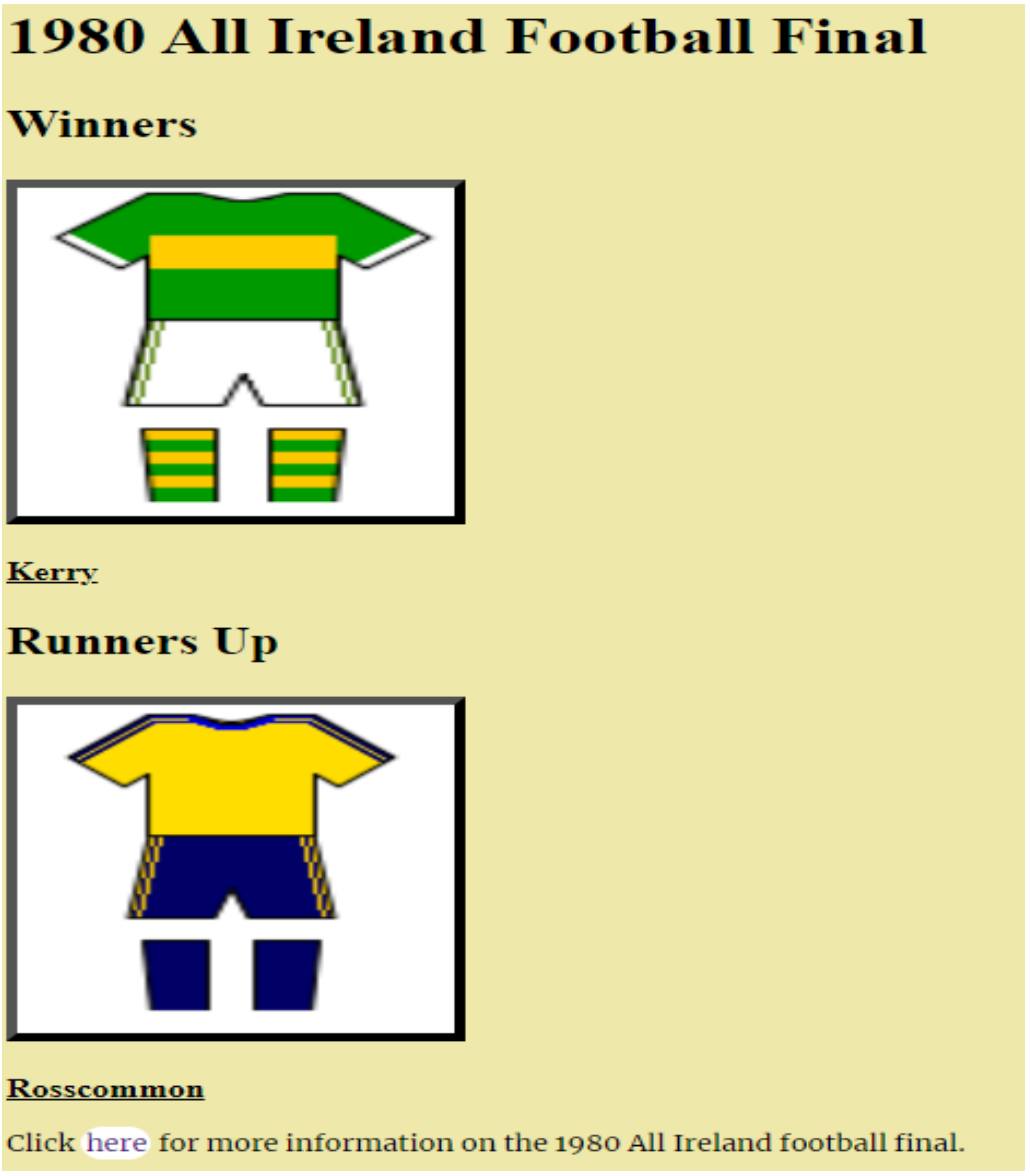
1. Recreate the following web page:

Text, html tags, images and style as follows:

