



Data visualization and presentation

Terms

Data visualization

- Graphical representation of data
- Purpose; make (large) amounts of data readable (and interesting)
- Allows users to reach conclusions after reading the data

Infographic

- Visual representation of information
- A “path” of data visualization and information/directions to describe a conclusion
- An infographic can include several data visualisations

Terms

Techniques

- Libraries, coding languages and –templates used to make
 - part or parts of data visualization
 - part or parts of a digital story

Coding templates

- Working examples of techniques
- Codebases that can be adjusted, enhanced or improved to fit a project

Goals of the day

Goals:

Getting to know **data presentation techniques** and how to connect them to data presentation

Getting to know **code templates** we can adjust and manipulate to present our data in an understandable, interesting way

Starting to form ideas on how to **connect** the **techniques** and **templates** to form a **digital story**

How to achieve the goals:

1. Examples to understand (isolated) data presentation elements.
2. Which technologies are used to create data presentation elements.
3. Find technologies we can use to form our project, bit by bit.

Take a step back from the larger Project Moken and relate ourselves with it's elements; What "simple" bits makes the whole?

Examples

- Scrollable
 - [Horizontal scroll](#)
 - [Floating information boxes](#)
 - [Parallax](#)
 - [Scroll position](#)
- [Slideshows](#)
- [Charts](#)
- [Timeline](#)
- [Singlepage stories](#)
- [Map](#)
- [Map](#)
- [Map as navigation](#)
- [Call to Action](#)
- [Timeline with CtA](#)
- [Popup/slideins](#)

A man with a beard is wearing a dark blue t-shirt. The t-shirt has a white quote printed on it. The quote is: `<quote>`
USE THE
SOURCE, LUKE
`</quote>`

`<quote>`
USE THE
SOURCE, LUKE
`</quote>`

Host it
yourself –
for more
control.



CSS

Cascadable StyleSheets

CSS: Simple data visualization

COMMUNICATION DESIGN

by the numbers



Students



Work hours pr week



Hours of Grading



Average grade



Fail grade

CSS: Simple data visualization



```
* {  
  box-sizing: border-box;  
}
```

```
.data-box {  
  display: block;  
  overflow: hidden;  
  width: 20%;  
  float: left;  
  text-align: center;  
}
```

```
.data-container {  
  width: 200px;  
  height: 200px;  
  margin: 0 auto;  
  background: repeating-linear-gradient(  
    45deg,  
    #606dbc,  
    #606dbc 10px,  
    #465298 10px,  
    #465298 20px  
  );  
  border: 10px solid #465298;  
  color: #ffffff;  
  font-size: 75px;  
  font-family: Georgia, serif;  
  border-radius: 50%;  
  clear: both;  
  padding-top: 55px;  
}
```

```
.data-box span {  
  font-style: italic;  
  font-size: 20px;  
  margin-top: 10px;  
  color: #333;  
}
```

CSS: Drawing and animation

Little green guy:

<https://codepen.io/anon/pen/wqYzrv>

You should read [this prototypr post](#).

[Examples of CSS drawings](#)



CSS Animation

- uses **keyframes** to adjust rules during a given **timeframe**
- Refer to the keyframe animation on a specific **element** to apply animation

```
/* The animation code */
```

```
@keyframes example {  
  0% {background-color:red; left:0px; top:0px;}  
  25% {background-color:yellow; left:200px; top:0px;}  
  50% {background-color:blue; left:200px; top:200px;}  
  75% {background-color:green; left:0px; top:200px;}  
  100% {background-color:red; left:0px; top:0px;}  
}
```

```
/* The element to apply the animation to */
```

```
div {  
  width: 100px;  
  height: 100px;  
  background-color: red;  
  animation-name: example;  
  animation-duration: 4s;  
}
```

