



# Media Computing Project

Basic Knowledge and Software

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UNIVERSITY

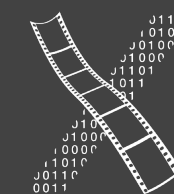
**BASIC KNOWLEDGE**

# Interaction

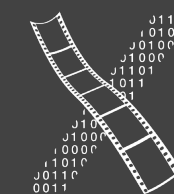
# Bloch's Law



# Bloch's Law

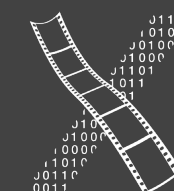


# Bloch's Law



# Three Human Deadlines

- **0.1 seconds**
  - Perception of cause and effect
- **1 second**
  - Min. reaction time for unexpected events
- **10 seconds**
  - Max. time for one step of a task



**No door handle**

**Knob to pull**

**Big handles**

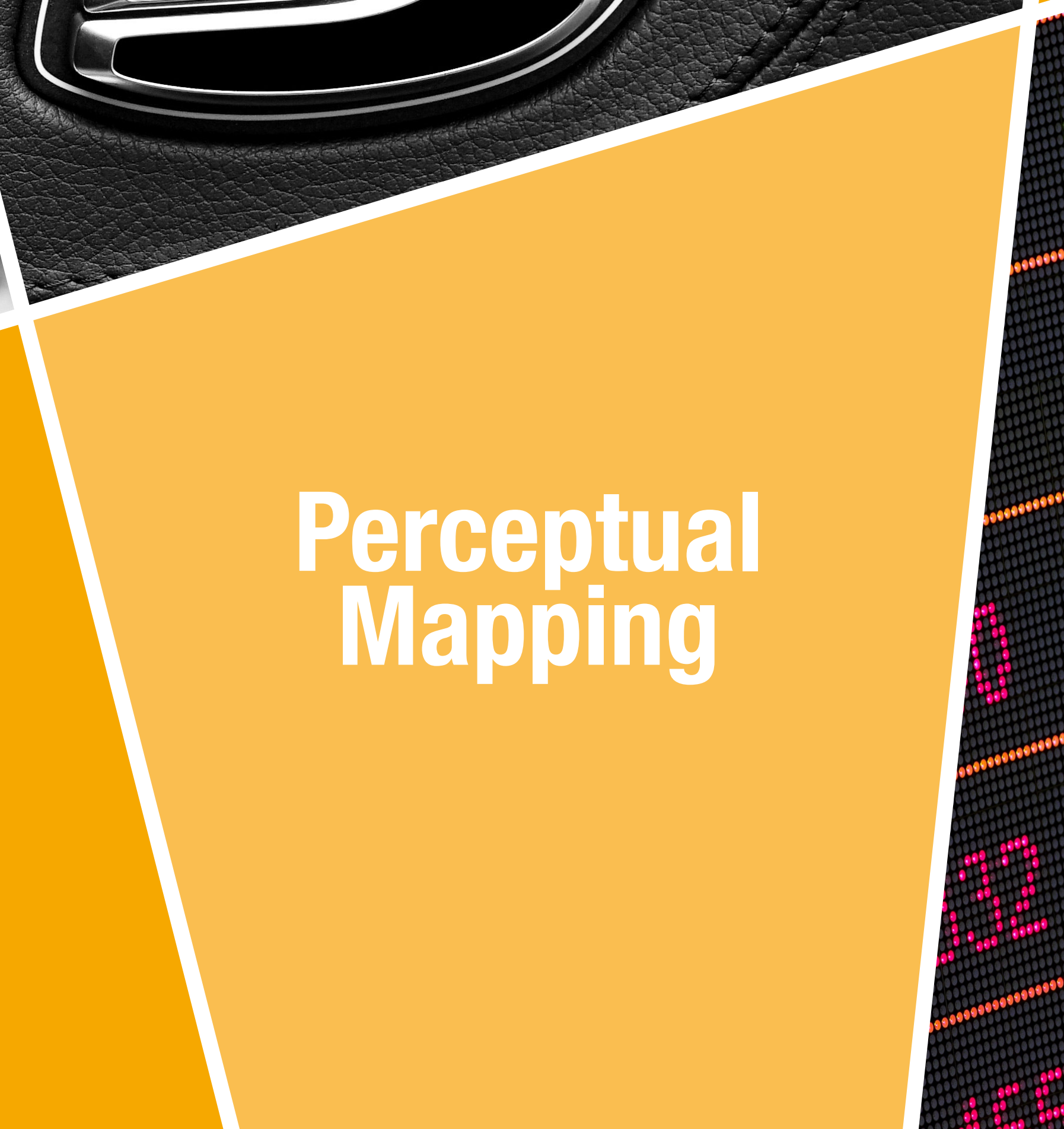




Cultural Mapping



Spatial Mapping



Perceptual Mapping





INFORMATION

# Software Ressources

```
78 // . ltrim(preg_replace('/\\\\\\\\/', '/', $image_src), '/');
79 $_SESSION['_CAPTCHA']['config'] = serialize($captcha_config);
80
81 return array(
82     'code' => $captcha_config['code'],
83     'image_src' => $image_src
84 );
85 }
86
87
88 ▼ if( !function_exists('hex2rgb') ) {
89 ▼ function hex2rgb($hex_str, $return_string = false) {