- Level Heading 1: Pink Floyd Albums. Font color is red.
- Level Heading 2: Dark Side of the Moon. Font color is blue.
- Level Heading 2: Wish You Were Here. Font color is blue.
- Images: Images for this page are available for download from Moodle – see Lab 13 Images folder, Exercise 1. Download and unzip this file.
- Images: Contain a red border which has a width of 5 pixels.
- Paragraphs:
    - Dark Side of the Moon is the eight studio album by the English rock band Pink Floyd.
    - Primarily developed during live performances, it was released in March 1973.
    - Wish You Were Here is the ninth studio album by the English rock band Pink Floyd.
    - It was recorded at Abbey Road Studios in London and released in September 1975.
- Paragraph font: Open Sans – available at google fonts
- Page background color is #e6f2ff.

Exercise 2: Create a basic web page

Recreate the following web page:



Text, html tags, images and style as follows:

- Images: Images for this page are available for download from Moodle – see Lab 13 Images folder, Exercise 2. Download and unzip this file.
- Images: Contains an outset border which has a width of 5 pixels. The border colour is black.
- Both images should be set to the same width and height.
- The text for headings and paragraph are as per screenshot above.
- Both the words “Kerry” and “Roscommon” should be underlined and have a font weight of bold. This can be performed using HTML or CSS.
- Page background color is PaleGoldenRod.
- The text for the paragraph at the bottom of the page uses the *Merriweather* font which is available at google fonts.
- The paragraph at the bottom of the page includes a hyperlink on the word “here”. Note the background colour and border radius from the screen shot. The link should implement the hover pseudo class to change to background colour to PaleGoldenRod and the font color to black. The link should not be underlined and it should be configured to open the following page in a separate tab: https://en.wikipedia.org/wiki/1980_All-Ireland_Senior_Football_Championship_final.

Exercise 3: Creating a page layout using CSS Grid

In this exercise, you will create a web page with multiple panels containing text and images.

1. Create a basic grid layoutas shown below.

Box 1	Box 2	Box 3
Box 4		

The above is using a total of 4 fractions and 3 columns for the layout.