CSS Animation: Shake

```
.face:hover {  
  animation: shake 0.82s cubic-bezier(.36,.07,.19,.97) both;  
  transform: translate3d(0, 0, 0);  
  backface-visibility: hidden;  
  perspective: 1000px;  
}  
  
@keyframes shake {  
  10%, 90% {  
    transform: translate3d(-1px, 0, 0);  
  }  
  20%, 80% {  
    transform: translate3d(2px, 0, 0);  
  }  
  30%, 50%, 70% {  
    transform: translate3d(-4px, 0, 0);  
  }  
  40%, 60% {  
    transform: translate3d(4px, 0, 0);  
  }  
}
```

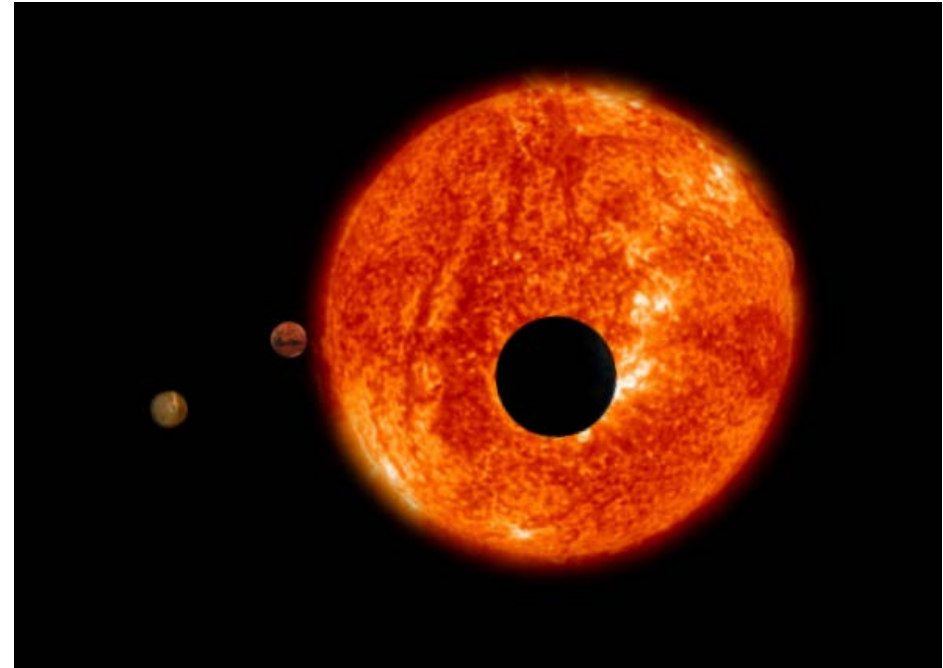


Test it on CodePen:

<https://codepen.io/sdras/pen/aOgMON>

CSS Animation: Movement

```
@keyframes shadow {  
  0% background-position 130% 0%  
  33% background-position 50% 0%  
  55% background-position 0% 0%  
  80% background-position -50% 0%  
  100% background-position -50% 0%  
}  
@keyframes orbitmercury {  
  0% z-index 2 transform rotateY(0)  
  49% z-index 2  
  50% z-index -2  
  99% z-index -2  
  100% z-index 2 transform rotateY(360deg)  
}
```



Test it on CodePen:

<http://codepen.io/waynedunkley/pen/YPJWaz/>



Icons

Icons

- Using Icons as a descriptive visual aid can enhance the story (or navigation in the story)
- Several free icon sets available:
 - [FontAwesome](#)
 - [Ionicons](#)
 - [Iconic](#)





Modal boxes

Modalboxjs

- Simple javascript library for creating modal boxes.
- Based on the jQuery library
- Include the JS file, a simple line of CSS, and initiate the modal box on click of a HTML element
- Get the script at [Ignitersworld](#)

JavaScript

```
<script src="js/modalbox.js"></script>
<script>
$( document ).ready(function() {
    $("#modallink").on('click', function() {
        $("#modalbox").modalBox();
    });
});
</script>
```

