

COM5961 DATA DRIVEN PRODUCTS & SERVICES DESIGN:

LESSON 11 - FRONT-END PROGRAMMING IN JAVASCRIPT

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Today's agenda.

1. Add **form submission tracking** in Google Tag Manager.
2. What makes a great **data driven** product in a **platform** world governed by **API economics?**
3. What can you do with **JavaScript** that cannot be done in HTML, CSS and Python?
4. **DOM** navigation and manipulation in **JavaScript**.
5. Master **JavaScript** **event listener** functions for improved interactivity in web applications.

Analytics

Tag Manager

Optimize

Data Studio

Surveys

Attribution

Audience Center

Analytics 360 Suite

Overview

Capabilities

Features

Compare

Mobile Access

Success Stories

Resources



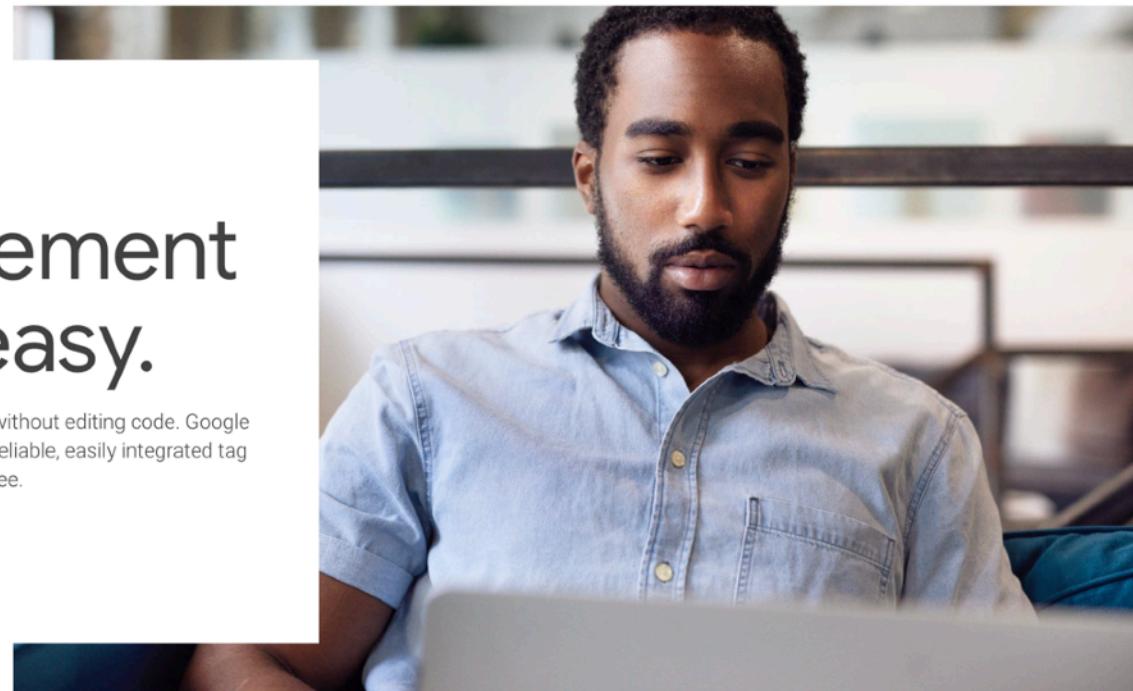
Improve the
customer
experience with
digital analytics.

Google Analytics gives you the digital analytics tools you need to analyze data from all touchpoints in one place, for a deeper understanding of the customer experience. You can then share the insights that matter with your whole organization.

SIGN UP FOR FREE

Tag management made easy.

Manage all your website tags without editing code. Google Tag Manager delivers simple, reliable, easily integrated tag management solutions— for free.

[Start for free](#)

Source: https://www.youtube.com/watch?v=_wq5nfKQ3DM

Your website is your store window.

Engage your website visitors like never before. Create personalized experiences and run website tests – for free.

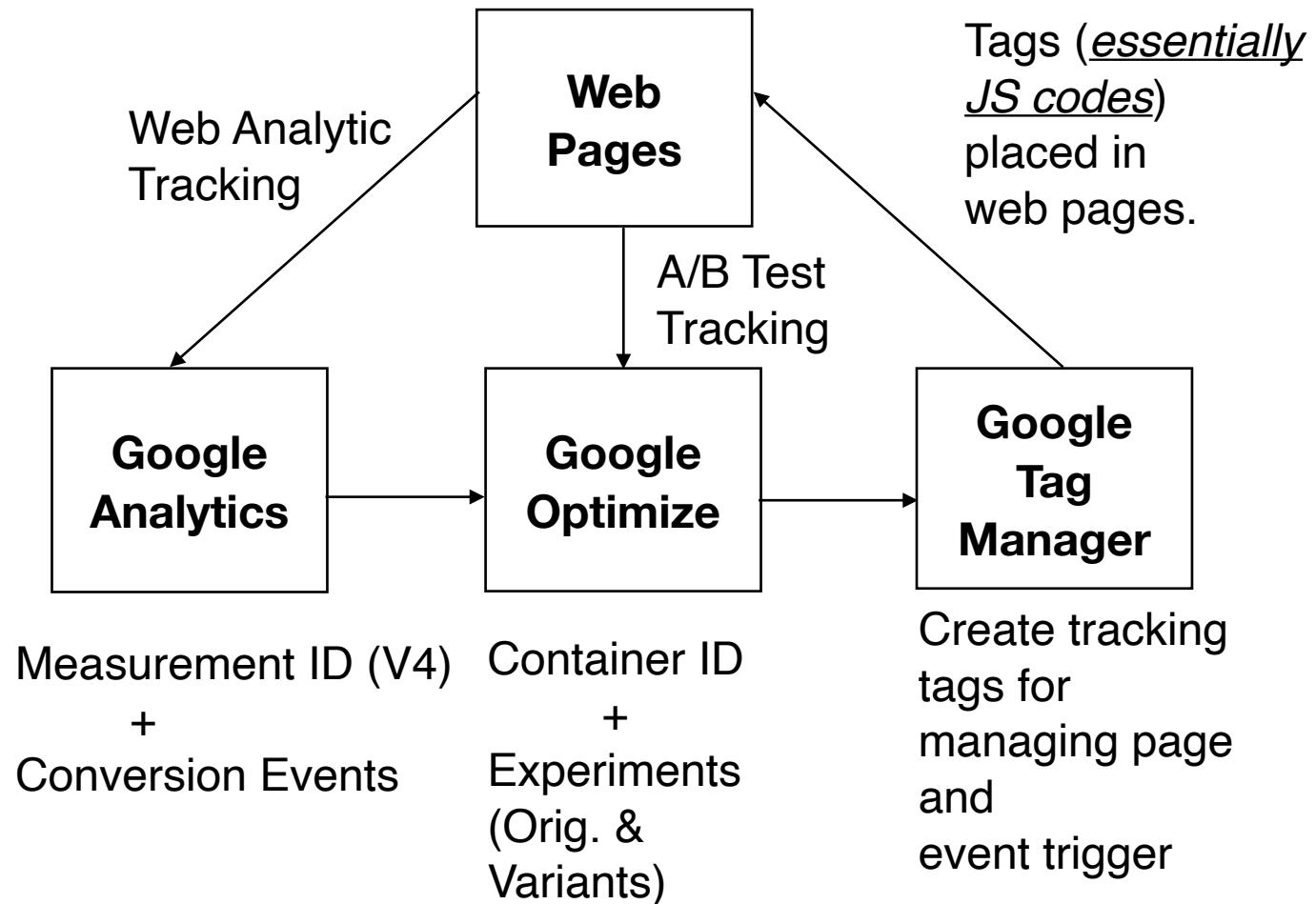
[Start for free](#)



Source: <https://www.youtube.com/watch?v=ufczfAZGUjM>

3 Chrome extensions required for tracking:

- Google Tag assistant
- GA debugger
- Google Optimize



Add event trigger and tag (e.g. form submission) for tracking in Google Tag Manager, going beyond just page trigger, tagging and tracking.

Tag Manager | All accounts > com.supint.pyth

Save

Workspace Versions Admin

CURRENT WORKSPACE

Default Workspace >

Tags

Overview

Tags

Triggers

Variables

Folders

Templates

GA4 Config Tag

Tag Configuration

Tag Type

Google Analytics: GA4 Configuration
Google Marketing Platform

Measurement ID: G-71MPLN17T8

Triggering

Firing Triggers

All Pages
Page View

Add Exception

The screenshot displays the Google Tag Manager interface for a 'GA4 Config Tag'. On the left sidebar, under 'CURRENT WORKSPACE', the 'Tags' option is selected. The main workspace shows the 'GA4 Config Tag' configuration. The 'Tag Configuration' section is set to 'Google Analytics: GA4 Configuration' with the measurement ID 'G-71MPLN17T8'. The 'Triggering' section is configured to fire on 'All Pages' (Page View). Both the 'Tag Configuration' and 'Triggering' sections are highlighted with red boxes.