90     $hex_str = preg_replace("/[^0-9A-Fa-f]/", '', $hex_str); // Gets a proper hex string
91     $rgb_array = array();
92     if( strlen($hex_str) == 6 ) {
93         $rgb_array['r'] = hexdec(substr($hex_str, 0, 1), 2);
94         $rgb_array['g'] = hexdec(substr($hex_str, 1, 1), 2);
95         $rgb_array['b'] = hexdec(substr($hex_str, 2, 1), 2);
96     } elseif( strlen($hex_str) == 3 ) {
97         $rgb_array['r'] = hexdec(str_repeat(substr($hex_str, 0, 1), 2));
98         $rgb_array['g'] = hexdec(str_repeat(substr($hex_str, 1, 1), 2));
99         $rgb_array['b'] = hexdec(str_repeat(substr($hex_str, 2, 1), 2));
100     } else {
101         return false;
102     }
103     return $return_string ? implode($separator, $rgb_array) : $rgb_array;
104 }
105
106 }
107
108 // Draw the image
109 // GET['captcha']
```



# Software

```
x = 0
y = 10

while x < y:
    if (x % 2) == 0:
        print(str(x) + " is even")
    else:
        print(str(x) + " is odd")
    x += 1
```

## Python

Programming  
Language

Open Source

# Python Resources

- Download: <https://www.python.org/>
- Official Docs: <https://docs.python.org/3/>
- We will use Python 3.9.0.