HTML

```
<a id="modallink">Open modalbox</a>

<div id="modalbox">
  <h1>Modalbox</h1>
  <p>This will open when a#modallink is clicked</p>
</div>
```

CSS

```
.modalbox {
  padding: 25px;
  border: 1px solid #CCC;
  background: #FFF;
  height: 700px;
  width: 500px;
  display: none;
  z-index:9999;
}

.iw-modalOverlay{
  background: #000;
  opacity:.6;
}
```



Chart.js

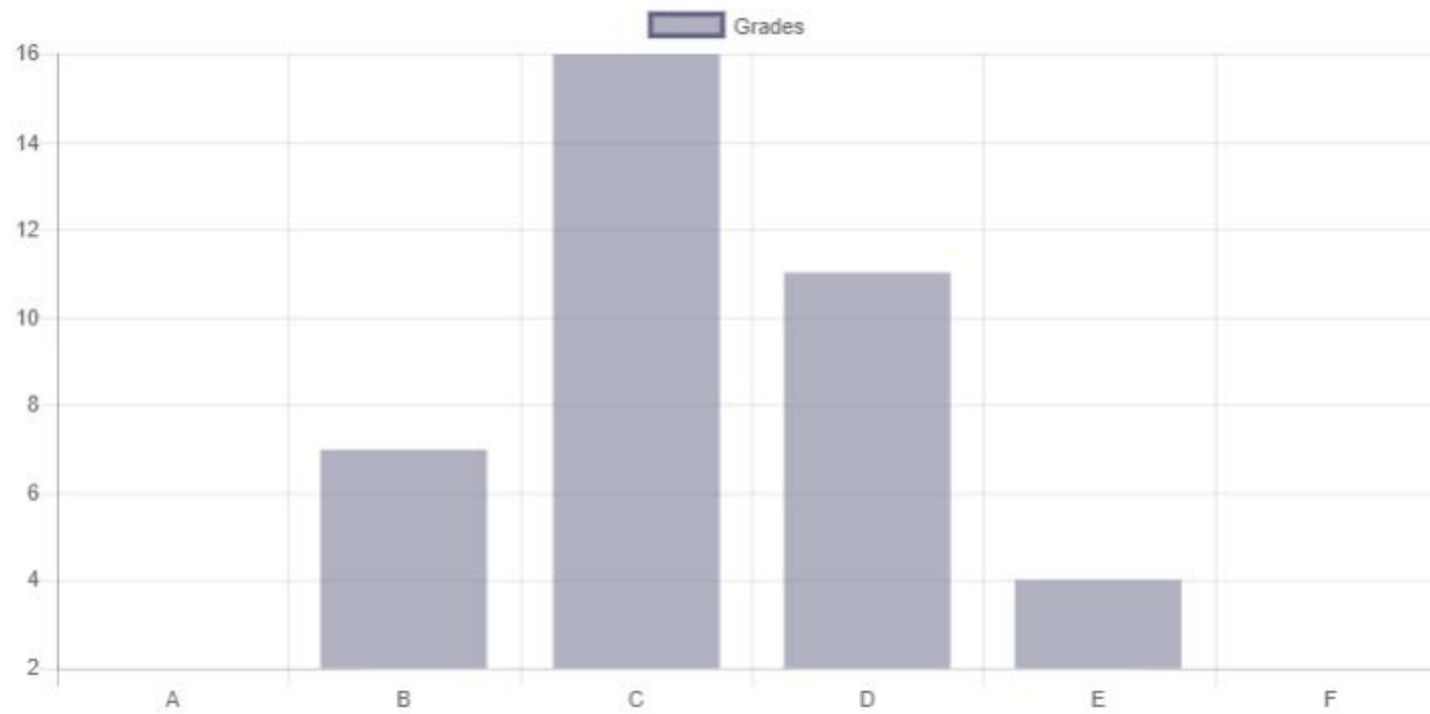
JavaScript library for chart drawing

WHAT IS CHART.js?