Tag Manager | All accounts > com5961-2022-bs supint.pythonanywhere.com ▾

Search workspace

Workspace Versions Admin

GTM-T7BS97V Workspace Changes: 20 Preview Submit

CURRENT WORKSPACE

Default Workspace >

Tags

Name ↑	Type	Firing Triggers	Last Edited
GA4 Config Tag	Google Analytics: GA4 Configuration	All Pages	8 minutes ago

Overview Tags (selected) Triggers Variables Folders Templates

Terms of Service • Privacy Policy

The screenshot shows the Google Tag Manager interface. On the left, there's a sidebar with navigation links: Overview, Tags (which is selected and highlighted in blue), Triggers, Variables, Folders, and Templates. The main content area is titled 'Tags' and lists one item: 'GA4 Config Tag'. This tag is of type 'Google Analytics: GA4 Configuration' and is set to fire on 'All Pages'. It was last edited 8 minutes ago. At the top right, there are buttons for 'Preview' (which is highlighted with a red box) and 'Submit'. The top bar also shows the account name 'com5961-2022-bs' and the domain 'supint.pythonanywhere.com'. A search bar is at the top center.

Tag Manager

All accounts > com.supint.pyth

Save

Workspace Versions Admin

CURRENT WORKSPACE

Default Workspace >

Tags

Name ↑

GA4 Config Tag

Overview

Tags

Triggers

Variables

Folders

Templates

GA4 Config Tag

Added in this workspace

Abandon changes

Tag Configuration

Tag Type

Google Analytics: GA4 Configuration
Google Marketing Platform

Measurement ID: G-71MPLN17T8

Send a page view event when this configuration loads

Send to server container

Fields to Set

User Properties

Advanced Settings

Triggering

Firing Triggers

All Pages
Page View

The screenshot displays the Google Tag Manager interface for managing a 'GA4 Config Tag'. The main area is titled 'Tag Configuration' and includes sections for 'Tag Type' (set to 'Google Analytics: GA4 Configuration'), 'Measurement ID' (set to 'G-71MPLN17T8'), and two checkboxes: 'Send a page view event when this configuration loads' (checked) and 'Send to server container'. Below this, there are three expandable sections: 'Fields to Set', 'User Properties', and 'Advanced Settings'. At the bottom, the 'Triggering' section is shown, which contains a single trigger named 'All Pages' under the 'Page View' category. The entire 'Tag Configuration' section is highlighted with a red box, and the 'Triggering' section is also highlighted with a red box.

```
<head>
<!-- Google tag (gtag.js) --&gt;
&lt;script async src="https://www.googletagmanager.com/gtag/js?id=G-71MPLN17T8"&gt;&lt;/script&gt;
&lt;script&gt;
  window.dataLayer = window.dataLayer || [];
  function gtag(){dataLayer.push(arguments);}
  gtag('js', new Date());
  gtag('config', 'G-71MPLN17T8');
&lt;/script&gt;</pre>
```

After setting up GA config tag for tracking, the original GA tag can be removed to avoid duplicate tracking.

```
<!-- Google Tag Manager -->
<script>(function(w,d,s,l,i){w[l]=w[l]||[];w[l].push({'gtm.start':
new Date().getTime(),event:'gtm.js'});var f=d.getElementsByTagName(s)[0],
j=d.createElement(s),dl=l!='dataLayer'?&l:'';j.async=true;j.src=
'https://www.googletagmanager.com/gtm.js?id='+i+dl;f.parentNode.insertBefore(j,f);
})(window,document,'script','dataLayer','GTM-T7BS97V');</script>
<!-- End Google Tag Manager -->
```

```
<meta charset="utf-8" />
<meta name="viewport" content="width=device-width, initial-scale=1, shrink-to-fit=no" />
<meta name="description" content="" />
<meta name="author" content="" />
<title>Clean Blog - Start Bootstrap Theme</title>
<link rel="icon" type="image/x-icon" href="{{ url_for('static', filename='assets/favicon.ico') }}" />
<!-- Font Awesome icons (free version)-->
<script src="https://use.fontawesome.com/releases/v5.15.3/js/all.js" crossorigin="anonymous"></script>
<!-- Google fonts-->
<link href="https://fonts.googleapis.com/css?family=Lora:400,700,400italic,700italic" rel="stylesheet" type="text/css"/>
<link href="https://fonts.googleapis.com/css?family=Open+Sans:300italic,400italic,600italic,700italic,800italic,400,300,600,700,800" rel="stylesheet" type="text/css" />
<!-- Core theme CSS (includes Bootstrap)-->
<link rel="stylesheet" href="{{url_for('static', filename='css/style.css')}}">
<link rel="stylesheet" href="{{url_for('static', filename='css/custom.css')}}">
</head>
<body>
  <!-- Google Tag Manager (noscript) -->
  <noscript><iframe src="https://www.googletagmanager.com/ns.html?id=GTM-T7BS97V"
height="0" width="0" style="display:none;visibility:hidden"></iframe></noscript>
  <!-- End Google Tag Manager (noscript) -->
  <!-- Navigation-->
```

base.html

supint.pythonanywhere.com

Configuration for supint.pythonanywhere.com

[+ Add a new web app](#)

Reload:

 Reload supint.pythonanywhere.com**Reload website to activate tracking.**

Best before date:

We're happy to host your free website – and keep it free – for as long as you want to keep it running, but you'll need to log in at least once every three months and click the "Run until 3 months from today" button below. We'll send you an email a week before the site is disabled so that you don't forget to do that. [See here for more details.](#)

This site will be disabled on **Wednesday 04 January 2023** Run until 3 months from today

Paying users' sites stay up forever without any need to log in to keep them running.

Traffic:

How busy is your site?

This month (previous month) 251 (43)

Today (yesterday) 124 (11)

Last 7 days (previous week) 1 (1)

Tag Manager | All accounts > com5961-2022-bs supint.pythonanywhere.com ▾

Search workspace

Workspace Versions Admin

GTM-T7BS97V Workspace Changes: 20 Preview Submit

CURRENT WORKSPACE

Default Workspace >

Tags

Name ↑	Type	Firing Triggers	Last Edited
GA4 Config Tag	Google Analytics: GA4 Configuration	All Pages	8 minutes ago

Overview Tags (selected) Triggers Variables Folders Templates

Terms of Service • Privacy Policy

The screenshot shows the Google Tag Manager interface. On the left, there's a sidebar with navigation links: Overview, Tags (which is selected and highlighted in blue), Triggers, Variables, Folders, and Templates. The main content area is titled 'Tags' and lists one item: 'GA4 Config Tag'. This tag is of type 'Google Analytics: GA4 Configuration' and is set to fire on 'All Pages'. It was last edited 8 minutes ago. At the top right, there are buttons for 'Preview' (which is highlighted with a red box) and 'Submit'. The top bar also shows the account name 'com5961-2022-bs' and the domain 'supint.pythonanywhere.com'. A search bar is at the top center.

X Not Connected supint.pythonanywhere.com

2 Google containers found G-71MPLN17TB GTM-T7BS97V

⚠️ Debug window closed ~ The connected debug window has been closed

Reopen

Summary

Clean Blog - Start Boots...
28 Window Loaded
27 DOM Ready
26 Container Loaded
25 Container Loaded
24 Container Loaded
23 Initialization
22 Consent Initialization
Clean Blog - Start Boots...
21 form_submit
20 Form Submit
19 form_start
18 Scrolls
17 Scroll Depth
16 Window Loaded
15 DOM Ready
14 Container Loaded

Output of GTM-T7BS97V

Tags

Tags Fired

GA4 Config Tag
Google Analytics: GA4 Configuration

Tags Not Fired

None

Connect Tag Assistant to your site

Tag Manager Preview Mode

Learn why Tag Manager preview mode has changed

Tag Manager container **GTM-T7BS97V** will be put into debug mode in this web browser. Enter a URL to your site to begin previewing your container.

Your website's URL <https://supint.pythonanywhere.com/register>

Connect

Opens your site in a new window

Include debug signal in the URL

Consent

Errors

Previewing: env-B >

Register

User name

Email address

Password

Bio



Tag Assistant

Tag Assistant Connected

Debug information for this page is viewable in the Tag Assistant window [Learn more](#)

Finish

X Connected supint.pythonanywhere.com

2 Google containers found GTM-T7BS97V G-71MPLN17T8

Summary

Clean Blog - Start Boots...