2. Span the first box so it is across the entire page:

Box 1		
Box 2	Box 3	Box 4

3. Amend the contents of the Box 1 DIV so that the page is as following:

Home About Us Contact Shop Download		
Box 2	Box 3	Box 4

4. Add the HTML provided below to the left panel, Box 2:

```
<h1>History of the World Wide Web</h1>

<h2>Precursors</h2>
<p>The hypertext portion of the Web in particular has an intricate intellectual history; notable influences and precursors include Vannevar Bush's Memex, IBM's Generalized Markup Language, and Ted Nelson's Project Xanadu. </p>

<p>Paul Otlet's Mundaneum project has also been named as an early 20th century precursor of the Web.</p>

<p>The concept of a global information system connecting homes is prefigured in "A Logic Named Joe", a 1946 short story by Murray Leinster, in which computer terminals, called "logics," are present in every home. Although the computer system in the story is centralized, the story anticipates a ubiquitous information environment similar to the Web. The cultural impact of the web was imagined even further back in a short story by E. M. Forster, "The Machine Stops," first published in 1909.</p>

<h2>1980-1991: Invention and implementation of the Web</h2>

<p>The NeXTcube used by Tim Berners-Lee at CERN became the first Web server.
In 1980, Tim Berners-Lee, an English independent contractor at the European Organization for Nuclear Research (CERN) in Switzerland, built ENQUIRE, as a personal database of people and software models, but also as a way to play with hypertext; each new page of information in ENQUIRE had to be linked to an existing page.</p>

<p>Berners-Lee's contract in 1980 was from June to December, but in 1984 he returned to CERN in a permanent role, and considered its problems of information management: physicists from around the world needed to share data, yet they lacked common machines and any shared presentation software.</p>

<p>Shortly after Berners-Lee's return to CERN, TCP/IP protocols were installed on some key non-Unix machines at the institution, turning it into the largest Internet site in Europe within a few years. As a result, CERN's infrastructure was ready for Berners-Lee to create the Web.</p>

<p>Berners-Lee wrote a proposal in March 1989 for "a large hypertext database with typed links". Although the proposal attracted little interest, Berners-Lee was encouraged by his boss, Mike Sendall, to begin implementing his system on a newly acquired NeXT workstation.He considered several names, including Information Mesh,The Information Mine or Mine of Information, but settled on World Wide Web.</p>


<p>Robert Cailliau, Jean-Francois Abramatic and Tim Berners-Lee at the 10th anniversary of the WWW Consortium. Berners-Lee found an enthusiastic supporter in Robert Cailliau. Berners-Lee and Cailliau pitched Berners-Lee's ideas to the European Conference on Hypertext Technology in September 1990, but found no vendors who could appreciate his vision of marrying hypertext with the Internet.</p>

<p>By Christmas 1990, Berners-Lee had built all the tools necessary for a working Web: the HyperText Transfer Protocol (HTTP) 0.9,[11] the HyperText Markup Language (HTML), the first Web browser (named WorldWideWeb, which was also a Web editor), the first HTTP server software (later known as CERN httpd), the first web server (http://info.cern.ch), and the first Web pages that described the project itself. The browser could access Usenet newsgroups and FTP files as well. However, it could run only on the NeXT; Nicola Pellow therefore created a simple text browser, called the Line Mode Browser, that could run on almost any computer.[12] To encourage use within CERN, Bernd Pollermann put the CERN telephone directory on the web previously users had to log onto the mainframe in order to look up phone numbers.</p>

<p>While inventing and working on setting up the Web, Berners-Lee spent most of his working hours in Building 31 at CERN, but also at his two homes, one in France, one in Switzerland.[13] In January 1991 the first Web servers outside CERN itself were switched on.</p>
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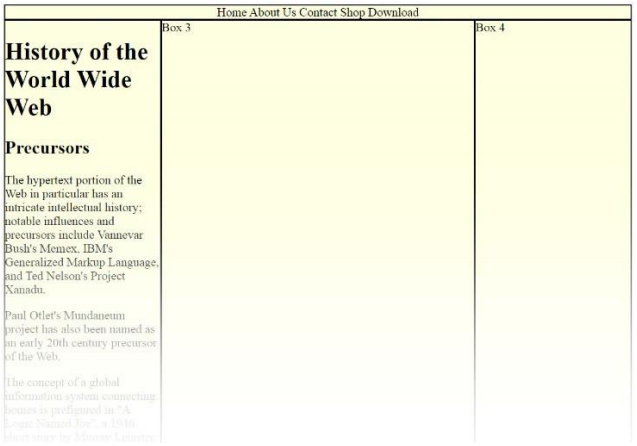
Your page should now look like:



5. Add the HTML below to the middle panel, Box 3:

```
<h1>Tim Berners Lee: A Profile</h1>

<p>Sir Timothy John Berners-Lee OM KBE FRS FREng FRSA FBCS (born 8 June 1955),[1] also known as TimBL, is an English engineer and computer scientist, best known as the inventor of the World Wide Web. He is currently a professor of computer science at the University of Oxford and the Massachusetts Institute of Technology (MIT).[3][4] He made a proposal for an information management system in March 1989,[5] 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.</p>

<p>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 3Com founders chair at the MIT Computer Science and Artificial Intelligence Laboratory (CSAIL).[11] He is a director of the Web Science Research Initiative (WSRI),[12] and a member of the advisory board of the MIT Center for Collective Intelligence.[13][14] In 2011, he was named as a member of the board of trustees of the Ford Foundation.[15] He is a founder and president of the Open Data Institute.</p>

<p>In 2004, Berners-Lee was knighted by Queen Elizabeth II for his pioneering work.[16][17] In April 2009, he was elected a foreign associate of the United States National Academy of Sciences.[18][19] 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.[20] 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.[21] He tweeted "This is for everyone",[22] which instantly was spelled out in LCD lights attached to the chairs of the 80,000 people in the audience.[21] 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".</p>

<h2>Early life and education</h2>
<p>Berners-Lee was born in London, England, United Kingdom,[24] one of four children born to Mary Lee Woods and Conway Berners-Lee. His parents worked on the first commercially built computer, the Ferranti Mark 1. He attended Sheen Mount Primary School, and then went on to attend south west London's Emanuel School from 1969 to 1973, at the time a direct grant grammar school, which became an independent school in 1975.[1][16] A keen trainspotter as a child, he learnt about electronics from tinkering with a model railway.[25] He studied at The Queen's College, Oxford, from 1973 to 1976, where he received a first-class bachelor of arts degree in physics.[1][24] While he was at college, Berners-Lee made a computer out of an old television set, which he bought from a repair shop.</p>

