



Introduction to Web Applications

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Today



**I'm
becoming
a programmer!**



Rails Girls Berlin
railsgirlsberlin.de

What is a **web application**?



Not rocket science

Programming is fun!

```
def __init__(self, name, age, height, weight):  
    self.name = name  
    self.age = age  
    self.height = height  
    self.weight = weight  
  
    def __str__(self):  
        return f'Name: {self.name}, Age: {self.age}, Height: {self.height}, Weight: {self.weight}'  
  
    def __repr__(self):  
        return f'Person(name={self.name}, age={self.age}, height={self.height}, weight={self.weight})'  
  
    def __eq__(self, other):  
        return self.name == other.name and self.age == other.age and self.height == other.height and self.weight == other.weight  
  
    def __lt__(self, other):  
        return self.age < other.age  
  
    def __gt__(self, other):  
        return self.age > other.age  
  
    def __le__(self, other):  
        return self.age <= other.age  
  
    def __ge__(self, other):  
        return self.age >= other.age  
  
    def __hash__(self):  
        return hash(self.name + str(self.age) + str(self.height) + str(self.weight))
```

WiFi Hotspot
LERNEN
Lernen ist
Lernen
Telchom
01.11

Rails Girls Berlin at eurucamp



Name	Twitter handle	Hometown
Ute	nerdbabe	Berlin
Fanny	fannivuniconnu	Bitche
Dajana	DG_Tweety	Berlin
Lucas	medk_	Mirac
Kai	@TechnoKai	Berlin
Konstantin	@konstantinhaase	Halle an der Saale
Tom Stuart	mortice	London
Uta	@MyLifelsNotCrap	Berlin
PoTe	poteland	Montevideo
Béla	@drblinken	Berlin
Marco Sebald	@marcosebald	Berlin
Vanessa Butz	@VanessaButz	Munich, Germany
Rebecca	bioshrimp	Berlin
Tobi	@PragTob	Berlin, Germany

What **you** are going
to **build today**

So **what** is a web application?

Rails Girls Berlin at eurucamp



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Tom Stuart	mortice	London
Uta	@MyLifelsNotCrap	Berlin
PoTe	poteland	Montreal
Béla	@drblinken	Berlin
Marco Sebald	@marcosebald	Berlin
Vanessa Butz	@VanessaButz	Munich, Germany
Rebecca	bioshrimp	Berlin
Tobi	@PragTob	Berlin, Germany
Ula	@UrszulaPap	Lodz
Dimitri	dimitriively	Lappenberg

Presented in a
web browser

Runs on a **server**...





...or the **cloud**

Tobias Pfeiffer
View my profile page

1,617 TWEETS **252** FOLLOWING **205** FOLLOWERS

Compose new Tweet...

Who to follow · Refresh · View all

Stephan Eggermont @StOn...
Follow

ashe dryden @ashedryden
Followed by Steve Klabnik and...
Follow

lyssaadkins @lyssaadkins
Follow

Browse categories · Find friends

Trends · Change

Stuttgart
#Berlin
Vielleicht
Nikolaus
#s21
Weihnachten
#h96
Schneefall
Freundin
Glühwein

Tweets

Zen Moments @Zen_Moments 36m
You have enemies? Good. That means you've stood up for something, sometime in your life. ~ Winston Churchill [v.ht/av](#)
Expand

Preston Marshall @bbhoss 9h
Wow, I switched to JRuby and a big Rails action that takes ~13 seconds on MRI 1.9 now takes only 5. Keep up the good work @headius and co!
Retweeted by Charles Nutter
Expand

Tom Stuart @mortice 50m
Today is brought to you by Liquid Swords and saying "screw it" a lot.
Expand

d:evolute @d_evolute 55m
there it is: it will be an independent movie about Steve Jobs.. [fb.me/VGHeQ3R1](#)
Expand

Tom Stuart @mortice 56m
I don't see "eradicate the merge button employing the fire of a thousand suns" [letsmake.github.com/bettertogether...](#)
Expand

heise Developer @heisedc 58m
Developer Snapshots: Programmierer-News in ein, zwei Sätzen [heise.de/-1763601/ftw](#)
Expand

Light of Life @Light_of_Life 6 Dec
"Don't judge each day by the harvest you reap but by the seeds that you plant." -Robert Louis Stevenson
Retweeted by Carol Nichols
Expand

Ruby News @ruby_news 1h
Brainfuckt - a Brainfuck Interpreter built in Ruby using Treetop [bit.ly/11QI4sz](#)
Expand

co.up coworkingspace @co_up 1h
RT @wooga: Tonight! @railsgirls_bln kicks off with the installation party @co_up (7pm): [bit.ly/RE357N](#)
Expand

is dynamic

A high level **overview**

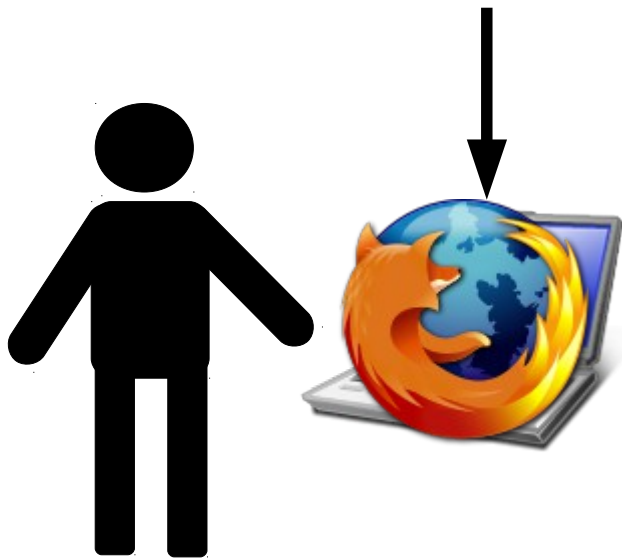
High level overview



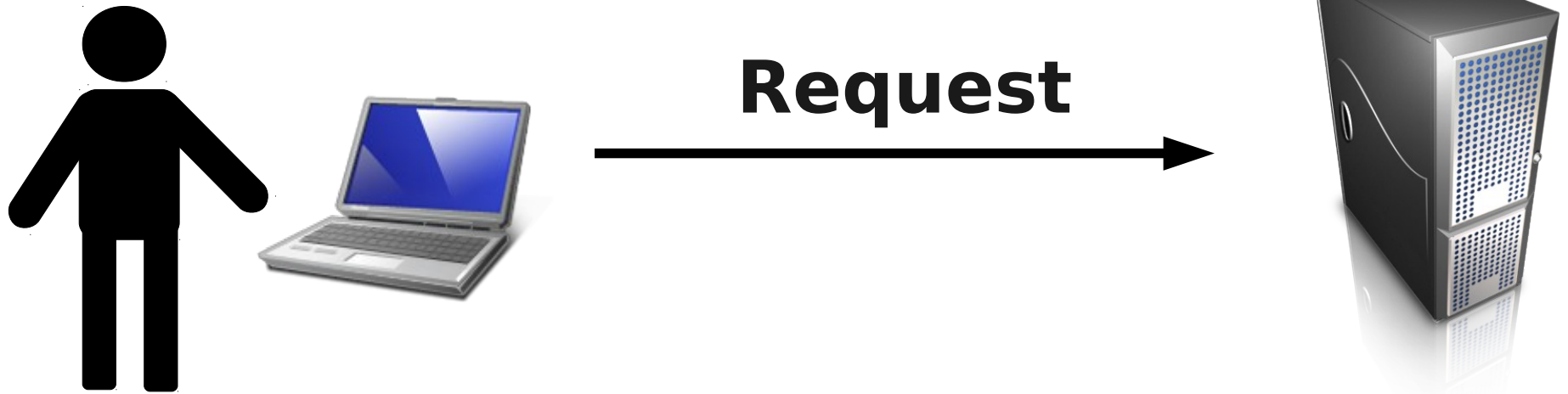
High level overview



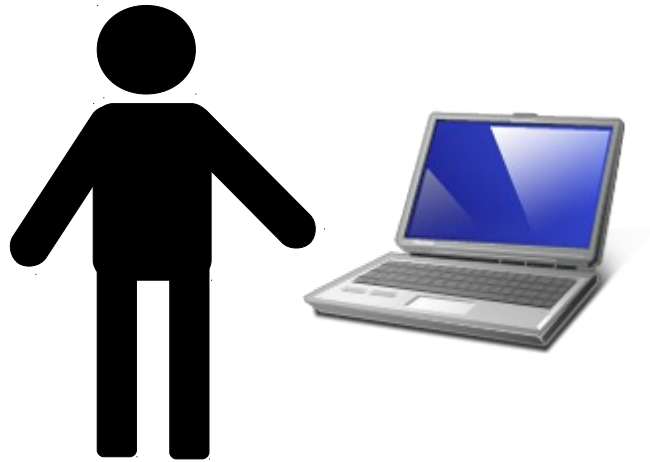
 stark-lowlands-5619.herokuapp.com/attendees



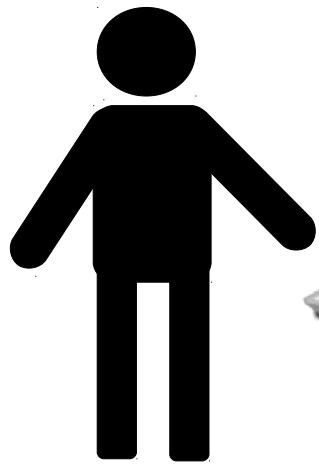
High level overview



High level overview



High level overview



Answer



High level overview



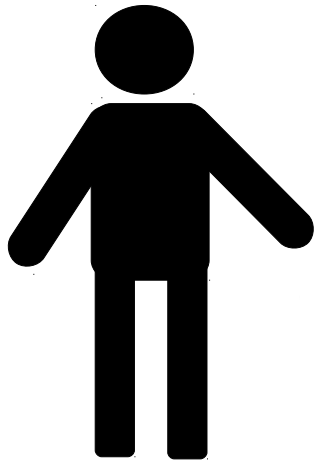
Answer

A thick black arrow pointing from the server towards the user and browser icon.