Window Loaded

DOM Ready

Container Loaded

Container Loaded

Container Loaded

Initialization

Consent Initialization

Output of GTM-T7BS97V

Tags

Tags Fired

GA4 Config Tag

Google Analytics: GA4 Con...

Tags Not Fired

GA4 Registration Link Tag

GA4 Registration Form Tag

Google Analytics: GA4 Event

Google Analytics: GA4 Event

Connected!

Tag Assistant

supint.pythonanywhere....

Debug information from the connected window will appear in this window. Both windows must remain open for debug mode to operate. [Learn more](#)

Continue

Previewing: env-8 >

Consent Errors

X Not Connected supint.pythonanywhere.com :

2 Google containers found G-71MPLN17T8 GTM-T7BS97V

⚠ Debug window closed – The connected debug window has been closed. To continue debugging, reopen the window. Reopen

Summary ⚡

Clean Blog - Start Boots...

28 Window Loaded ⓘ

27 DOM Ready ⓘ

26 Container Loaded ⓘ

25 Container Loaded ⓘ

24 Container Loaded ⓘ

23 Initialization ⓘ

22 Consent Initialization ⓘ

Clean Blog - Start Boots...

21 form_submit

20 Form Submit

19 form_start

18 Scrolls

17 Scroll Depth

16 Window Loaded ⓘ

15 DOM Ready ⓘ

14 Container Loaded ⓘ

Output of GTM-T7BS97V ⓘ

Tags Variables Data Layer Consent Errors Previewing: env-8 >

Tags Fired

GA4 Config Tag

Google Analytics: GA4 Configuration - Fired 3 time(s)

Tags Not Fired

None

Tag Manager All accounts > com5961-2022-bs supint.pythonanywhere.com

Publish

Submit Changes

Submission Configuration

Publish and Create Version Push changes to your sites

Create Version Save changes and create a new version

Version Name: GA4 Registration Link and Form Submis

Version Description: GA4 Registration Link and Form Submission tracking ver 1

Publish to Environment: Live

Workspace Changes

Name ↑	Type	Change	Last Edited	User
GA4 Registration Form Tag	Tag	Added	a few seconds ago	suuentze2020@gmail.com

Activity History >

All accounts > com5962-2022
com5961-2022-demo01

Try searching "how to create funnel"

Events Debug Device 0

Conversions

Audiences

Custom definitions

DebugView

1:35 AM

1:34 AM

1:33 AM

1:32 AM

1:31 AM

1:30 AM

1:29 AM

1:28 AM

1:27 AM

1:26 AM

1:36:43 AM

1:36:42 AM

1:36:40 AM

5s

2s

page_view

TOP EVENTS

LAST 30 MINS

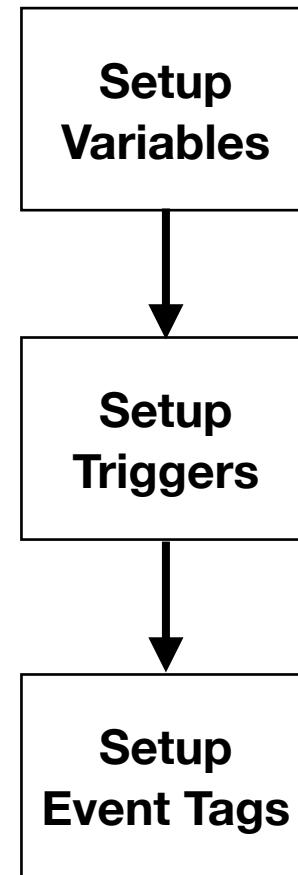
1 TOTAL

1 page_view

USER PROPERTIES ACTIVE NOW

The screenshot shows the Google Analytics Debug View interface. On the left, a vertical timeline displays event markers from 1:26 AM to 1:35 AM. A specific event at 1:36:42 AM is highlighted with a red box and labeled 'page_view'. The main timeline area shows a sequence of events with time intervals of 5s and 2s between them. To the right, a sidebar displays 'TOP EVENTS' for the last 30 minutes, showing one 'page_view' event. At the bottom, there is a link to 'USER PROPERTIES ACTIVE NOW'.

To configure **event tags** (i.e. tracking links or form submission), one has to setup needed variables, triggers, and the event tags in a step-by-step sequence.



Register

User name

Email address

Password

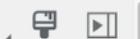
Bio

A standard rich text editor toolbar with icons for bold, italic, underline, font size, alignment, and other text styling options.**B** *I* S | **I_x** | **I=** | **I:** | **I#** | **I"** | **I,** | Styles | Format | ?

Obtain form ID.

```
<!-- Main Content-->
<div class="container">
  <form action="/register"
    method="POST" id="register">
    == $0
      <div class="form-group">...
        </div>
    ...
  </form>
  ... 1e-i2svg-active.fontawesome-i2svg-co ...
```

Styles Computed Layout >

Filter :hov .cls + 

```
element.style {
}
*, *::before, *::after {
  box-sizing: border-box;
}
form {
  user agent stylesheet
  display: block;
  margin-top: 0em;
}
```

Inherited from body

```
body {
  style.css:10010
  font-size: 20px;
  color: #212529;
}
```

```
body {
  style.css:61
```

Console What's New 

Tag Manager

All accounts > com5961-2022 supint.pythonanywhere.com

Search workspace

Workspace Versions Admin

Built-In Variables

Name	Type
Click Classes	Data Layer Variable
Click Element	Data Layer Variable
Click ID	Data Layer Variable
Click Target	Data Layer Variable
Click Text	Auto-Event Variable
Click URL	Data Layer Variable
Debug Mode	Debug Mode
Error Line	Data Layer Variable
Error Message	Data Layer Variable
Error URL	Data Layer Variable
Event	Custom Event
Form Classes	Data Layer Variable
Form Element	Data Layer Variable
Form ID	Data Layer Variable
Form Target	Data Layer Variable
Form Text	Auto-Event Variable
Form URL	Data Layer Variable
Page Hostname	URL
Page Path	URL
Page URL	URL
Referrer	HTTP Referrer

User-Defined Variables

New

Configure Built-In Variables

Event

- Event
- Environment Name
- Container ID
- Container Version
- Random Number
- HTML ID

Errors

- Error Message
- Error URL
- Error Line
- Debug Mode

Clicks

- Click Element
- Click Classes
- Click ID
- Click Target
- Click URL
- Click Text

Forms

- Form Element
- Form Classes
- Form ID
- Form Target
- Form URL
- Form Text

Tag Manager | All accounts > com.supint.pyth

Registration Form Submitted

Create new form submission trigger.

Save

Workspace Versions Admin

CURRENT WORKSPACE

Default Workspace >

Overview Tags Triggers Variables Folders Templates

Triggers

Name ↑ Registrat Registrat

Trigger Configuration

Trigger Type

Form Submission

Wait for Tags ⓘ Check Validation ⓘ

This trigger fires on

All Forms Some Forms

Fire this trigger when an Event occurs and all of these conditions are true

Form ID equals register

Added in this workspace

Abandon changes

Pick Form ID Enter ID “register”

The screenshot shows the Google Tag Manager interface. On the left, the sidebar has 'Triggers' selected, highlighted with a red box. The main area shows a trigger configuration for a 'Form Submission' type, also highlighted with a red box. The trigger is named 'Registration Form Submitted'. The configuration specifies it fires on 'Some Forms' and has a condition where 'Form ID' equals 'register'. The 'Form ID' input field and the value 'register' are both highlighted with red boxes. A large red box also covers the top right corner of the main configuration area. At the bottom, there are two text boxes: 'Pick Form ID' on the left and 'Enter ID “register”' on the right, both in red text.

Tag Manager | All accounts > com.supint.pyth

Registration Form Submitted Name of the form submission trigger.

Save

Workspace Versions Admin

CURRENT WORKSPACE

Default Workspace >

- Overview
- Tags
- Triggers
- Variables
- Folders
- Templates

Added in this workspace

Trigger Configuration

Trigger Type

Form Submission

This trigger fires on

Form ID equals register

Trigger type is form submission.

Form ID used in base.html.

The screenshot shows the Google Tag Manager interface. On the left, there's a sidebar with navigation links like Workspace, Versions, Admin, Overview, Tags, Triggers (which is highlighted), Variables, Folders, and Templates. The main area shows a trigger named 'Registration Form Submitted'. A red box highlights the trigger name. Below it, the 'Trigger Configuration' section is shown, with another red box highlighting the 'Trigger Type' field which contains 'Form Submission'. A third red box highlights the condition 'This trigger fires on' followed by 'Form ID equals register'. To the right of the configuration, two annotations are present: 'Trigger type is form submission.' and 'Form ID used in base.html.'.