<p>After graduation, Berners-Lee worked as an engineer at the telecommunications company Plessey in Poole, Dorset.[24] In 1978, he joined D. G. Nash in Ferndown, Dorset, where he helped create type-setting software for printers.</p>

<p>Berners-Lee worked as an independent contractor at CERN from June to December 1980. While in Geneva, he proposed a project based on the concept of hypertext, to facilitate sharing and updating information among researchers.[27] To demonstrate it, he built a prototype system named ENQUIRE.</p>

<p>After leaving CERN in late 1980, he went to work at John Poole's Image Computer Systems, Ltd, in Bournemouth, Dorset.[29] He ran the company's technical side for three years.[30] The project he worked on was a "real-time remote procedure call" which gave him experience in computer networking.[29] In 1984, he returned to CERN as a fellow.</p>

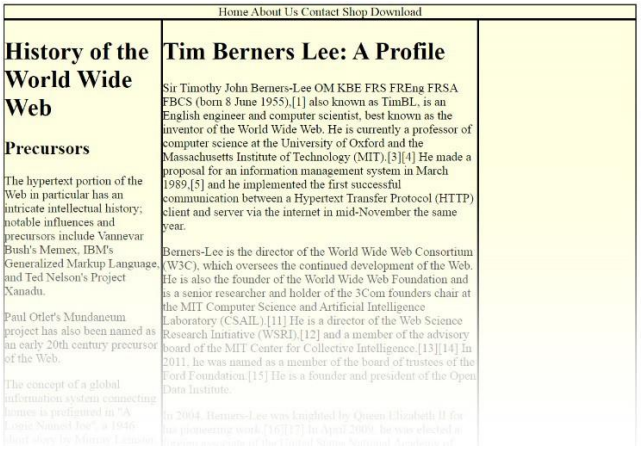
<p>In 1989, CERN was the largest internet node in Europe, and Berners-Lee saw an opportunity to join hypertext with the internet:</p>

<p><i>I just had to take the hypertext idea and connect it to the Transmission Control Protocol and domain name system ideas and "ta-da!" the World Wide Web... Creating the web was really an act of desperation, because the situation without it was very difficult when I was working at CERN later. Most of the technology involved in the web, like the hypertext, like the internet, multifont text objects, had all been designed already. I just had to put them together. It was a step of generalising, going to a higher level of abstraction, thinking about all the documentation systems out there as being possibly part of a larger imaginary documentation system</i></p>
```

```
<p>This NeXT Computer was used by Berners-Lee at CERN and became the world's first web server
Berners-Lee wrote his proposal in March 1989 and, in 1990, redistributed it. It then was accepted by his manager,
Mike Sendall, who called his proposals 'vague, but exciting'.[33] He used similar ideas to those underlying the
ENQUIRE system to create the World Wide Web, for which he designed and built the first Web browser. His software
also functioned as an editor (called WorldWideWeb, running on the NeXTSTEP operating system), and the first Web
server, CERN HTTPd (short for Hypertext Transfer Protocol daemon).</p>