- A JavaScript library for drawing graphs, bars and charts using HTML5 and Canvas/SVG
- Uses standard DOM, hence is **stand-alone** and not reliant on another library like jquery or vanilla
- More on **www.chartjs.org**
- Documentation at **www.chartjs.org/latest**

HOW TO SETUP?

- Download chart.js from its github:
<https://github.com/chartjs/Chart.js/releases/tag/v2.6.0>
- Include the js-file in your <head>-section
- Make a canvas-element with an ID for the map
- Initiate the chart, fill with data, and let the script do it's magic.





Google Maps API

WHAT IS GOOGLE MAPS API?

- A JavaScript library to create **interactive maps**.
- Contains sublibraries, including one for data visualization.
- Thorough (but “rough”) documentation, but several tutorials and examples.

GOOGLE MAPS API – The Map Object

- To initiate a map, you need to declare a new class object, with this as the bare minimum of information:

```
map = new google.maps.Map(document.getElementById('map'), {  
  center: {lat: -34.397, lng: 150.644},  
  zoom: 8  
});
```

HTML element to place the map

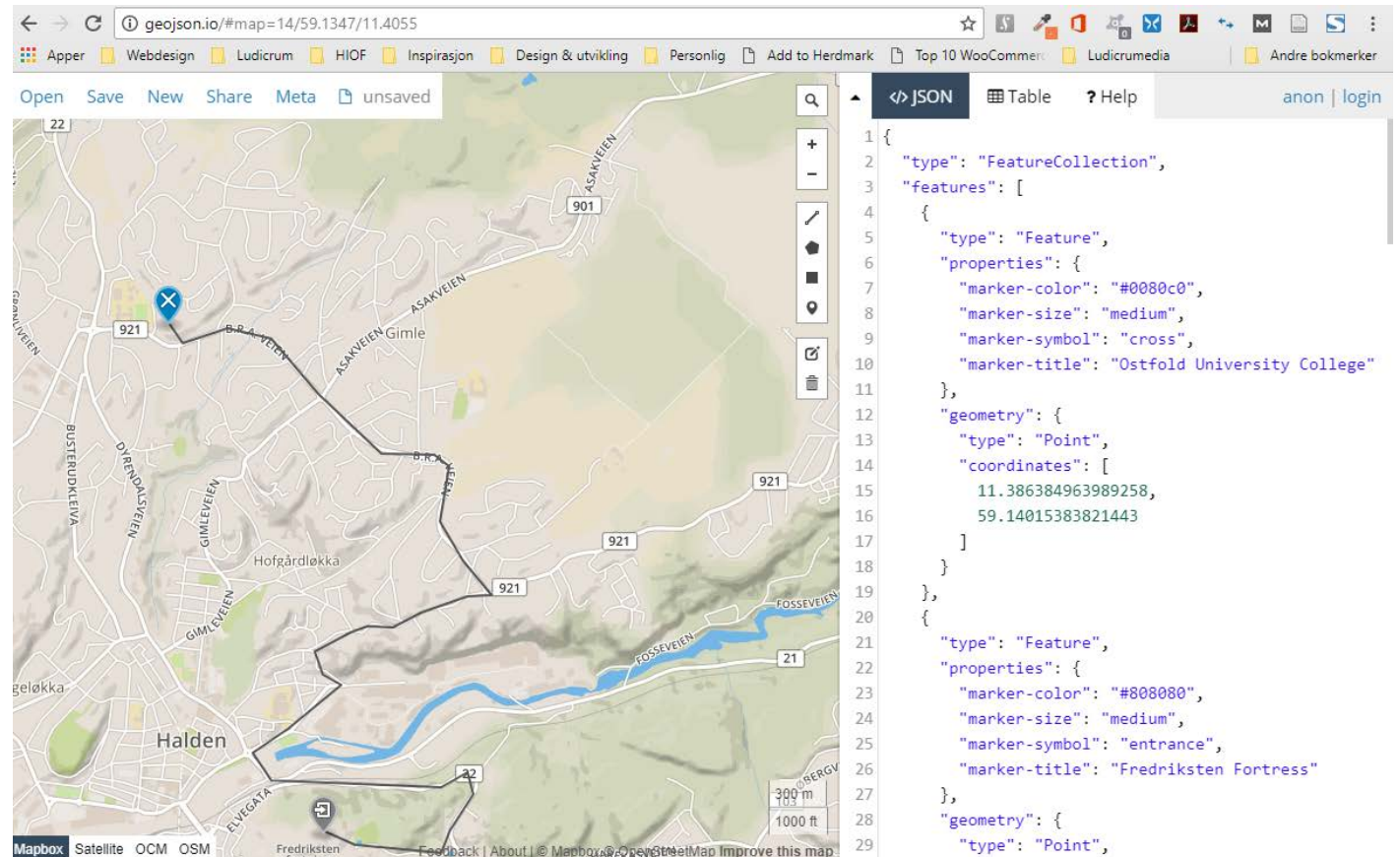
The center point of the map, in latitude/longitude