← → C <tagmanager.google.com/#/container/accounts/6062853857/containers/96889425/worksheets/2/triggers>

All accounts > com5961-2022-bs supint.pythontanywhere.com ▾ Update

Tag Manager Workspace Versions Admin GTM-T7BS97V Workspace Changes: 18 Preview Submit

CURRENT WORKSPACE

Default Workspace >

Overview Tags Triggers Variables Folders Templates

Triggers

<input type="checkbox"/> Name ↑	Event Type	Filter	Tags	Last Edited
<input type="checkbox"/> Registration Form Submitted	Form Submission	Form ID equals register	0	a few seconds ago

The trigger for handling the registration form tag event.

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Tag Manager All accounts > com5961-2022-bs supint.pythonanywhere.com

GA4 Registration Form Tag

Create form tracking tag.

Save

Workspace Versions Admin

CURRENT WORKSPACE

Default Workspace >

Tags

- Name ↑
- GA4 Config Tag
- GA4 Registration Link T...

Overview Tags Triggers Variables Folders Templates

Tag Configuration

Tag Type

Google Analytics: GA4 Event Google Marketing Platform

Configuration Tag (GA4 Config Tag)

Event Name (registration_form_conversion)

Create an event name (all lower case without blank)

Event Parameters

Parameter Name	Value
currency	HKD
value	1

Consent Settings (BETA)

Built-In Consent Checks (ad_storage analytics_storage)

Additional Consent Checks
No additional consent required

Triggering

Firing Triggers

Registration Form Submitted (Form Submission)

Add Exception

Link to form submission trigger created earlier.

The screenshot illustrates the process of creating a form tracking tag in Google Tag Manager. The 'Tags' section is highlighted in the sidebar. The main configuration panel shows a 'Google Analytics: GA4 Event' tag being set up. A red box highlights the 'Event Name' field containing 'registration_form_conversion'. A callout text 'Create an event name (all lower case without blank)' provides guidance. The 'Triggering' section at the bottom shows a 'Registration Form Submitted' trigger, with a red box highlighting it and a callout text 'Link to form submission trigger created earlier.'.

Add conversion event in Google Analytics.

Analytics All accounts > com5962-2022
com5961-2022-demo01 Try searching "how to create funnel"

Last 28 days Oct 17 - Nov 13, 2022 ▾
Compare: Sep 19 - Oct 16, 2022

Events Conversions Audiences Custom definitions DebugView

New conversion event

Conversion Events Network Settings

Conversion name ↑	Count	% change	Value	% change	Mark as conversion ?
purchase	0	0%	0	0%	

Back to Google Analytics for adding conversion event.

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Analytics All accounts > com5962-2022
com5961-2022-demo01 ▾ Try searching "how to create funnel"

Last 28 days Oct 17 - Nov 13, 2022 ▾
Compare: Sep 19 - Oct 16, 2022

Events Conversions Audiences Custom definitions DebugView

Conversion Events Network Settings

Conversion name ↑ Count % change Value % change Mark as conversion ?

New event name * registration_form_conversion 28 / 40

Cancel Save

form_submit 0 0% 0 0%

purchase 0 0% 0 0%

Enter the event name created in Tag manager.

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Analytics All accounts > com5962-2022
com5961-2022-demo01 ▾ Try searching "how to create funnel"

Last 28 days Oct 17 - Nov 13, 2022 ▾
Compare: Sep 19 - Oct 16, 2022

Events Conversions Audiences Custom definitions DebugView

Conversion Events Network Settings

Conversion name ↑ Count % change Value % change Mark as conversion ?

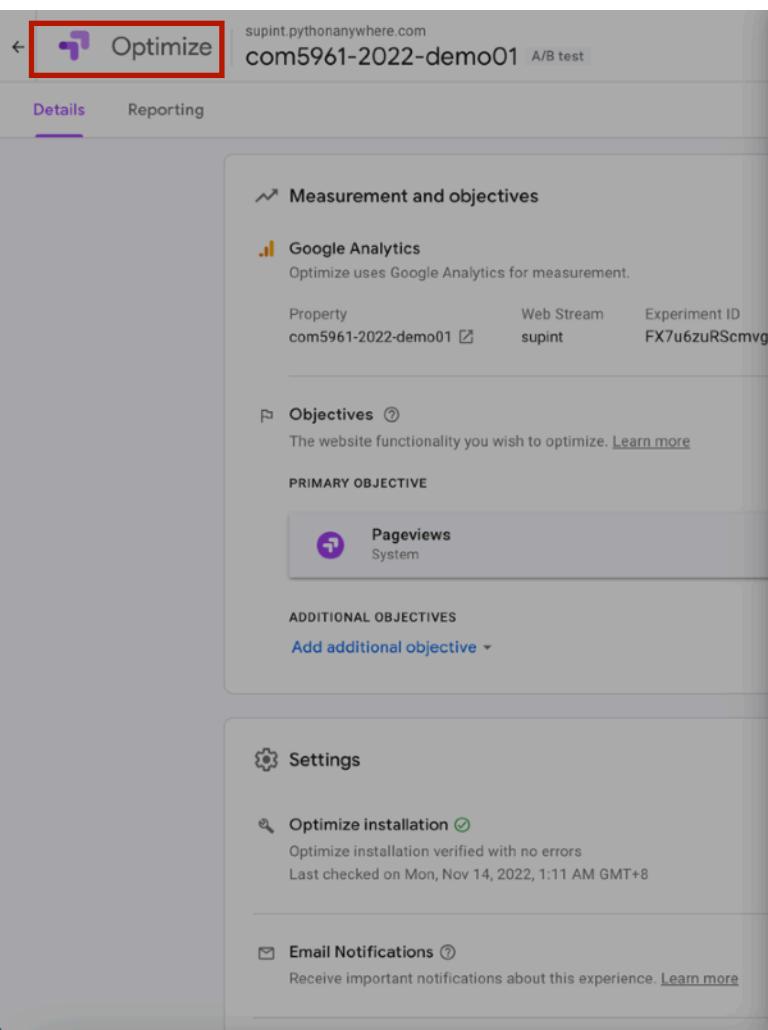
Conversion name	Count	% change	Value	% change	Mark as conversion
purchase	0	0%	0	0%	<input type="checkbox"/>
registration_form_conversion	0	0%	0	0%	<input checked="" type="checkbox"/>

New conversion event

Now the event form submission tag created in Tag manager is connected to Google Analytics.

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Add optimization objective to Google Optimize



The screenshot shows the 'Details' tab of a Google Optimize experiment. The experiment name is 'com5961-2022-demo01' and it is set to 'A/B test'. The measurement is configured using Google Analytics, with the property 'com5961-2022-demo01' and stream 'supint'. The primary objective is set to 'Pageviews' (System). There are no additional objectives added. The settings section shows that the optimize installation is verified with no errors, last checked on Mon, Nov 14, 2022, at 1:11 AM GMT+8. Email notifications are enabled.

Select Objective

Ecommerce

Purchases

The average number of purchase events per user in the experiment

Purchase revenue

The average revenue from purchases per user in the experiment

Conversions

Maximize purchase

Maximize registration_form_conversion

Go to Google Optimize to pick a new conversion objective to add maximise the event name created in both Google Tag Manager and Google Analytics.

← supint.com Optimize

Setup instructions

Details Reporting

Measurements

Google Optimizer

Properties

Objects

Primary

Add experiment

Settings

Optimizations

Email

Traffic

Activations

Install the Optimize snippet

Optimize is installed by adding a small snippet of code to your website to display new experiences to your visitors. Add the following code to the top of the <HEAD> tag on every page you wish to optimize.

[Learn more](#) about how to install Optimize and about advanced installation options.

```
<script src="https://www.googleoptimize.com/optimize.js?id=OPT-PJRNQXD"></script>
```

[Check installation](#)

Click check installation to test installation and connection.

Install the Chrome extension

The Chrome extension is required to use the visual editor and installation diagnostics, but not to create redirect experiments or view reports.

[Extension installed](#)

This screenshot shows the 'Setup instructions' page in Google Optimize. It displays two main sections: 'Install the Optimize snippet' and 'Install the Chrome extension'. The 'Check installation' button and the 'Extension installed' message are highlighted with red boxes. A large red box also covers the text 'Click check installation to test installation and connection.'.

Start Bootstrap[HOME](#) [ABOUT](#) [BLOGS](#) [PROFILE](#) [NEW BLOG](#) [DASHBOARD](#) [LOGOUT](#)

Register

[Optimize editor header](#)

User name

 Enter username

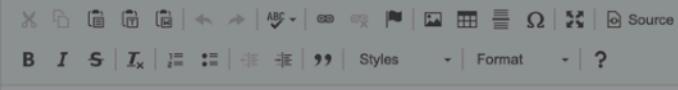
Email address

 Enter email

Password

 Enter password

Bio



A rich text editor toolbar with various icons for text formatting, including bold, italic, underline, and alignment options.