High level overview



The workshop app Attendees



Rails Girls Berlin at eurucamp



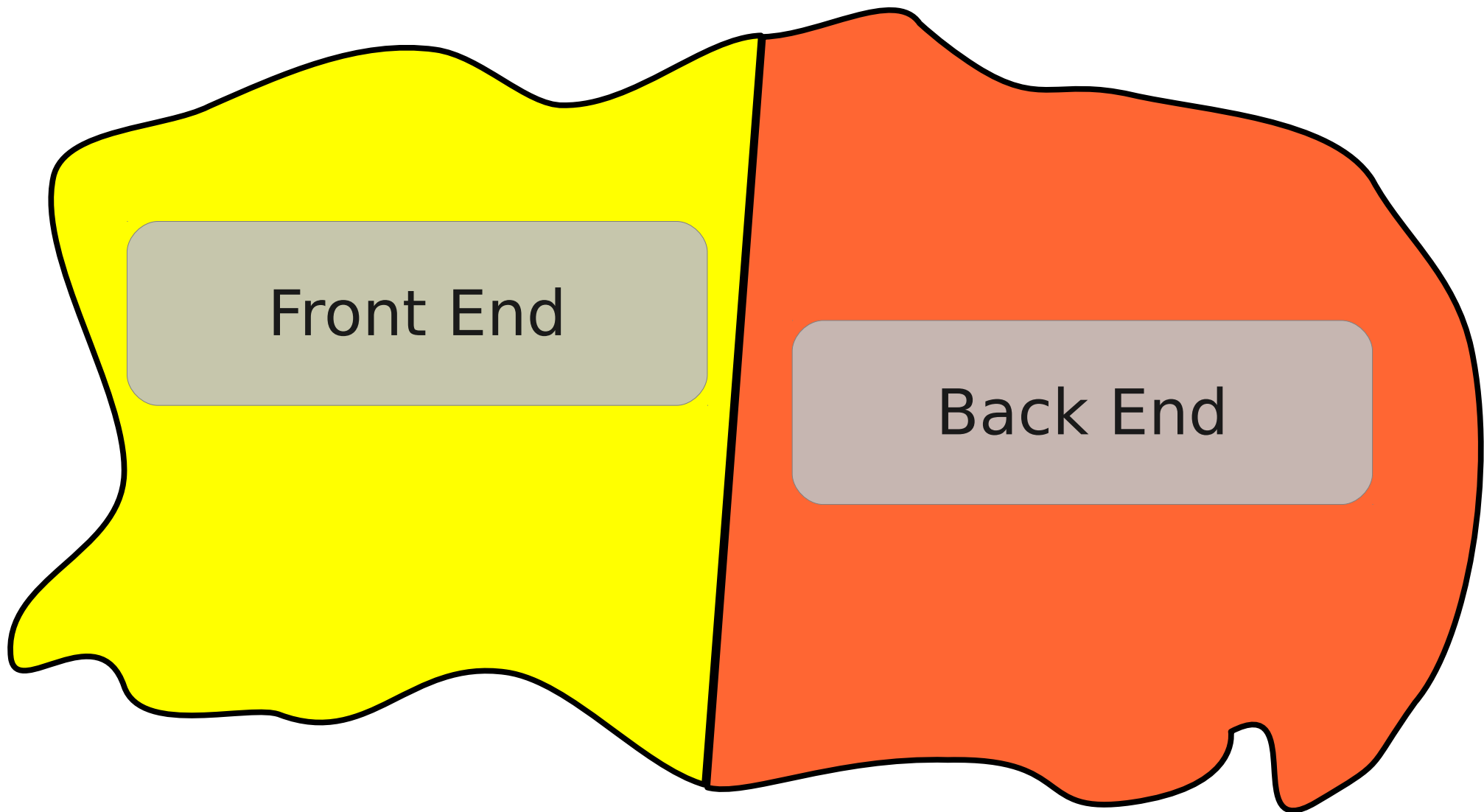
Name	Twitter handle	Hometown
Lite	nerdtube	Berlin
Fanny	fareivunicouu	Bitche
Dajana	DG_Tweety	Berlin
Lucas	mwoR_	Minecourt
Kai	@TechnoKai	Berlin
Konstantin	@konstantinhaase	Halle an der Saale
Tom Stuart	morlice	London
Uta	@MyLifeIsNotCrap	Berlin
PoTe	poteland	Montevideo
Bela	@orbinken	Berlin
Marco Sebold	@marcossebold	Berlin
Vanessa Butz	@VanessaButz	Munich, Germany
Rebecca	bioshmp	Berlin
Tobi	@PragTob	Berlin, Germany



What **parts** does a **web application** consist of?