<p>Mike Sendall buys a NeXT cube for evaluation, and gives it to Tim [Berners-Lee]. Tim's prototype implementation
on NeXTStep is made in the space of a few months, thanks to the qualities of the NeXTStep software development
system. This prototype offers WYSIWYG browsing/authoring! Current Web browsers used in 'surfing the internet' are
mere passive windows, depriving the user of the possibility to contribute. During some sessions in the CERN cafeteria,
Tim and I try to find a catching name for the system. I was determined that the name should not yet again be taken
from Greek mythology..... Tim proposes 'World-Wide Web'. I like this very much, except that it is difficult to pronounce
in French... by Robert Cailliau, 2 November 1995.</p>
```

Your page should now look like:



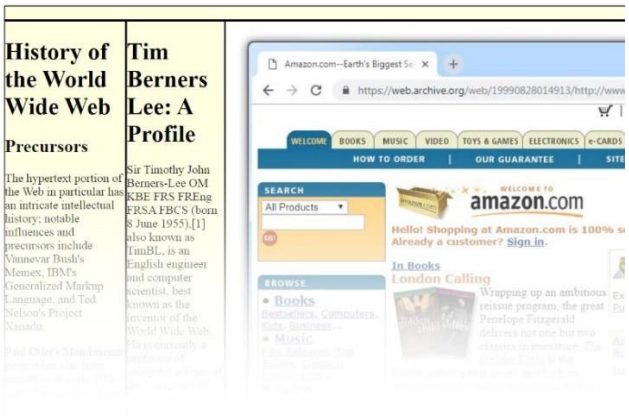
6. Images for this page are available for download from Moodle – see Lab 13 Images folder, Exercise 3. Download this zip file. Make sure you save this in the same folder as the document you are currently working on and extract the contents of this file to the same folder.

7. Add the HTML below to the right panel, Box 4:

```
<img src="images/amazon.jpg" alt="Amazon home page">
<p>An early amazon.com home page from 1998.</p><br><br>
<img src="images/first_server.jpg" alt="First web server">
<p>The world's first web server: Tim Berners-Lees' NeXT server that was
used in early 1991.</p><br><br>
<img src="images/mosaic.jpg" alt="Mosaic web browser">
<p>One of the earliest graphical browsers was "Mosaic": it is one of the
web browsers that popularized the World Wide Web and the Internet.</p><br><br>
```

Note: When copying the above HTML from this exercise, you may need to update the quotes(“). Just delete the quotes and type them in again e.g. src=”images/amazon.jpg”.
Also, please ensure the url is correct. If you did not extract the zip file to the images folder then update the url values assigned to the src attributes so that images are located when the page loads in the browser.

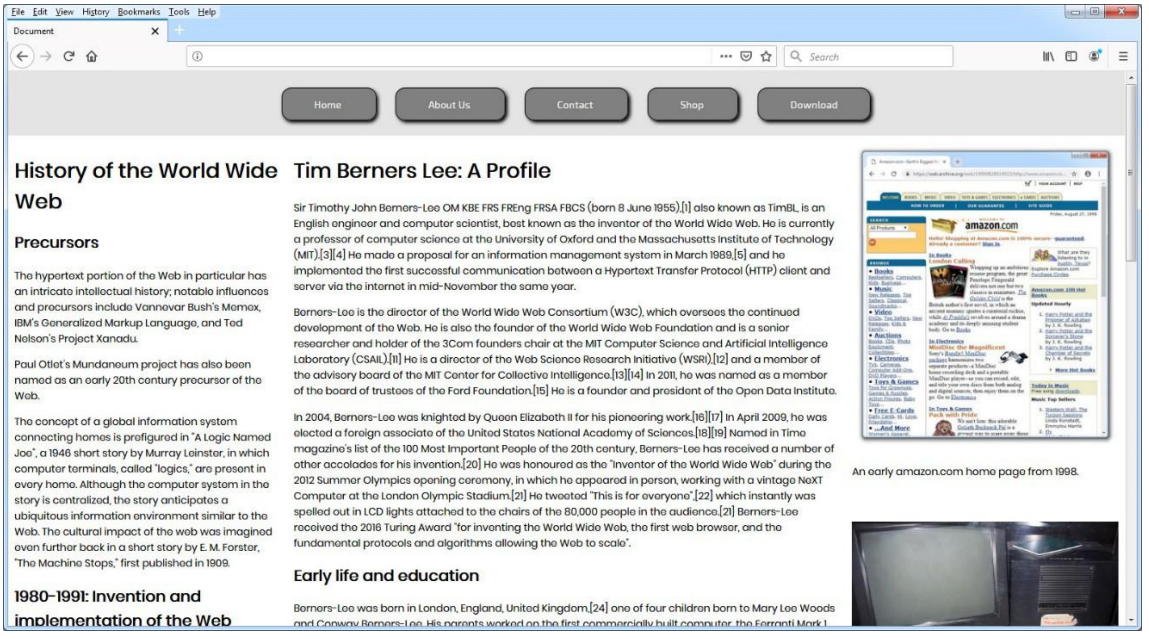
8. Save and refresh your page. The images should be visible, but the sizing will be incorrect:



9. The images will need to have a size specified so that they fit inside the DIV container (the DIV which is Box 4). In this case, this CSS rule can specify all image tags:

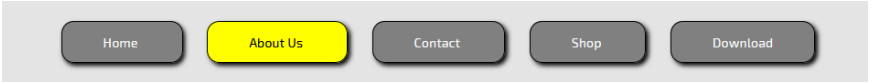
```
img {width: 100%;}
```

10. Edit the code on your page so that your finished page looks similar to as shown below:



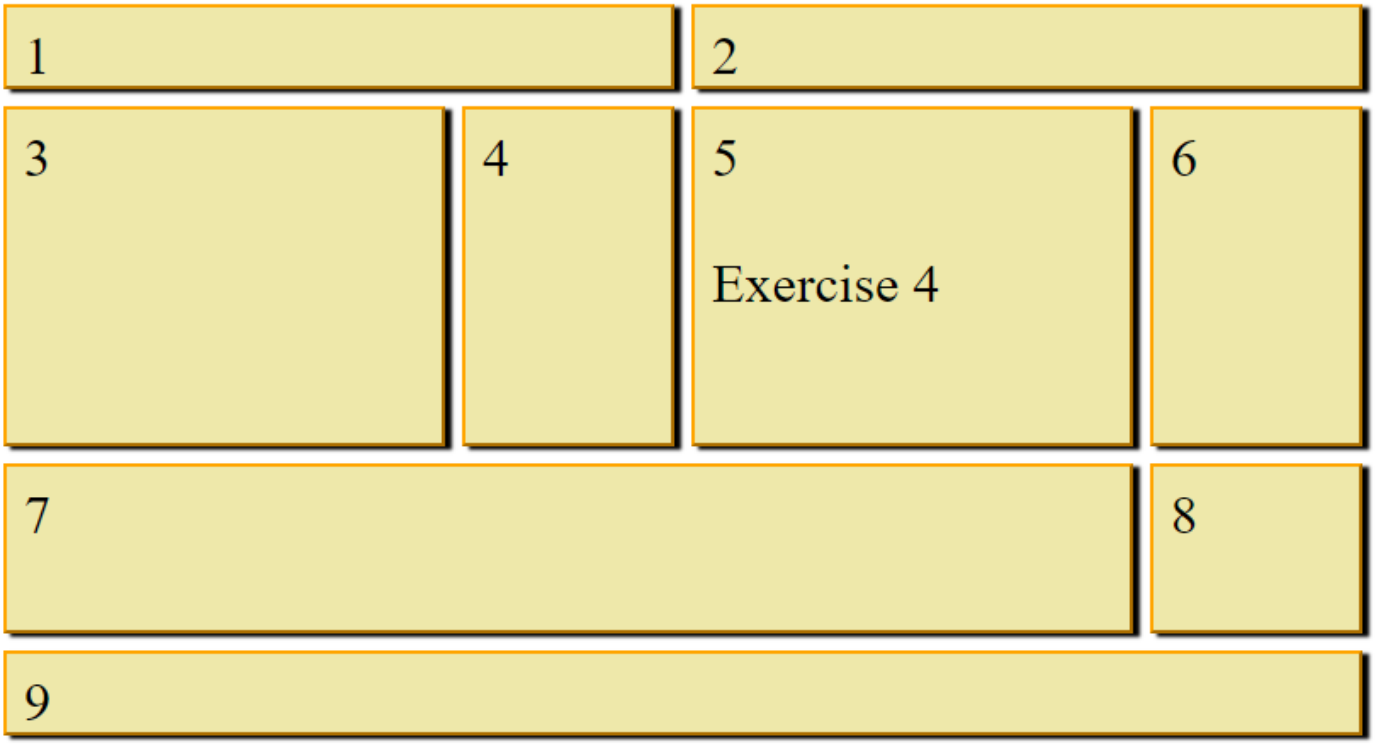
Fonts used are *Exo 2* and *Poppins*.

11. Amend your page so that when the user mouses over any button, the button colour scheme changes to as shown:



Exercise 4: Creating a page layout using CSS Grid

Recreate the web page shown below:



Note the following:

- Page uses a grid layout which splits up the page into 6 fractional parts – columns, and 4 rows.
- The container for this grid should be set to a width of 800 pixels.
- Row heights are 50, 200, 100 and 50 pixels respectively.
- The grid-gap and grid-column properties are used.
- Background colours used for the boxes on the screen is PaleGoldenRod.
- Each box contains an orange outset border which is 2 pixels in width.
- Text for each of the boxes is as per screenshot, numbers 1 to 9, and “Exercise 4”.
- For each of the boxes consider setting values for the properties padding, font size and box shadow.

Exercise 5: Creating a page layout using CSS Grid

1. Recreate the web page shown below:

Note the following:

- Page uses a grid layout which splits up the page into 4 fractional parts – columns, and 3 rows.
- Background color used for top row and bottom row is rgba(184, 46, 15, 0.8).
- The grid-gap property is used.
- Font used for top and bottom rows is Russo One – available at google fonts.