Optimize is correctly installed

 No major issues were detected while verifying the Optimize installation on this page.

[Back to experience](#)

Optimize | supint.pythonanywhere.com
com5961-2022-demo01 A/B test

Details Reporting

This experience is part of a beta release because it is or has been previously linked to a Google Analytics 4 property. [Learn more](#)

Draft. Ready to start. [Start](#)

[CREATE VARIANTS](#) Customize your site > [ADD TARGETING RULES](#) Target your site visitors > [LINK TO ANALYTICS](#) Select a property and view > [SET UP OBJECTIVES](#) Choose objectives to optimize > [START](#) Schedule or start

Start experiment

Targeting and variants

Variants
What do you want to test?

Variant	Weight	Preview	Changes	Edit	⋮
Original	50% weight	Preview		View	
Variant 1	50% weight	Preview	(31)	Edit	
+ Add variant					

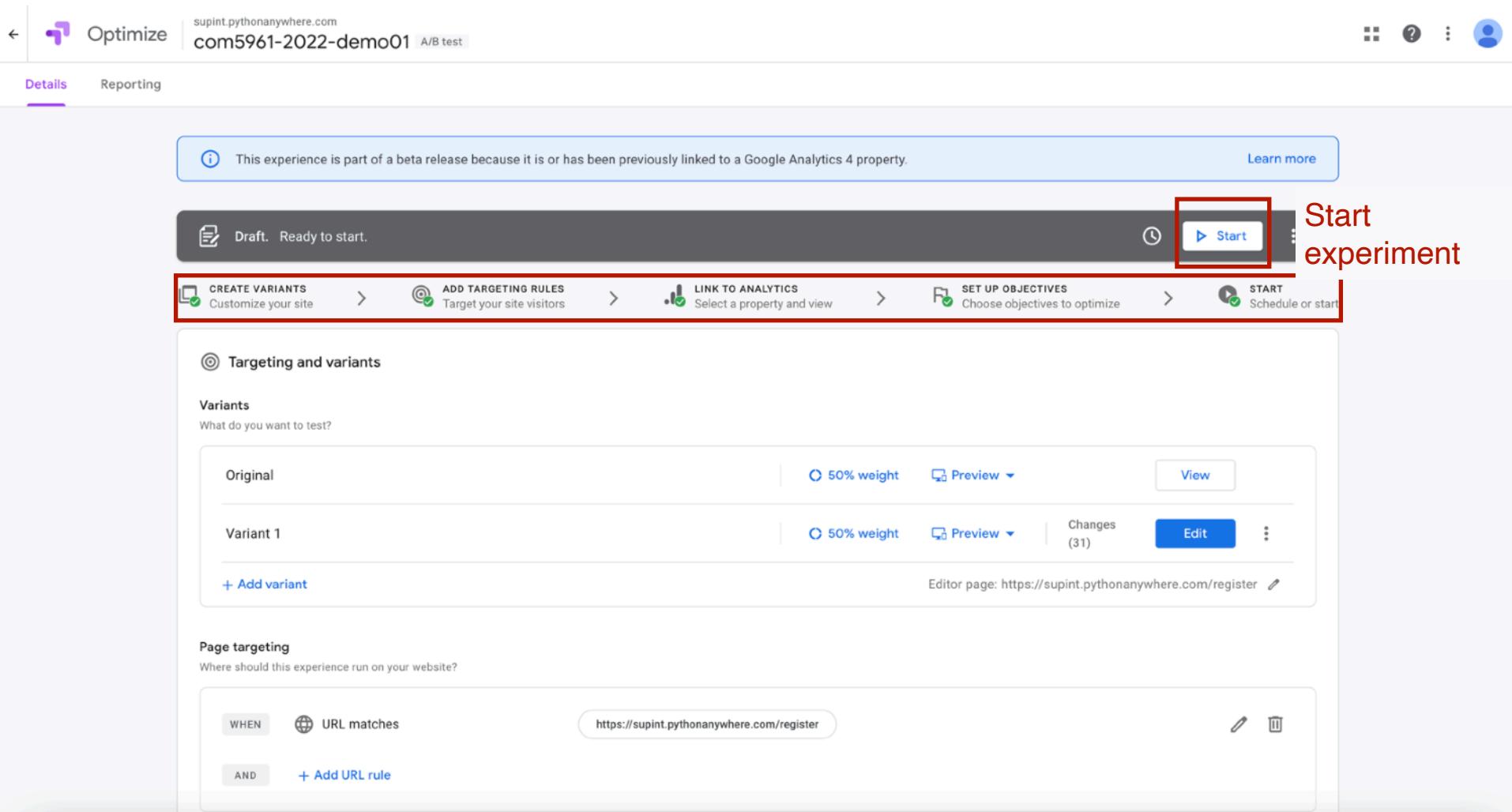
Editor page: <https://supint.pythonanywhere.com/register>

Page targeting

Where should this experience run on your website?

WHEN URL matches <https://supint.pythonanywhere.com/register> [Edit](#) [Delete](#)

AND + Add URL rule



Optimize supint.pythonanywhere.com com5961-2022-demo01 A/B test

This experience is part of a beta release because it is or has been previously linked to a Google Analytics 4 property. [Learn more](#)

Draft. Ready to start. [Start](#) [...](#)

[CREATE VARIANTS](#) [ADD TARGETING RULES](#) [LINK TO ANALYTICS](#) [SET UP OBJECTIVES](#) [START](#)

Start experiment?

Your experiment will go live on all pages with the Optimize snippet. Preview all variants before starting your experiment.

Receive email notifications

[Cancel](#) [Start](#)

50% weight [Preview](#) Changes (31) [Edit](#) [...](#)

Targeting and variants

What do you want to test?

Original

Variant 1

+ Add variant

Page targeting

Where should this experience run on your website?

WHEN URL matches https://supint.pythonanywhere.com/register [Edit](#) [Delete](#)

AND + Add URL rule

← Optimize supint.pythonanywhere.com com5961-2022-demo01 A/B test ⋮

Details Reporting

This experience is part of a beta release because it is or has been previously linked to a Google Analytics 4 property. Learn more

🕒 Running Edit End ⋮

Started manually: Mon, Nov 14, 2022, 9:01 AM GMT+8 Expiration scheduled: Mon, Dec 19, 2022, 9:01 AM GMT+8

🕒 Targeting and variants

A/B test experiment is running.

Variants

What do you want to test?

Original	👤 0	50% weight	Preview	View
Variant 1	👤 0	50% weight	Preview	Changes (31) View ⋮

Editor page: <https://supint.pythonanywhere.com/register>

Page targeting

Where should this experience run on your website?

WHEN URL matches <https://supint.pythonanywhere.com/register>

Audience targeting

Who should see this experience?

← Optimizer supint.pythonanywhere.com com5961-2022-demo01 A/B test ⋮

Details Reporting

Keep your experiment running
Run Optimizer experiments for at least two weeks. [Learn more.](#)

ACTIVE VISITORS 0

COLLECTED SESSIONS 13 DAYS [View full chart](#)

STARTED MANUALLY: Mon, Nov 2, 2020, 9:56 PM GMT+8 EXPIRATION SCHEDULED: Sun, Jan 31, 2021, 9:56 PM GMT+8

Bounces PRIMARY ▾ Based on Google Analytics data as of Thu, Nov 5, 2020, 10:34 AM GMT+8. [View in Analytics](#)

OBSERVED DATA			
	Experiment Sessions	Experiment Bounces	Calculated Bounce Rate
Variant ↑	5	2	40.00%
Original	0 active visitors	5	62.50%
Variant 1	0 active visitors	5	62.50%

OPTIMIZE ANALYSIS

Probability to be Best	Modeled Bounce Rate	Modeled Improvement
77%	11.4% - 77.9%	Baseline
23%	29.4% - 86.5%	-450% to 44%

Share A/B testing tracking with others.

All accounts > com5961-2022
supint.pythonanywhere.com

Optimize Experiences Activity Settings

This container is part of a beta release because it is linked to a Google Analytics 4 property. Learn more

All Create experience

Find an experience...

RUNNING 1 OF 5 EXPERIMENTS AND 0 OF 10 PERSONALIZATIONS SCHEDULED/RUNNING

Name	Type	Clients	Active users	Started
com5961-2022-demo01	A/B	0	-	Nov 14, 2022

Terms of Service • Privacy Policy

Click setting to share tracking with others

Optimize | All accounts supint

Experiences Activity

All

Measurement

Property com5961-2022-demo01 Stream supint (G-71MPLN17T8)

Setup instructions

Install the Optimize snippet

Optimize is installed by adding a small snippet of code to your website to display new experiences to your visitors. Add the following code to the top of the <HEAD> tag on every page you wish to optimize.