Web Application



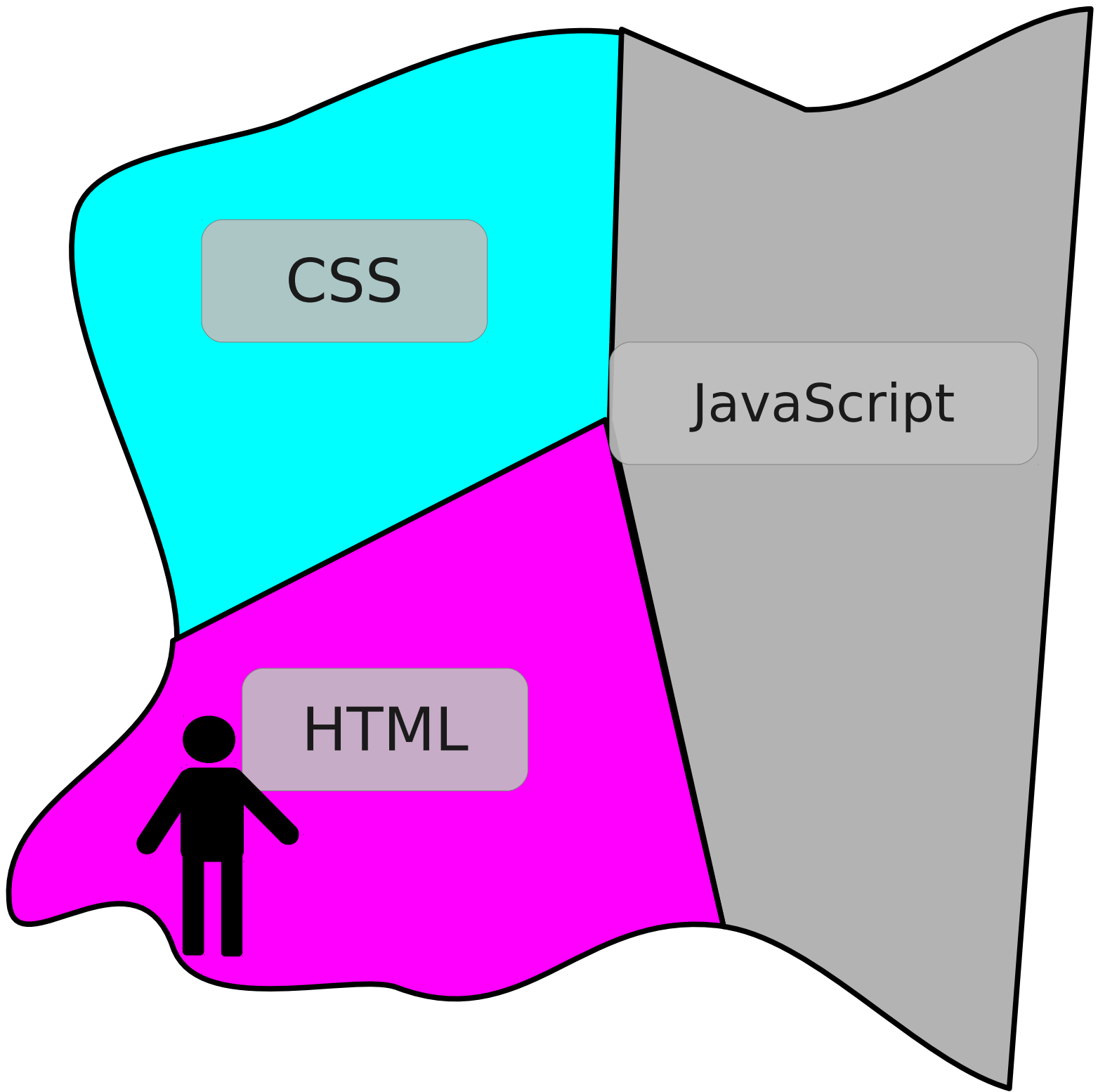
Front End

Back End

Front End

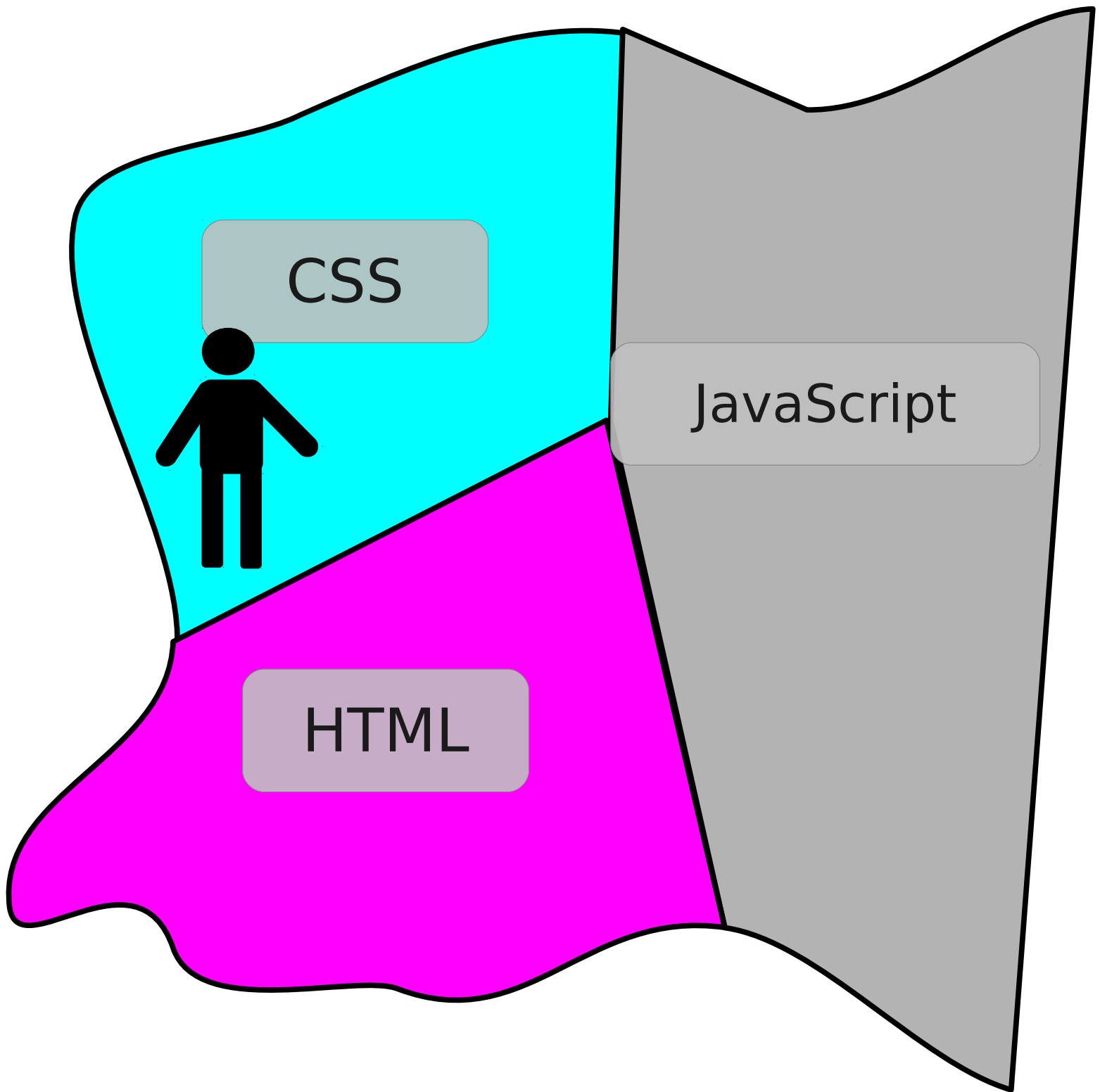


Back End



```
1 <!DOCTYPE html>
2 <html>
3 <head>
4 <title>Railsgirls</title>
5 <link rel="stylesheet" href="http://railsgirls.com/assets/bootstrap.css">
6 <link href="/assets/application-3ba9bf7fd774b388207b7bc6f2b8f323.css" media="all" rel="stylesheet" type="text/css" />
7 <script src="/assets/application-8c77725bf4dcc09ab5fb8f6bb10963ed.js" type="text/javascript"></script>
8 <meta content="authenticity_token" name="csrf-param" />
9 <meta content="XrAtTRvkueZ/p7B+DdJcGxuum2ENURiuASxe5WEZDpk=" name="csrf-token" />
10 </head>
11 <body>
12 <div class="navbar navbar-fixed-top">
13 <div class="navbar-inner">
14 <div class="container">
15 <a class="brand" href="/">The workshop app</a>
16 <ul class="nav">
17 <li class="active"><a href="/attendees">Attendees</a></li>
18 </ul>
19 </div>
20 </div>
21 </div>
22
23 <div class="container">
24 <h1>Rails Girls Berlin at eurucamp</h1>
25
26
27 <div class="map_container">
28 <div id="map" class="gmaps4rails_map"></div>
29 </div>
30
31 <script src="//maps.google.com/maps/api/js?v=3.8&sensor=false&key=&libraries=geometry&language=&hl=&region=" type="text/javascript"></script>
32
33 <script type="text/javascript" charset="utf-8">
34 Gmaps.map = new Gmaps4RailsGoogle();
35 Gmaps.load_map = function() {
36 Gmaps.map.map_options.center_longitude = 13.24;
37 Gmaps.map.map_options.center_latitude = 52.31;
38 Gmaps.map.map_options.zoom = 7;
39 Gmaps.map.initialize();
40 Gmaps.map.markers = [{"lat":52.519171,"lng":13.4060912}, {"lat":49.050415,"lng":7.427276}, {"lat":52.519171,"lng":13.4060912}, {"lat":48.302176,"lng":6.133863}, {"lat":52.519171,"lng":13.4060912}];
41 Gmaps.map.create_markers();
42 Gmaps.map.adjustMapToBounds();
43 Gmaps.map.callback();
44 };
45 Gmaps.oldOnload = window.onload;
46 window.onload = function() { Gmaps.triggerOldOnload(); Gmaps.loadMaps(); };
47 </script>
48
49
50 <table>
51 <tr>
52 <th class='first'></th>
53 <th>Name</th>
54 <th>Twitter handle</th>
55 <th>Hometown</th>
56 </tr>
57
58 <tr>
59 <td class="first"></td>
60 <td><a href="/attendees/1">Ute</a></td>
61 <td><a href="http://twitter.com/nerdbabe" target="_blank">nerdbabe</a></td>
62 <td>Berlin</td>
63 </tr>
64 <tr>
65 <td class="first"></td>
```

Structure and content



```

1  #logo {
2    font-size: 20px;
3    font-family: "Helvetica Neue",Helvetica,Arial,sans-serif;
4    float: left;
5    padding: 10px;
6  }
7  body { padding-top: 100px; }
8  footer { margin-top: 100px; }
9  table, td, th { vertical-align: middle !important; border: none !important; padding-right: 18px; width: 800px; }
10 th { border-bottom: 1px solid #DDD !important; padding-right: 18px;}
11 td.picture { width: 140px; }
12 td.picture img { width: 140px; }
13 td.first, th.first { width: 50px; }
14 .map_container {
15   padding: 6px;
16   border-width: 1px;
17   border-style: solid;
18   border-color: #ccc #ccc #999 #ccc;
19   -webkit-box-shadow: rgba(64, 64, 64, 0.5) 0 2px 5px;
20   -moz-box-shadow: rgba(64, 64, 64, 0.5) 0 2px 5px;
21   box-shadow: rgba(64, 64, 64, 0.1) 0 2px 5px;
22   width: 800px;
23 }
24
25 .gmaps4rails_map {
26   width: 800px;
27   height: 400px;
28 }
29
30 .bing_map {
31   position: absolute;
32   top: 20;
33   left: 10;
34   width: 400px;
35   height: 400px;
36   border:#555555 2px solid;
37 }
38 body {
39   background-color: #fff;
40   color: #333;
41   font-family: verdana, arial, helvetica, sans-serif;
42   font-size: 13px;
43   line-height: 18px; }
44
45 p, ol, ul, td {
46   font-family: verdana, arial, helvetica, sans-serif;
47   font-size: 13px;
48   line-height: 18px; }
49
50 pre {
51   background-color: #eee;
52   padding: 10px;
53   font-size: 11px; }
54
55 a {
56   color: #000; }
57 a:visited {
58   color: #666; }
59 a:hover {
60   color: #fff;
61   background-color: #000; }
62
63 div.field, div.actions {
64   margin-bottom: 10px; }
65
66 #notice {
67   color: green; }
68
69 .field_with_errors {
70   padding: 2px; }

```

Styling to transform...