# Software



git

**git**

Version Control

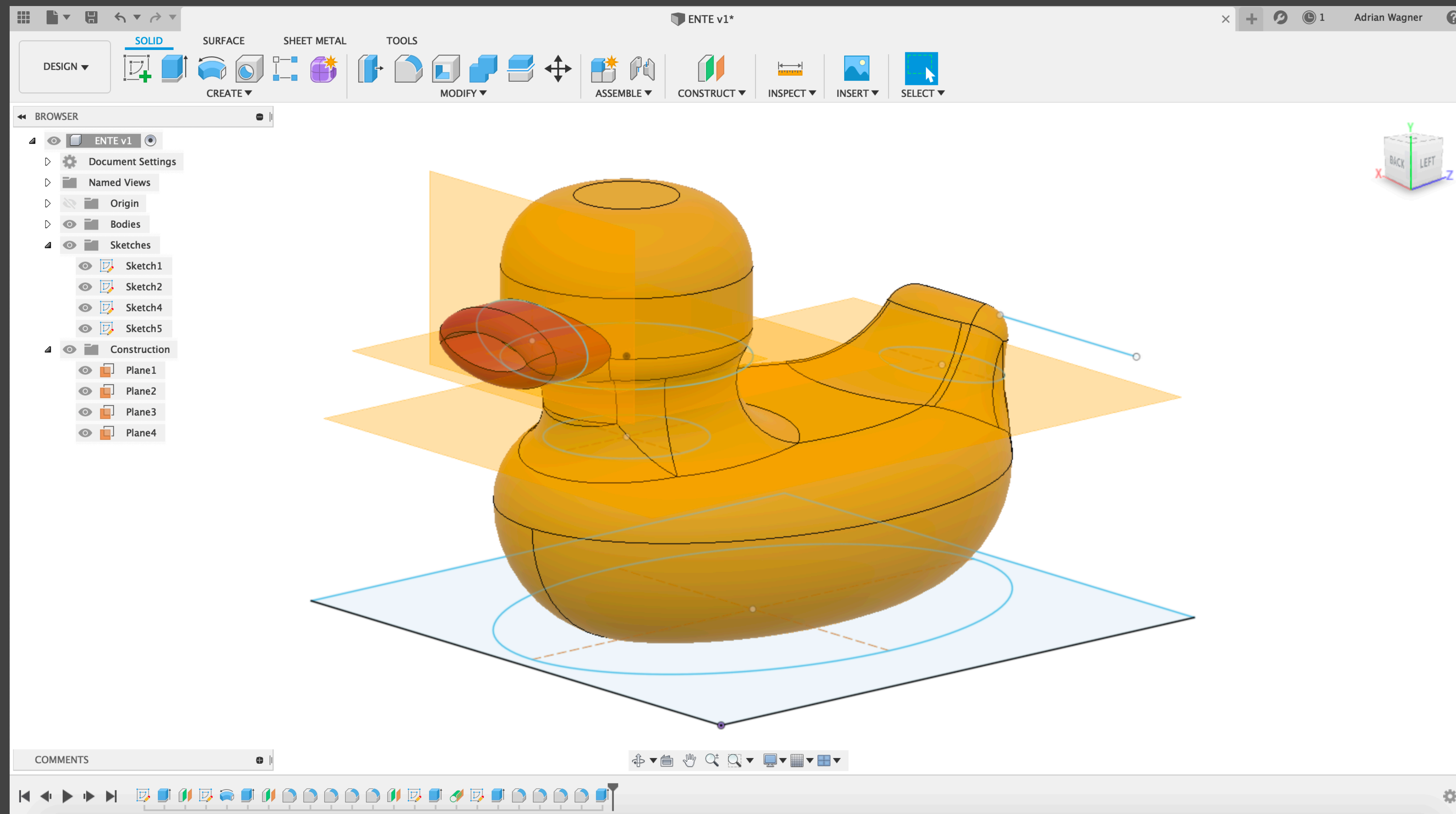
Open Source

# git Resources

- GitLab (RWTH): <https://git.rwth-aachen.de/>



# Software



**Fusion 360**

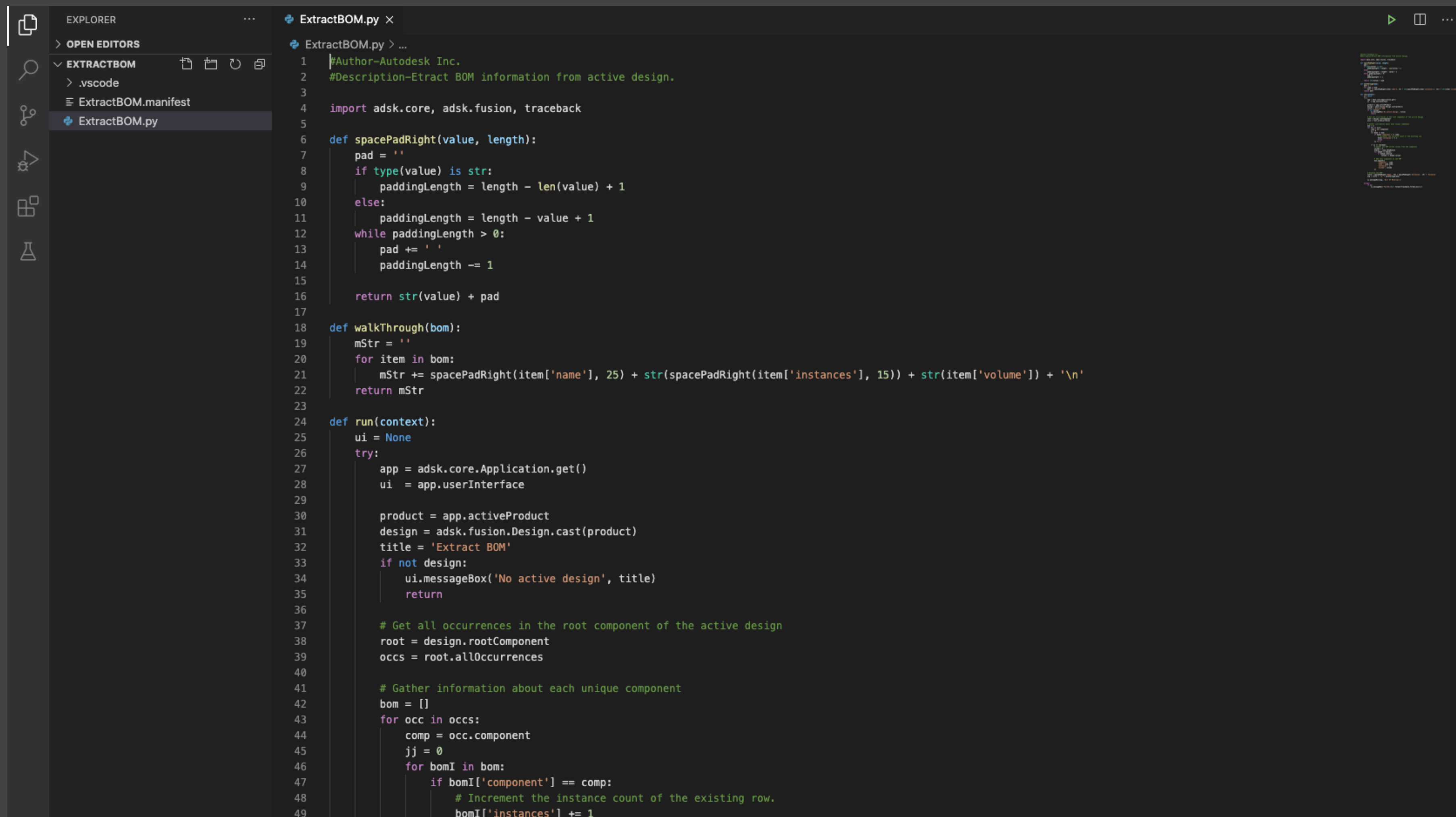
CAD-Software

Autodesk

# Fusion 360 Resources

- Download: <https://www.autodesk.com/campaigns/education/fusion-360>
- API:
  - Official: <https://autodeskfusion360.github.io/>

# Software



```
1 #Author-Autodesk Inc.
2 #Description-Etract BOM information from active design.
3
4 import adsk.core, adsk.fusion, traceback
5
6 def spacePadRight(value, length):
7     pad = ''
8     if type(value) is str:
9         paddingLength = length - len(value) + 1
10    else:
11        paddingLength = length - value + 1
12    while paddingLength > 0:
13        pad += ' '
14        paddingLength -= 1
15
16    return str(value) + pad
17
18 def walkThrough(bom):
19     mStr = ''
20     for item in bom:
21         mStr += spacePadRight(item['name'], 25) + str(spacePadRight(item['instances'], 15)) + str(item['volume']) + '\n'
22     return mStr
23
24 def run(context):
25     ui = None
26     try:
27         app = adsk.core.Application.get()
28         ui = app.userInterface
29
30         product = app.activeProduct
31         design = adsk.fusion.Design.cast(product)
32         title = 'Extract BOM'
33         if not design:
34             ui.messageBox('No active design', title)
35             return
36
37         # Get all occurrences in the root component of the active design
38         root = design.rootComponent
39         occs = root.allOccurrences
40
41         # Gather information about each unique component
42         bom = []
43         for occ in occs:
44             comp = occ.component
45             jj = 0
46             for bomI in bom:
47                 if bomI['component'] == comp:
48                     # Increment the instance count of the existing row.
49                     bomI['instances'] += 1
```