[Learn more](#) about how to install Optimize and about advanced installation options.

```
<script src="https://www.googleoptimize.com/optimize.js?id=OPT-PJRNQXD"></script>
```

Install the Chrome extension

The Chrome extension is required to use the visual editor and installation diagnostics, but not to create redirect experiments or view reports.

✓ Extension installed

Additional Settings

Notifications

User management

Enter user management to add other users.

Accounts

Go to accounts

Optimize All accounts supir

Experiences Activity

Container permissions 1 row

com5961-20221 supint.pythonanywhere.com

Name ↑	Email	Permissions ⓘ	User status ⓘ
<input type="checkbox"/> Yiu Sin Suen	suentze2020@gmail.com	Publish	Has access

Search

Add users

Add user groups

All

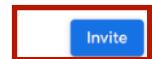
RUNNING

Name

com596

This screenshot shows a user interface for managing container permissions. On the left, there's a sidebar with tabs for 'Experiences' (selected) and 'Activity'. The main area is titled 'Container permissions' with a count of '1 row'. It displays a single user entry: 'Yiu Sin Suen' with email 'suentze2020@gmail.com', having 'Publish' permissions, and is marked as 'Has access' (indicated by a green checkmark). There are columns for 'Name', 'Email', 'Permissions', and 'User status'. A search bar is at the top right. In the top right corner of the main table area, there's a button labeled 'Add users' which is highlighted with a red box. Below it is another button labeled 'Add user groups'. The bottom left shows a list of 'RUNNING' containers, with one entry visible: 'com596'.

Invite



com5961-2022 | supint.pythonanywhere.com
Send invitations

Container permissions

Name ↑

Yiu Sin Suen

Email addresses

suentze2020@gmail.com

Container permissions

Publish

Can publish container versions. [Learn more](#)



Edit

Can edit the container and its experiments. [Learn more](#)



Read

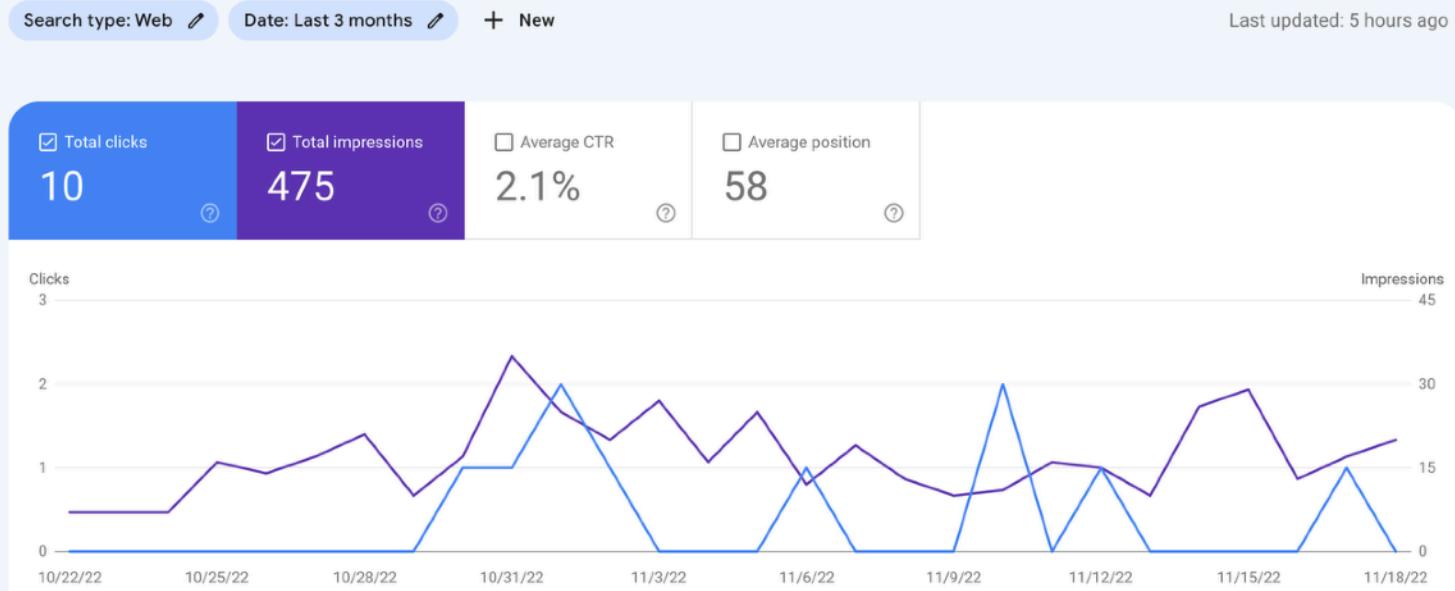
Can view the container and its experiments. [Learn more](#)



Google SEO integration.



Performance

[EXPORT](#)[Overview](#)[Performance](#)[URL inspection](#)[Indexing](#)[Pages](#)[Video pages](#)[Sitemaps](#)[Removals](#)[Experience](#)[Page Experience](#)[Core Web Vitals](#)[Mobile Usability](#)[Enhancements](#)[Breadcrumbs](#)[Sitelinks searchbox](#)[Security & Manual Actions](#)Search type: Web [✍](#)Date: Last 3 months [✍](#)[+ New](#)Last updated: 5 hours ago [?](#)

QUERIES	PAGES	COUNTRIES	DEVICES	SEARCH APPEARANCE	DATES
Top queries				↓ Clicks	Impressions

Welcome to Google Search Console

To start, select property type



Domain (new)

- All URLs across all subdomains (m., www. ...)
- All URLs across https or http
- Requires DNS verification

example.com

Enter domain or subdomain

CONTINUE

or



URL prefix

- Only URLs under entered address
- Only URLs under specified protocol
- Allows multiple verification methods

<https://suentze2020.github.io/Assignment1/>

Enter URL

CONTINUE

[Already started? finish verification](#)

Verify ownership

https://suentze2020.github.io/Assignments/lesson3/

Recommended verification method

HTML file

Upload an HTML file to your website

1. Download the file:

[googlef443cabfd799236c.html](#)

2. Upload to: https://suentze2020.github.io/Assignments/lesson3/

To stay verified, don't remove the file, even after verification succeeds.

[Full details](#)

[VERIFY](#)