- [Attendees](#)

Rails Girls Berlin at eurucamp

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Ute	nerdbabe	Berlin
Fanny	fannivuniconnu	Bitche
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Marco Sebald	@marcosebald	Berlin
Vanessa Butz	@VanessaButz	Munich, Germany
Rebecca	bioshrimp	Berlin
Tobi	@PragTob	Berlin, Germany
Ula	@UrszulaPap	Lodz
Dimitri	diminutively	Langenargen
Julia		Berlin
Sabrina	@sabrna	Berlin
Claudia	@claudlindner	Berlin
Ted Young	tedsuooo	Kailua Kona, HI
Inka		Freiburg
Sevi	@dreamingoflions	Berlin
Anja	_tyranja_	Magdeburg
Joana	_antimaterie_	Berlin
Chris Berkhout	@chrisberkhout	Melbourne, Australia
Lara	@citylinguist	Berlin
Sven Fuchs	svenfuchs	Berlin
CC Roy	@CCR	Washington DC USA
Sonia Gandhi	SexySoniaINC	New Delhi
Me		Penang
Matti	@mrusila	Oulu
Ross	@run4kelly	Aurora, Colorado
Wesley Conde		São Paulo, SP

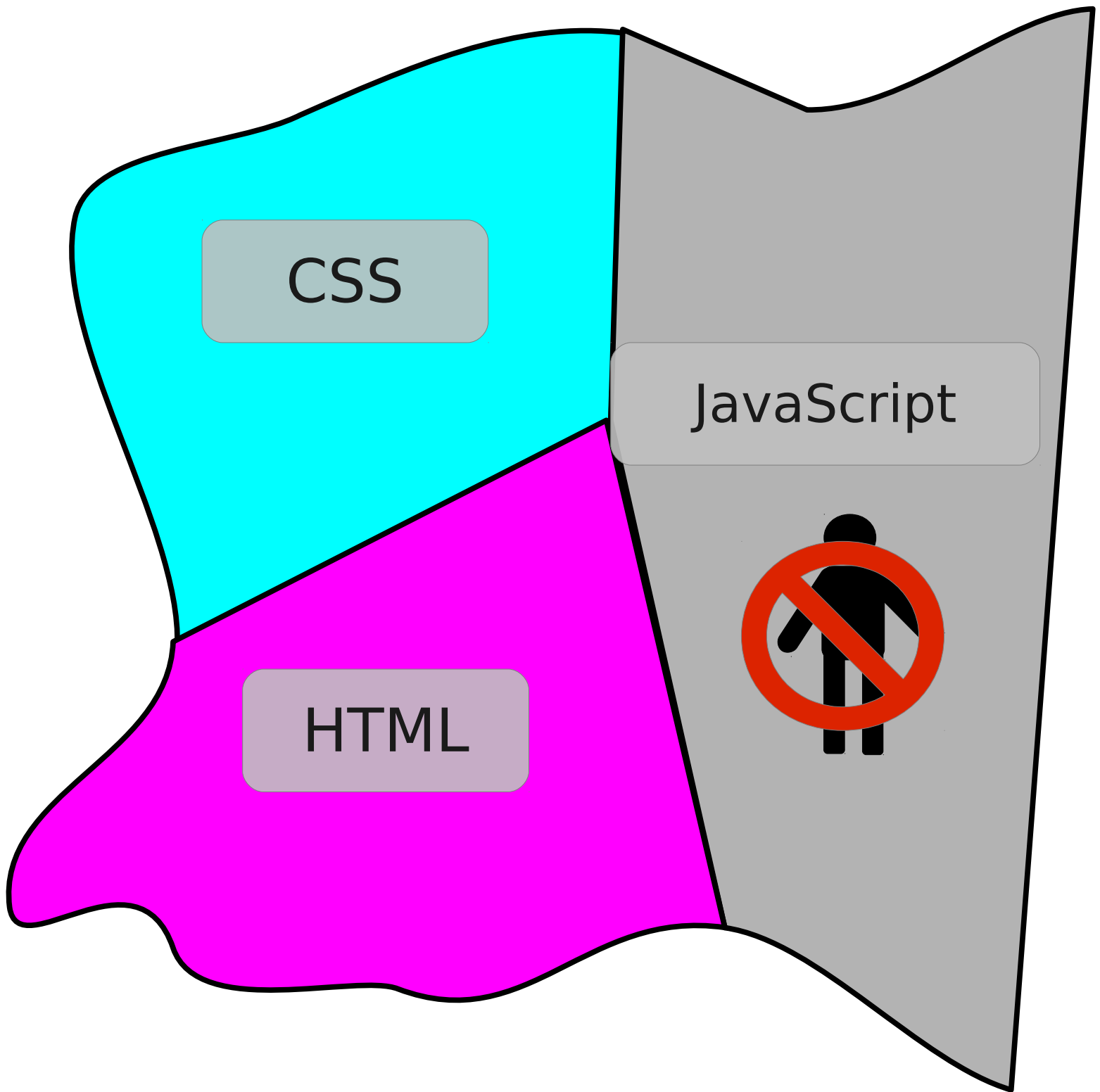


Rails Girls Berlin at eurucamp



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Béla	@drblinken	Berlin
Marco Sebald	@marcosebald	Berlin
Vanessa Butz	@VanessaButz	Munich, Germany
Rebecca	bioshrimp	Berlin
Tobi	@PragTob	Berlin, Germany

...into this.