The initial zoom level of the map

Use geojson.io to create GeoJSON data

- GeoJSON is

- Json-based
- Used to store location information
- Structures large amounts of information
- Can be loaded in map libraries such as Google Maps



The screenshot shows the geojson.io interface. On the left, a map of Halden, Norway, is displayed with a blue cross marker at Ostfold University College and a red entrance marker at Fredriksten Fortress. The right panel shows the following GeoJSON data:

```
1 {
2   "type": "FeatureCollection",
3   "features": [
4     {
5       "type": "Feature",
6       "properties": {
7         "marker-color": "#0080c0",
8         "marker-size": "medium",
9         "marker-symbol": "cross",
10        "marker-title": "Ostfold University College"
11      },
12      "geometry": {
13        "type": "Point",
14        "coordinates": [
15          11.386384963989258,
16          59.14015383821443
17        ]
18      }
19    },
20    {
21      "type": "Feature",
22      "properties": {
23        "marker-color": "#808080",
24        "marker-size": "medium",
25        "marker-symbol": "entrance",
26        "marker-title": "Fredriksten Fortress"
27      },
28      "geometry": {
29        "type": "Point",
```

Some good alternatives?

- Leaflet js (lightweight)
- Polymap (focus on interactivity)



Timelines

WHAT IS A TIMELINE?

- A timeline is an **organized structure** of successive, chronological elements.
- **By building** timelines **with standard web technology** like HTML, CSS and JavaScript, **it's easier to integrate** and exploit other and new **digital technologies** (i.e. social media, blog feeds etc.)
- Can be build both horizontally and vertically

EXAMPLE: HORIZONTAL TIMELINE



A horizontal timeline interface. At the top, a green line with four circular markers is shown. The markers are labeled '16 Jan', '28 Feb', '20 Mar', and '20 May'. The '20 Mar' marker is filled with green, while the others are hollow. Navigation arrows are on either end. Below the timeline, the text 'Event title here' is displayed in a large, bold, serif font. Underneath it, the date '- March 20th, 2014' is shown in a smaller, italicized font. The bottom section contains two paragraphs of placeholder text in a light gray font.

16 Jan 28 Feb 20 Mar 20 May

Event title here

- March 20th, 2014

Lorem ipsum dolor sit amet, consectetur adipisicing elit. Illum praesentium officia, fugit recusandae ipsa, quia velit nulla adipisci? Consequuntur aspernatur at, eaque hic repellendus sit dicta consequatur quae, ut harum ipsam molestias maxime non nisi reiciendis eligendi! Doloremque quia pariatur harum ea amet quibusdam quisquam, quae, temporibus dolores porro doloribus.