Other verification methods

HTML tag

Add a meta tag to your site's home page

Google Analytics

Use your Google Analytics account

Google Tag Manager

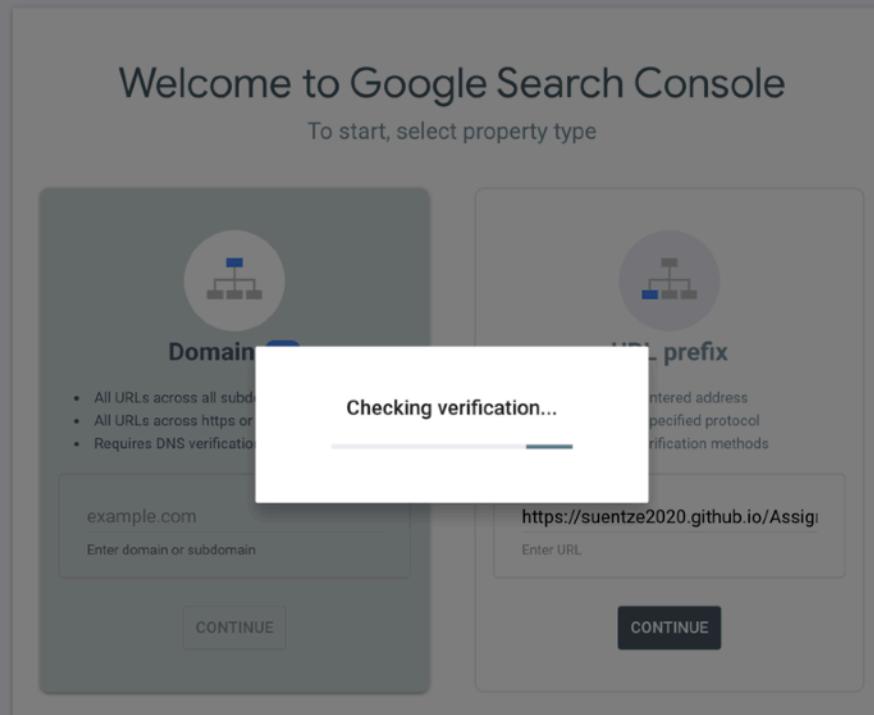
Use your Google Tag Manager account

Domain name provider

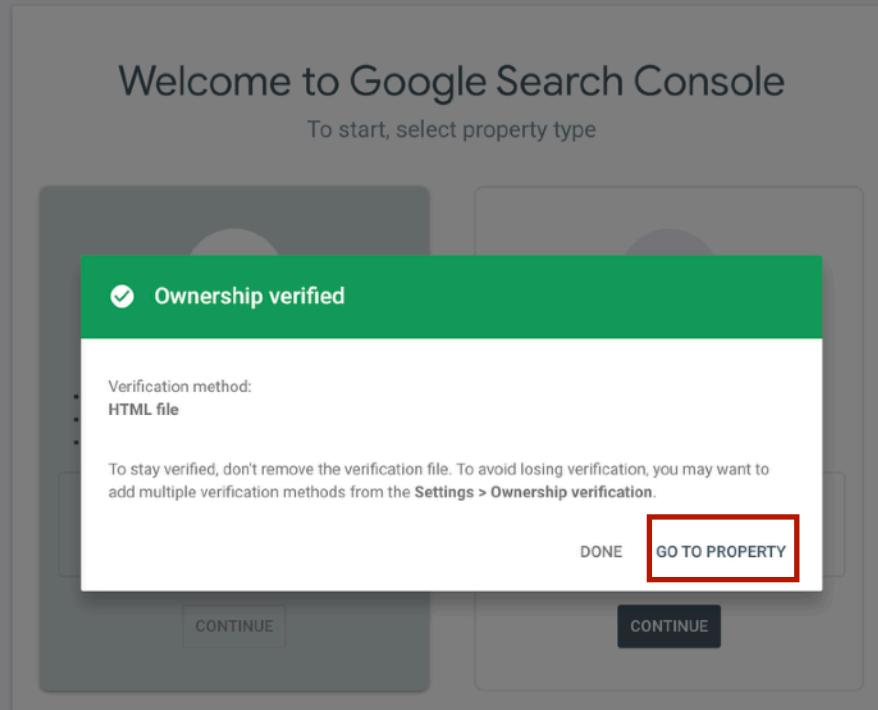
Associate a DNS record with Google

[REMOVE PROPERTY](#)

[DONE](#)



Already started? [finish verification](#)



Already started? [finish verification](#)

Sitemaps

[Overview](#)[Performance](#)[URL inspection](#)[Index](#)[Pages](#)[Sitemaps](#)[Removals](#)[Experience](#)[Page Experience](#)[Core Web Vitals](#)[Security & Manual Actions](#)[Legacy tools and reports](#)[Links](#)[Settings](#)[Submit feedback](#)[About Search Console](#)

Add a new sitemap

https://suentze2020.github.io/Assignments/lesson3/ [SUBMIT](#)

Submitted sitemaps

Sitemap	Type	Submitted	Last read	Status	Discovered URLs
---------	------	-----------	-----------	--------	-----------------

Rows per page: 10 0-0 of 0 < >

main ▾

Assignments / lesson3 /

Go to file

Add file ▾

...

 suentze2020 Upload sitemap.xml ...

● 4b1d38f 32 seconds ago 

..

 assign2.html	Assignment #2 Demo Upload	15 days ago
 assign3.html	Lesson 3 - Demonstration of 1st Assignment	21 days ago
 assign4.html	Lesson 3 - Demonstration of 1st Assignment	21 days ago
 assign5.html	Lesson 3 - Demonstration of 1st Assignment	21 days ago
 frontend-c3bacad8.png	Assignment #2 Demo Upload	15 days ago
 googlef443cabfd799236c.html	Search console validation	32 minutes ago
 index.html	Assignment #2 Demo Upload	15 days ago
 nba_results_2014.png	Assignment #2 Demo Upload	15 days ago
 sitemap.xml	Upload sitemap.xml	32 seconds ago
 style.css	Assignment #2 Demo Upload	15 days ago

[https://suentze2020...](https://suentze2020.github.io/Assignments/lesson3/)

Sitemaps

[Overview](#)[Performance](#)[URL inspection](#)[Index](#)[Pages](#)[Sitemaps](#)[Removals](#)[Experience](#)[Page Experience](#)[Core Web Vitals](#)[Security & Manual Actions](#)[Legacy tools and reports](#)[Links](#)[Settings](#)[Submit feedback](#)[About Search Console](#)[Privacy](#) [Terms](#)

Add a new sitemap

https://suentze2020.github.io/Assignments/lesson3/

sitemap.xml

SUBMIT

Submitted sitemaps

Sitemap	Type	Submitted	Last read	Status	Discovered URLs
---------	------	-----------	-----------	--------	-----------------

Rows per page: 10 0-0 of 0 < >

Sitemaps

Add a new sitemap

https://suentze2020.github.io/Assignments/lesson3/ sitemap.xml

SUBMIT

Submitted sitemaps

Sitemap

Status

Discovered URLs

Rows per page: 10 < >

Submitting Sitemap

Overview

Performance

URL inspection

Index

Pages

Sitemaps

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Experience

Page Experience

Core Web Vitals

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Experience

[Page Experience](#)[Core Web Vitals](#)

Security & Manual Actions

Legacy tools and reports

[Links](#)[Settings](#)[Submit feedback](#)[About Search Console](#)

Add a new sitemap

<https://suentze2020.github.io/Assignments/lesson3/> **sitemap.xml****SUBMIT**

Submitted sitemaps

Sitemap submitted successfully

Google will periodically process it and look for changes. You will be notified if anything goes wrong with it in the future.

GOT IT

Sitemaps

[Overview](#)[Performance](#)[URL inspection](#)

Index

[Pages](#)[Sitemaps](#)[Removals](#)

Experience

[Page Experience](#)[Core Web Vitals](#)

Security & Manual Actions

Legacy tools and reports

[Links](#)[Settings](#)[Submit feedback](#)[About Search Console](#)

Add a new sitemap

https://suentze2020.github.io/Assignments/lesson3/ Enter sitemap URL

[SUBMIT](#)

Submitted sitemaps

Sitemap	Type	Submitted	Last read	Status	Discovered URLs
/sitemap.xml	Sitemap	Oct 23, 2022	Oct 23, 2022	Success	6

Rows per page: 10 1-1 of 1 < >

Success

Adding SEO to Flask web application.

```
app = Flask(__name__, static_folder='static')
# app = flask(__name__)
bcrypt = Bcrypt(app)

#####
# APP CONFIGURATION
#####

# app.config['SQLALCHEMY_DATABASE_URI'] = 'mysql://root:root@localhost/workshop'
app.config['SQLALCHEMY_DATABASE_URI'] = 'sqlite:///workshop.db'
app.config['SESSION_TYPE'] = 'filesystem'
app.config['SECRET_KEY'] = 'thisismysecret'
app.config['SQLALCHEMY_TRACK_MODIFICATIONS'] = False
Session(app)

UPLOAD_FOLDER = 'static/profile_pics'
app.config['UPLOAD_FOLDER'] = UPLOAD_FOLDER
app.config['MAX_CONTENT_LENGTH'] = 16 * 1024 * 1024
ALLOWED_EXTENSIONS = set(['txt', 'pdf', 'png', 'jpg', 'jpeg', 'gif'])
```

```
#####
# WEB ROUTES FOR CONTROLLING ACCESS TO TEMPLATE VIEWS
#####
# Special routes for supporting google search engine SEO
@app.route('/googlexxxxxxxxxxxx999999x.html')
@app.route('/sitemap.xml')
def static_from_root():
    return send_from_directory(app.static_folder, request.path[1:])
```

Edit table definition

Table

blogs

Advanced

Fields

Add field Remove field Move field up Move field down

Name	Type	NN	PK	AI	U	Default	Check	Foreign Key
id	INTEGER	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>		
title	VARCHAR(255)	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>		
body	TEXT	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>		
author	VARCHAR(255)	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>		
post_date	TIMESTAMP	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>		
views	INTEGER	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	0	
comments	INTEGER	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	0	
meta_desc	TEXT	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>		
meta_keywords	TEXT	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>		

CREATE TABLE "blogs" (

1 "id" INTEGER NOT NULL,

2 "title" VARCHAR(255),

3 "body" TEXT NOT NULL,

4 "author" VARCHAR(255),

5 "post_date" TIMESTAMP NOT NULL,

6 "views" INTEGER DEFAULT 0,

7 "comments" INTEGER DEFAULT 0,

8 "meta_desc" TEXT,

9 "meta_keywords" TEXT,

10 PRIMARY KEY("id")

11);