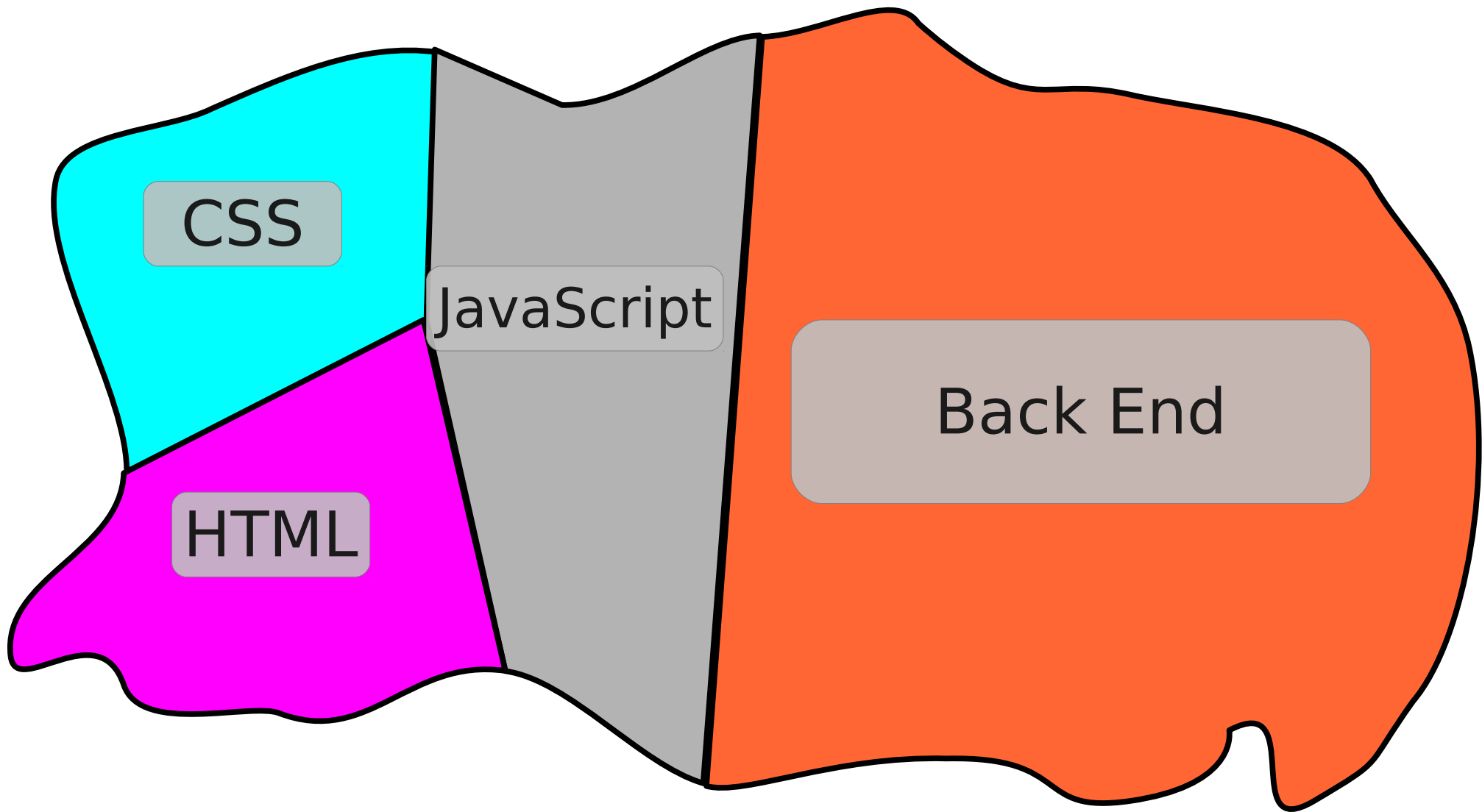


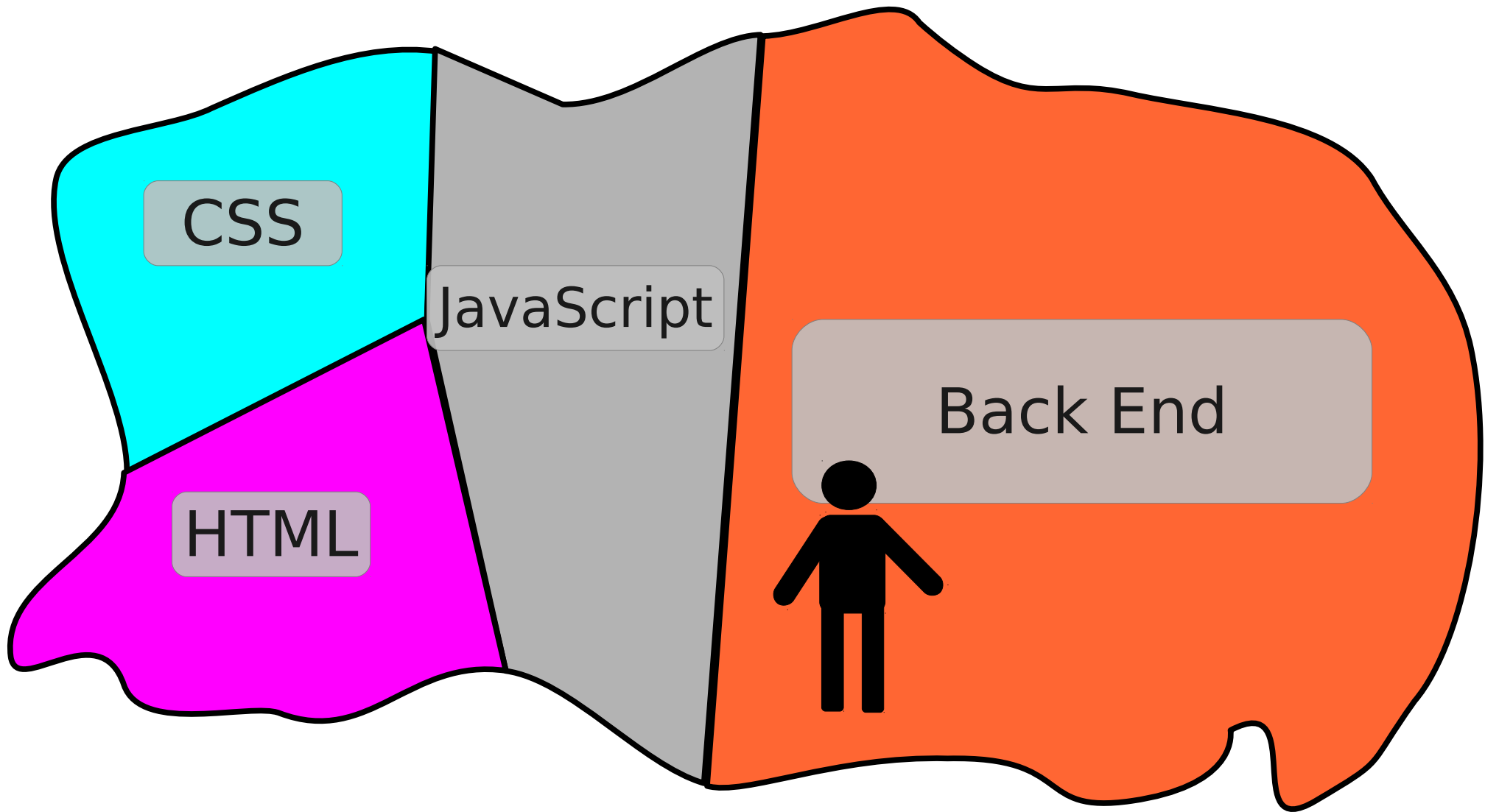
CSS

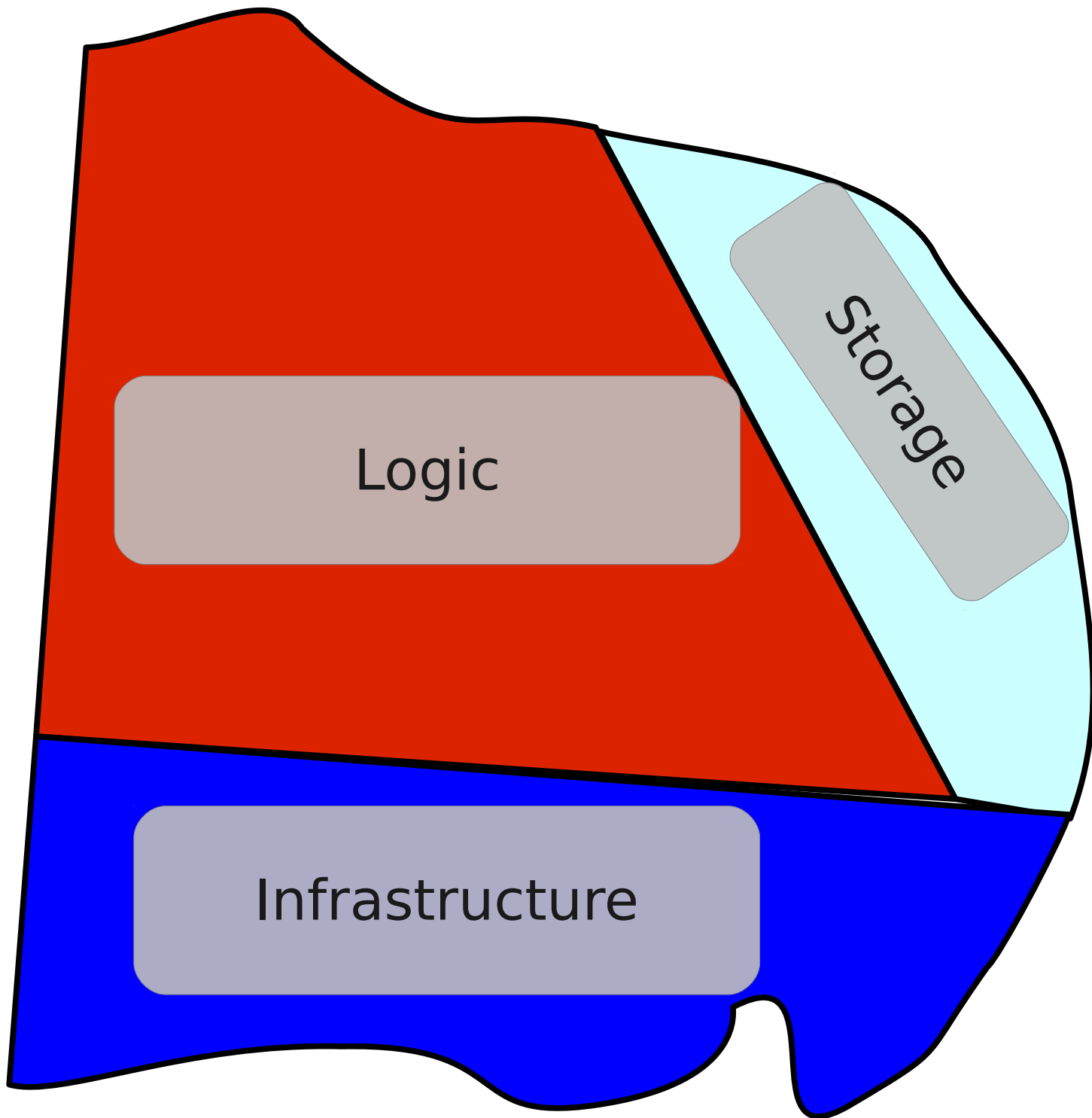
JavaScript

HTML





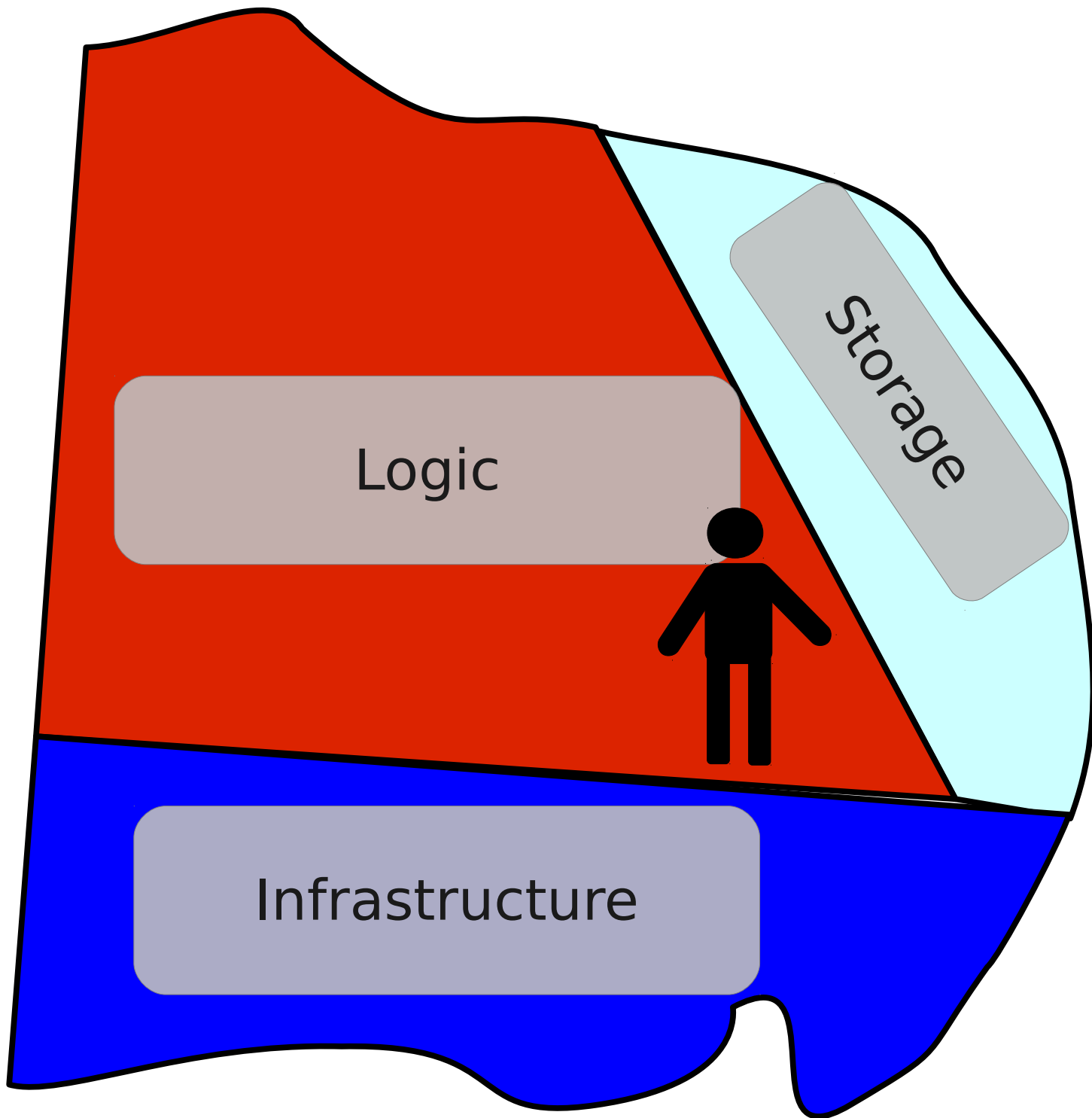




Logic