See full example on
<https://codyhouse.co/demo/horizontal-timeline/index.html>

EXAMPLE: VERTICAL TIMELINE

The image shows a vertical timeline on a light blue background. A central vertical line has three circular icons: a green circle with a white person icon at the top, a red circle with a white video camera icon in the middle, and a green circle with a white person icon at the bottom. To the left of the top icon is a white box with a title and text. To the right of the middle icon is a white box with a title and text. To the left of the bottom icon is a white box with a title and text. Each box has a 'Read more' button.

Title of section 1
Jan 14
Lorem ipsum dolor sit amet, consectetur adipisicing elit. Iusto, optio, dolorum provident rerum aut hic quasi placeat iure tempora laudantium ipsa ad debitis unde? Iste voluptatibus minus veritatis qui ut.
Read more

Jan 18
Title of section 2
Lorem ipsum dolor sit amet, consectetur adipisicing elit. Iusto, optio, dolorum provident rerum aut hic quasi placeat iure tempora laudantium ipsa ad debitis unde?
Read more

Jan 24
Title of section 3
Lorem ipsum dolor sit amet, consectetur adipisicing elit. Excepturi, obcaecati, quisquam id molestias eaque asperiores voluptatibus cupiditate error assumenda delectus odit similique earum voluptatem doloremque dolorem ipsam quae rerum quis. Odit, itaque, deserunt corporis vero ipsum nisi eius odio natus ullam provident pariatur temporibus quia eos repellat consequuntur perferendis enim amet quae quasi

See full example on
<https://codyhouse.co/demo/vertical-timeline/index.html>

Example: CERN

Shown at <https://home.cern/about>

The name CERN

The name CERN is derived from the acronym for the French "Conseil Européen pour la Recherche Nucléaire", a provisional body founded in 1952 with the aim of creating a European physics research organization in Europe. At that time, pure physics research was the only scientific activity hence the word "nuclear".

Today, our understanding of matter goes much deeper than the nucleus, to the study of the fundamental constituents of matter and the forces acting between them. CERN is often referred to as the European Laboratory for Particle Physics.

The history of CERN

CERN has come a long way since its foundation in 1954. This timeline collects the organization's major contracts, projects, partnerships and scientific advances.



1949

[Voir en français](#)

Topics



Antimatter


The Big Bang should have created equal amounts of matter and antimatter. So why

The history of CERN | CERN timelines - Google Chrome

Sikker | <https://timeline.web.cern.ch/timelines/the-history-of-cern/overlay#1971-01-27 00:30:00>

The history of CERN


CERN has come a long way since its foundation in 1954. This timeline collects the organization's major contracts, projects, partnerships and scientific advances.



1949 2015

27 / 01 / 1971

First proton collisions: The Intersecting Storage Rings





“Stealing is learning.”

Examples, inspiration and resources:

<https://goo.gl/wmoajF>

Yes, this is a capital F!
It matters...

Or <http://www.it.hiof.no/~toremake/comdes17/resources.html>, if you really enjoy typing...



Helping Libraries

Timeline.js



Jurgen Schadeberg / Getty Images

Mandela in the office of Mandela and Tambo

12:00 AM
August 1, 1952

Law Firm

Mandela and Oliver Tambo found South Africa's first black-run law firm.

12:00 AM
Arrest



StoryMap.js

🦁 Islamic State presence ○ Islamic State controlled city ● Kurd controlled city ● Contested city ○ Iraqi controlled city

Map Overview Back To Beginning ↶

Smoke rose from what is said to be an oil refinery in Baiji. Reuters

IRAQ'S LARGEST OIL REFINERY ATTACKED

Militants attempted to capture the refinery, located about 130 miles north of Baghdad. The fate of the refinery is still contested.

StoryMapJS | Leaflet | Mapbox © Mapbox © OpenStreetMap

Juxtapose.js

Detail area A: Westminster and Coventry drives