- Images: Images for this page are available for download from Moodle – see Lab 13 Images folder, Exercise 5. Download and unzip this file.
- Text below images should be placed in paragraphs and use the Raleway font - available at google fonts.
- Consider using padding, font-size, text-align and other css properties to style the page similar to what is shown in the screenshot.
- In the bottom row, there is a link to the rte website – see the here button - Clicking on this should open the rte website in a separate tab. The link should be styled as a button, contain no underline, and it should implement the hover pseudo class to change to a background color and text color of your choosing.

Exercise 6: Creating a page layout using CSS Grid

1. Take a copy of the web page you created in exercise 1 and amend the layout of this page so that it looks like the following:

2. Note the following:
    a. Page uses a grid layout which splits up the page into 4 fractional parts (1fr 3fr).
    b. Container width is 70%.
    c. Border is 2px dashed red.
    d. Other properties to use include grid-gap, grid-column, padding, padding-left, padding-top and text-align.

Exercise 7: Creating a page layout using CSS Grid

1. Take a copy of the web page you created in exercise 6 and amend the layout of this page so that it looks like the following:

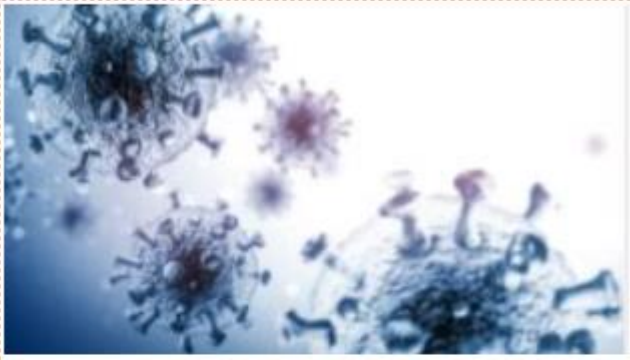
2. Note the following:
    a. Page uses a grid layout which splits up the page into 2 fractional parts (1fr 1fr).
    b. Apply the text-align property on the div elements which contains the images to center the images.
    c. Amend some property values used for the page in exercise 4 to achieve a similar style as to what is shown in the screenshot above.

Exercise 8: Creating a page layout using CSS Grid

1. Take a copy of the web page you created in exercise 5 and amend the layout of this page so that it looks like the following:

Latest News From RTÉ

Click here to visit RTÉ website for more on these and other stories



All the latest news on Covid - There is still plenty of it to go around

All the latest news on Brexit - Catch up with the latest on the protocol negotiations

All the latest news from the Dail - Plenty of news generated from this place

All the latest news from the United States - Where to begin.

2. Note the following:
    a. Page uses a grid layout which splits up the page into 2 fractional parts (1fr 1fr).
    b. Use the width property on the container div element – 650px.
    c. To move the container into the center of the page, you can use the following CSS rule:

```
body{
    max-width: max-content;
    margin: auto;
}
```

    d. Border shown on screenshot is 2px dotted rgba(184, 46, 15, 0.8).