Storage

Infrastructure



Logic

Storage

Infrastructure

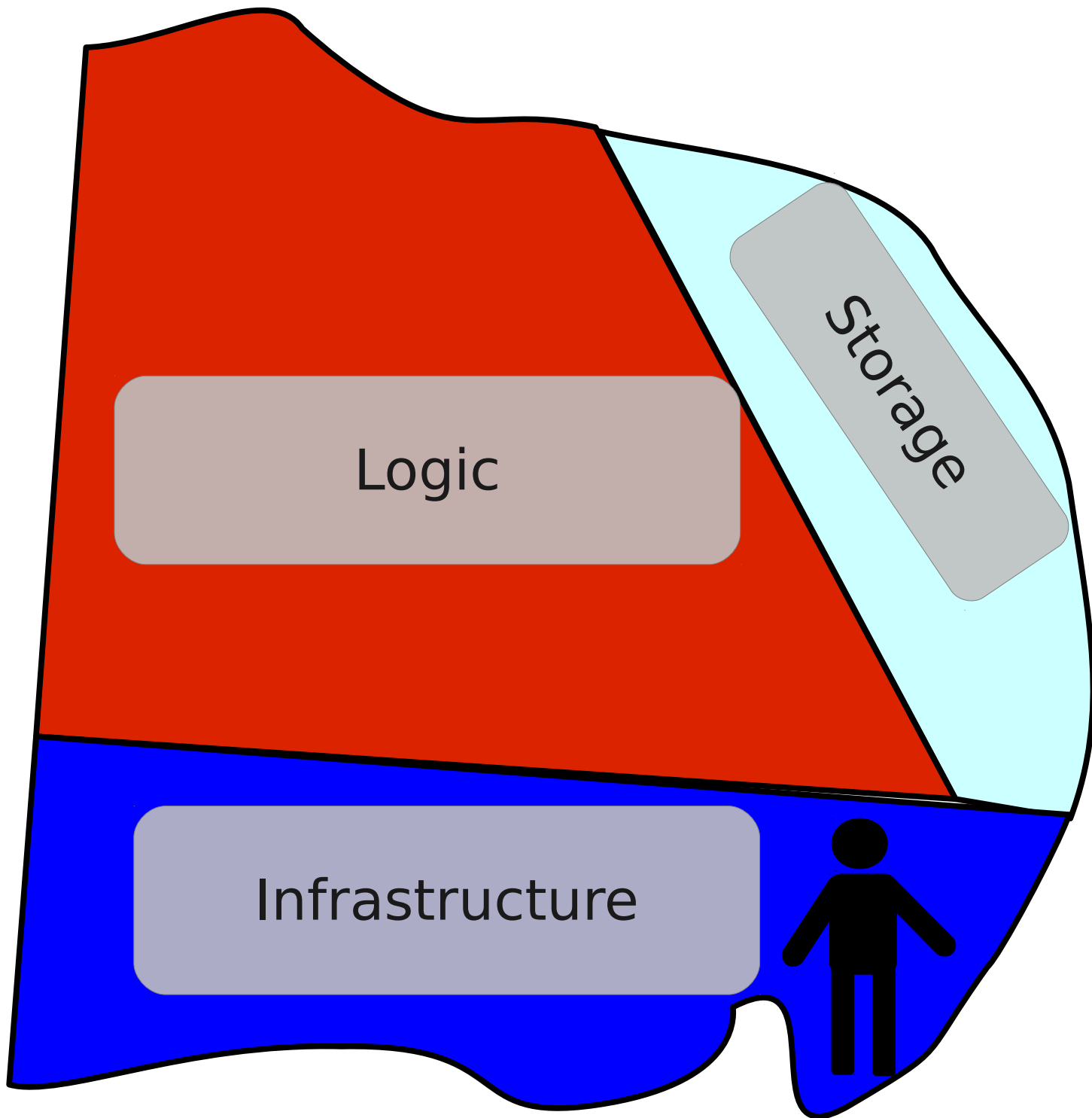
Logic



- Behaviour
- Implements the business logic
- Ties all the parts together
- Generates content