## VS Code

Source-Code Editor

Microsoft

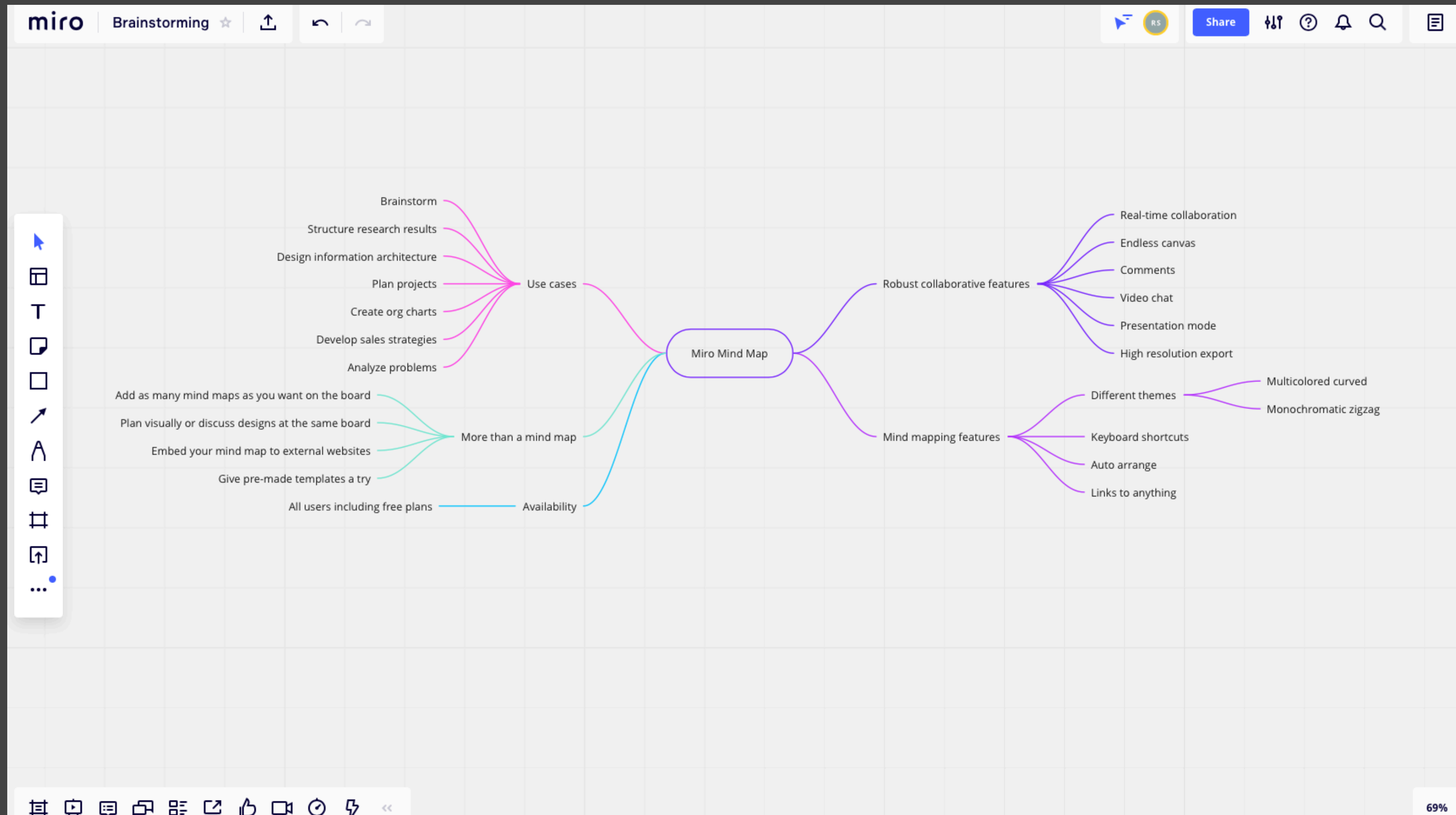


# Visual Studio Code Resources

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



# Software



## Miro

### Collaborative Whiteboard



# Miro Resources

- Official: <https://miro.com>



**ASSIGNMENT**

# Tasks for next week



# Tasks for next week

- **Install Fusion 360**
- **Install Python**
- **Install Visual Studio Code**
- **Create a GitLab project and invite your supervisor**
- **Vote for topic**
- **Elevator pitch**