Ruby on Rails

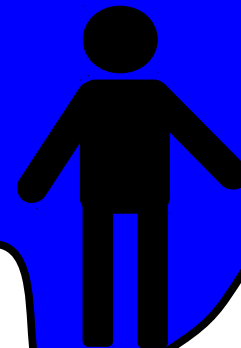




Logic

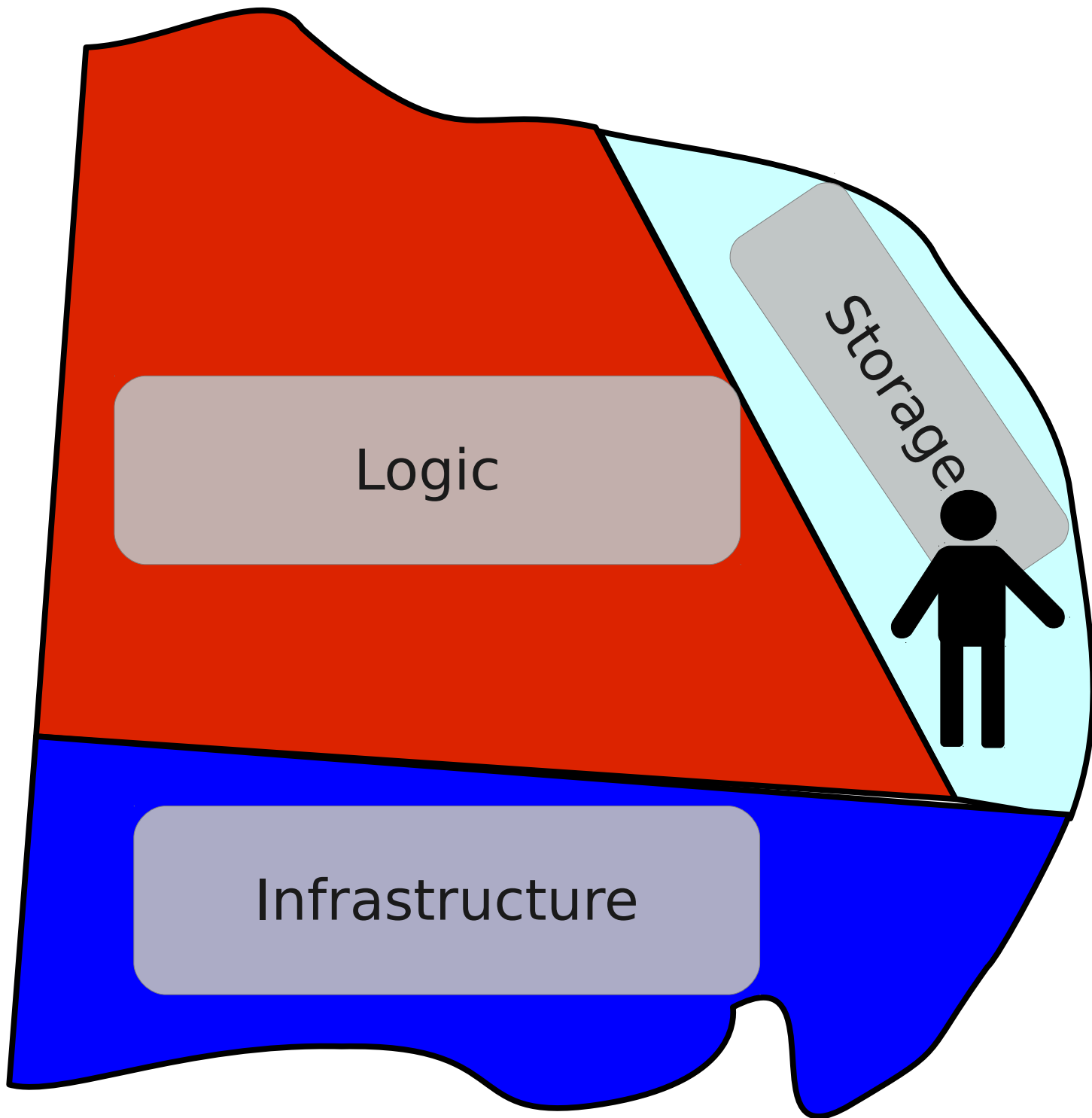
Storage

Infrastructure



Web Server





A tall, slightly wobbly stack of papers and documents is positioned on a light-colored wooden surface. The stack is composed of numerous sheets of white paper, with some pages showing signs of age or discoloration. The edges of the papers are uneven, and the stack is taller than it is wide. The background is a plain, light-colored wall.

Storing all your
data...

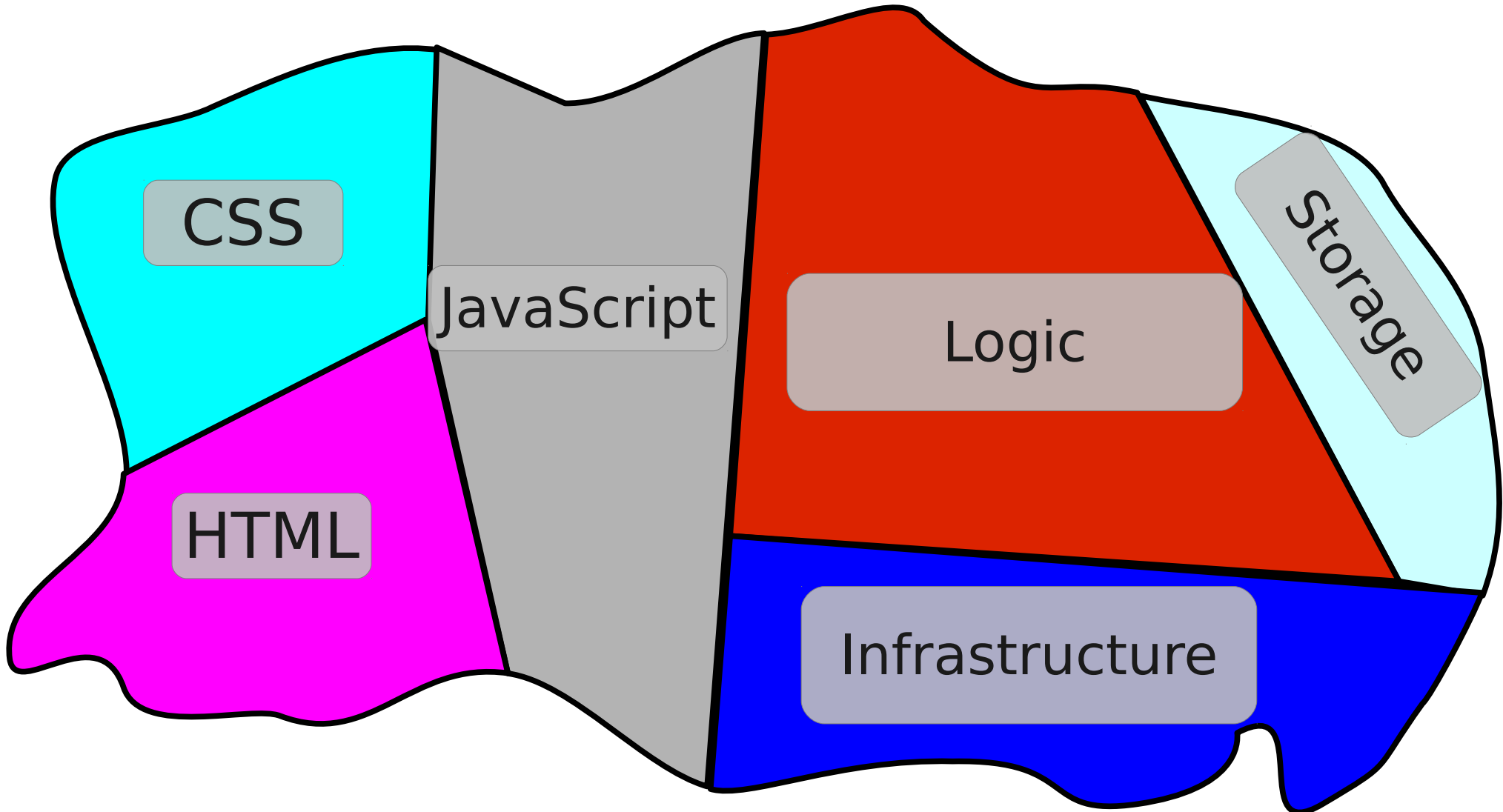
	A	B	C	D	E	F	G	H	I	J	K	L	M	N	O	P
1	id	name	Twitter_handle	Bio	Address	Picture	Comment									
2		1 Tobi	@PragTob	IT-Student ...	Berlin		likes green									
3		2 Fanny	@fannivuniconnu	French expat'...	Berlin		Jadore Rails...									
4		3 Anja	@_tyranja_	Magdeburg												
5																
6																
7																
8																
9																
10																
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57																

...in giant tables

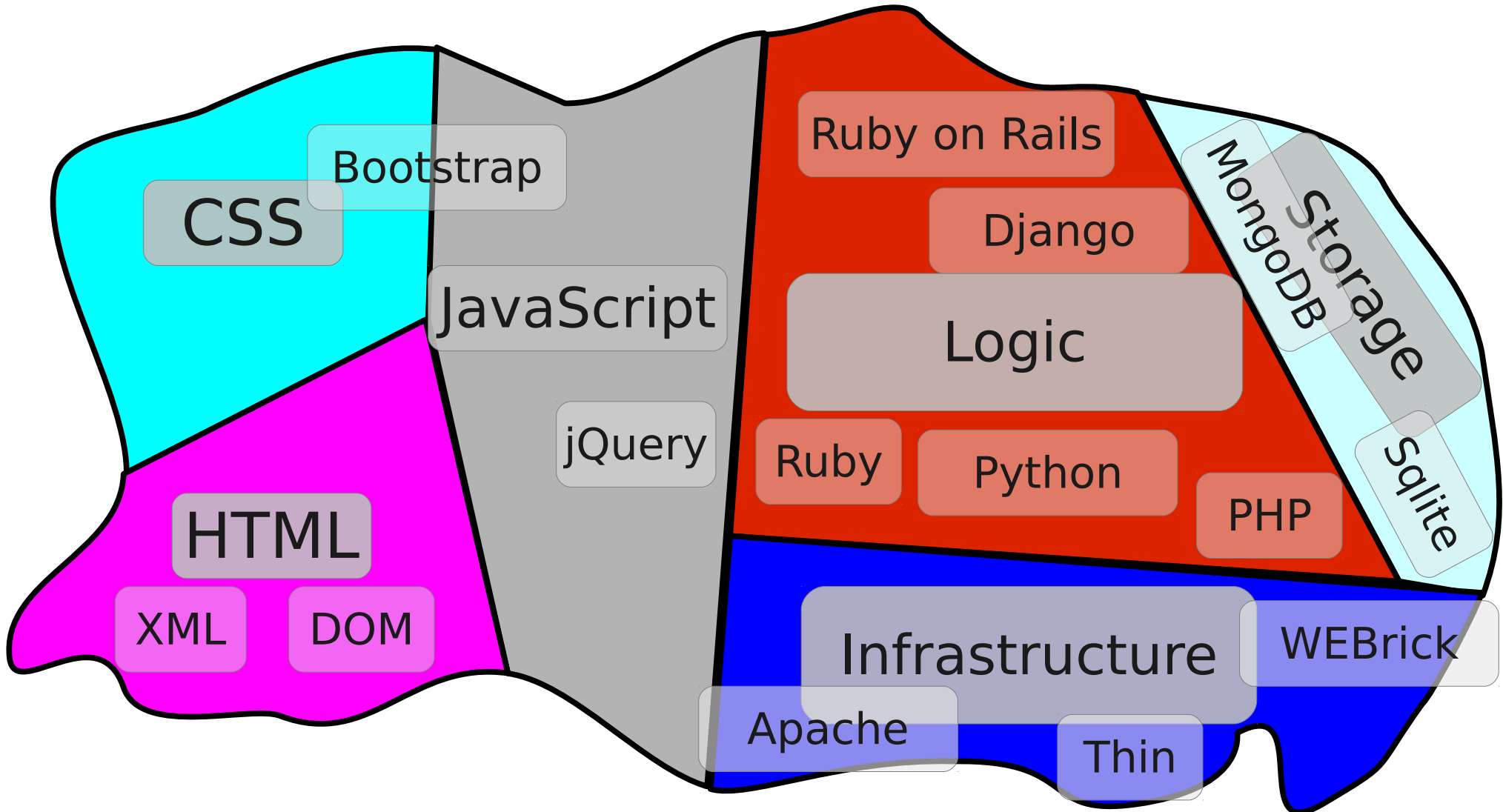


Recap

Web Application Landscape



Web Application Landscape



But what is **Ruby on Rails**?

A web application
framework written in Ruby



Ruby

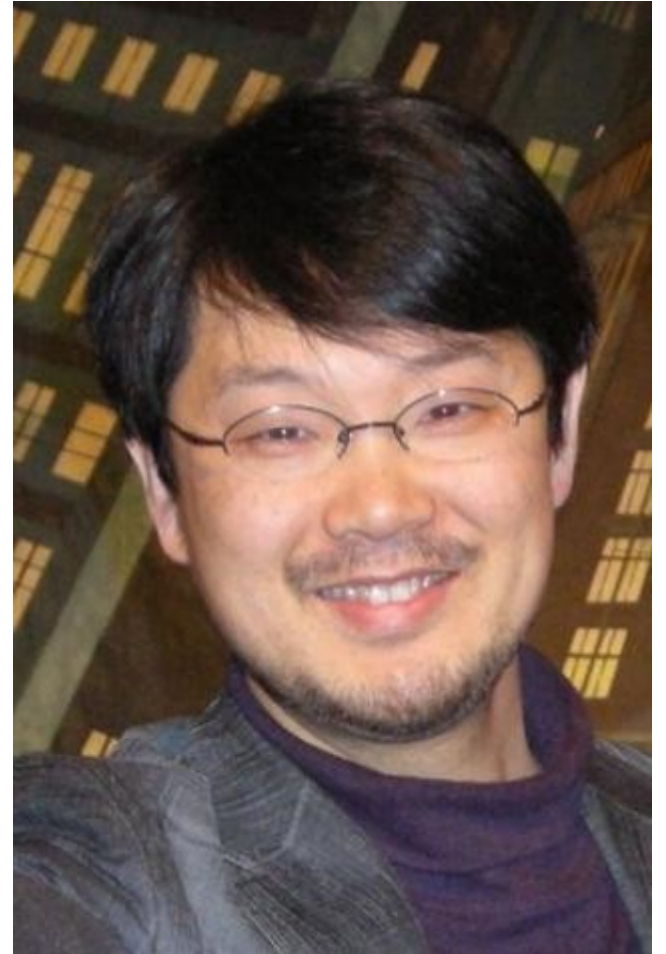
A Programmer's Best Friend



- A general purpose **programming language**
- Principle of least surprise
- Invented by Yukihiro Matsumoto

*"I hope to see Ruby **help every programmer** in the world to be productive, and to **enjoy programming**, and to **be happy**. That is the **primary purpose of Ruby language**."*

Yukihiro Matsumoto





Ruby on Rails



- Framework written in Ruby
- set of **functionality** to help write web applications
 - Connecting to the database (ActiveRecord)
 - Generating HTML (ERB)
 - Pays attention to security
 - ... and so much more!
- **M**odel **V**iew **C**ontroller
- You write in **Ruby**

Let's get into some **Ruby**

But before that...

Cookies & Questions



Open a terminal/console

irb

```
tobi@speedy:~$ irb  
1.9.3p194 :001 >
```

irb – interactive ruby



- talking to ruby
- You tell ruby something
- Ruby responds with what it understood
- Coaches are going to help you!

1.9.3p194 :001 > 5
=> 5

1.9.3p194 :002 > 5 + 3
=> 8

1.9.3p194 :003 > 8 * 7
=> 56

```
1.9.3p194 :004 > "Tobias Pfeiffer"  
=> "Tobias Pfeiffer"
```

```
1.9.3p194 :005 > name = "Tobi"  
=> "Tobi"
```

```
1.9.3p194 :006 > name  
=> "Tobi"
```

1.9.3p194 :007 > result = 8 * 7
=> 56

1.9.3p194 :008 > result * 10
=> 560

```
1.9.3p194 :009 > name + " likes Sweden"  
=> "Tobi likes Sweden"
```

```
1.9.3p194 :010 > puts "Hello World!"  
Hello World!  
=> nil
```

```
1.9.3p194 :011 > fruits = ["apple", "keewee",  
"orange"]  
=> ["apple", "keewee", "orange"]
```

```
1.9.3p194 :013 > fruits.each do |fruit| puts
fruit end
apple
keewee
orange
=> ["apple", "keewee", "orange"]
```

```
1.9.3p194 :014 > fruits[0]  
=> "apple"
```

1.9.3p194 :015 > symbol = :wuh

=> :wuh

1.9.3p194 :016 > symbol

=> :wuh

```
1.9.3p194 :017 > dictionary = {:hi =>
"Hej", :good => "bra", :cookie => "kaka"}
=> {:hi=>"Hej", :good=>"bra",
:cookie=>"kaka"}
1.9.3p194 :018 > dictionary[:hi]
=> "Hej"
1.9.3p194 :019 > dictionary[:cookie]
=> "kaka"
```

```
1.9.3p194 :020 > def hello
1.9.3p194 :021?>   puts "Hello there!"
1.9.3p194 :022?>   end
=> nil
```

```
1.9.3p194 :026 > hello
Hello there!
=> nil
```

```
1.9.3p194 :023 > def greeter(person)
1.9.3p194 :024?>   puts "Hello " + person
1.9.3p194 :025?>   end
=> nil
```

```
1.9.3p194 :027 > greeter("Fanny")  
Hello Fanny  
=> nil
```

```
1.9.3p194 :028 > greeter
```

```
ArgumentError: wrong number of arguments (0  
for 1)
```

```
  from (irb):23:in `greeter'
```

```
  from (irb):28
```

```
  from /home/tobi/.rvm/rubies/ruby-1.9.3-  
p194/bin/irb:16:in `'
```

```
1.9.3p194 :029 > class Person
1.9.3p194 :030?>   attr_accessor :name, :age
1.9.3p194 :031?>   end
=> nil
1.9.3p194 :032 > tobi = Person.new
=> #<Person:0x00000000205f080>
```

```
1.9.3p194 :033 > tobi.name
```

```
=> nil
```

```
1.9.3p194 :034 > tobi.name = "Tobi"
```

```
=> "Tobi"
```

```
1.9.3p194 :035 > tobi.age = 23
```

```
=> 23
```

```
1.9.3p194 :036 > tobi.name
```

```
=> "Tobi"
```

```
1.9.3p194 :037 > tobi.age
```

```
=> 23
```

```
1.9.3p194 :038 > tobi.age * 365  
=> 8395
```

```
1.9.3p194 :039 > puts "This was a talk by " +  
tobi.name + " - thank you!"
```

```
This was a talk by Tobi - thank you!  
=> nil
```



Thank you and enjoy
coding!

Tobias Pfeiffer
@PragTob

pragtob.wordpress.com

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