12);

```
#####
# DATA MODELS
#####

db = SQLAlchemy(app)

class Blog(db.Model):
    __tablename__ = 'blogs'
    id = db.Column(db.Integer, primary_key=True)
    title = db.Column(db.String(255))
    body = db.Column(db.Text, nullable=False)
    author = db.Column(db.String(255))
    post_date = db.Column(db.TIMESTAMP, default=datetime.utcnow, nullable=False)
    views = db.Column(db.Integer, default=0)
    comments = db.Column(db.Integer, default=0)
    meta_desc = db.Column(db.Text)
    meta_keywords = db.Column(db.Text)
```

```
<!DOCTYPE html>
<html lang="en">
  <head>
    <meta charset="utf-8" />
    <meta name="viewport" content="width=device-width, initial-scale=1, shrink-to-fit=no" />
    <meta name="author" content="" />
    <title>{% if title %}{{title}}{% else %}Suentze blogs{% endif %}</title>
    {% if meta_desc %}<meta name="DESCRIPTION" content="{{meta_desc}}"/>{% endif %}
    {% if meta_keywords %}<meta name="KEYWORDS" content="{{meta_keywords}}"/>{% endif %}
    <link rel="icon" type="image/x-icon" href="{{ url_for('static', filename='assets/ravicon.ico') }}"/>
    <!-- Font Awesome icons (free version)!-->
    <script src="https://use.fontawesome.com/releases/v5.15.3/js/all.js" crossorigin="anonymous"></script>
    <!-- Google fonts-->
    <link href="https://fonts.googleapis.com/css?family=Lora:400,700,400italic,700italic" rel="stylesheet" type="text/css"/>
    <link href="https://fonts.googleapis.com/css?
family=Open+Sans:300italic,400italic,600italic,700italic,800italic,400,300,600,700,800" rel="stylesheet" type="text/css" />
    <!-- Core theme CSS (includes Bootstrap)-->
    <link rel="stylesheet" href="{{url_for('static', filename='css/style.css')}}">
    <link rel="stylesheet" href="{{url_for('static', filename='css/custom.css')}}">
  </head>
```

base.html

Blog Post

Title

THINK MVA WHILE DEVELOPING MVP

Body



I agree with him that architectural issues should not be an afterthought during the development of MVP. If not considered adequately, it will come back to haunt you as you start scaling up the operation.

Throughout the agile development process, constant feedbacks received from each sprint and release will help the team focus on the essential product features to deliver for validating customers' needs and business model assumptions. Nonetheless, design pattern, component structure, platform robustness, API authentication and authorization, reliability, privacy, security, and scalability issues will become pressing as soon as momentum picks up. These issues, if not addressed in a timely manner, will easily turn things into a mess.

Given the current business climate, the choice of cloud platform, including cloud agnostic container technology and API integration, will become a very strategic decision. So please make sure that you've picked your minimum viable architecture (MVA) wisely as Kavis mentioned for going through your product and venture quest.

Meta Description

The importance of software architecture in MVP development should be addressed upfront before scaling up the operation.

Meta Keywords

MVP, software architecture, software development, scale-up

THINK MVA WHILE DEVELOPING MVP

THINK MVA WHILE DEVELOPING MVP

Highlight

By admin on 2021-05-16 16:32:42.238190

Mike Kavis wrote this inspiring blog post (<http://www.madgreek65.com/mi>) about the importance of architecture in MVP development.

I agree with him that architectural issues should not be an afterthought during development. If you consider them adequately, it will come back to haunt you as you start scaling up.

```
<html lang="en">
  <head>
    <meta charset="utf-8" />
    <meta name="viewport" content="width=device-width, initial-scale=1, shrink-to-fit=no" />
    <meta name="author" content="" />
    <title>THINK MVA WHILE DEVELOPING MVP</title>
    <meta name="DESCRIPTION" content="The importance of software architecture in MVP development should be addressed upfront before scaling up the operation. " />
    <meta name="KEYWORDS" content="MVP, software architecture, software development, scale-up" />
    <link rel="icon" type="image/x-icon" href="/static/assets/favicon.ico" />
    <!-- Font Awesome icons (free version) -->
    <script src="https://use.fontawesome.com/releases/v5.15.3/js/all.js" crossorigin="anonymous"></script>
    <!-- Google fonts-->
    <link href="https://fonts.googleapis.com/css?family=Lora:400,700,400italic,700italic" rel="stylesheet" type="text/css"/>
    <link href="https://fonts.googleapis.com/css?family=Open+Sans:300italic,400italic,600italic,700italic,800italic,400,300,600,700,800" rel="stylesheet" type="text/css" />
    <!-- Core theme CSS (includes Bootstrap) -->
    <link rel="stylesheet" href="/static/css/style.css" />
    <link rel="stylesheet" href="/static/css/custom.css" />
  </head>
  <body>
```

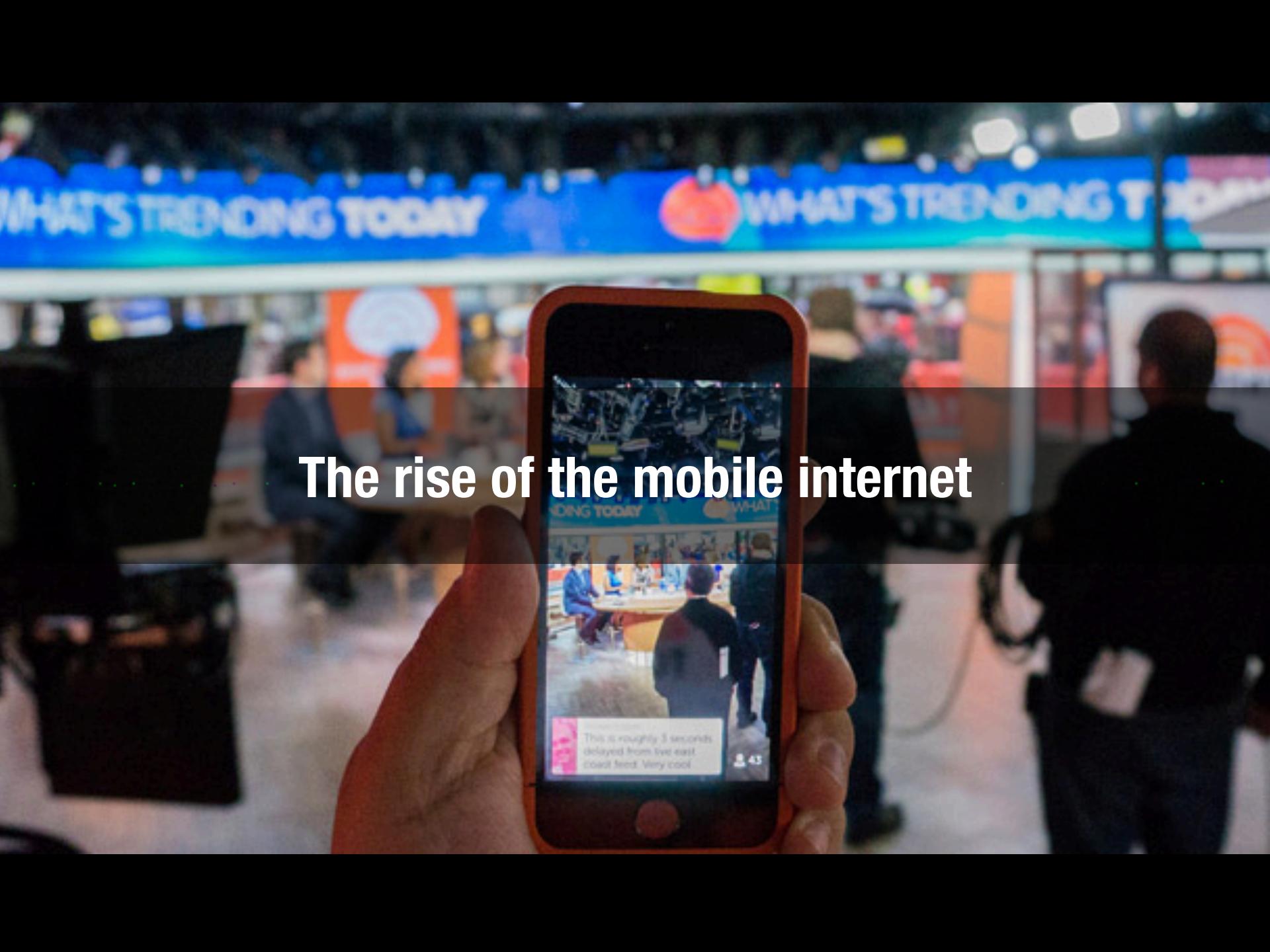
base.html

```
{% extends "base.html" %}
{% block header %}
<!-- Page Header-->
  <header class="masthead">
    <div class="overlay"></div>
    <div class="container">
      <div class="row" style="max-height: 330px; margin-top: -5%; ">
        <div class="col-lg-8 col-md-10 mx-auto">
          <div class="site-heading">
            <h1 style="font-size: 40px;">{{ title }}</h1>
          </div>
        </div>
      </div>
    </div>
  </header>
{% endblock %}
```

base.html

What makes a great **data-driven product?**

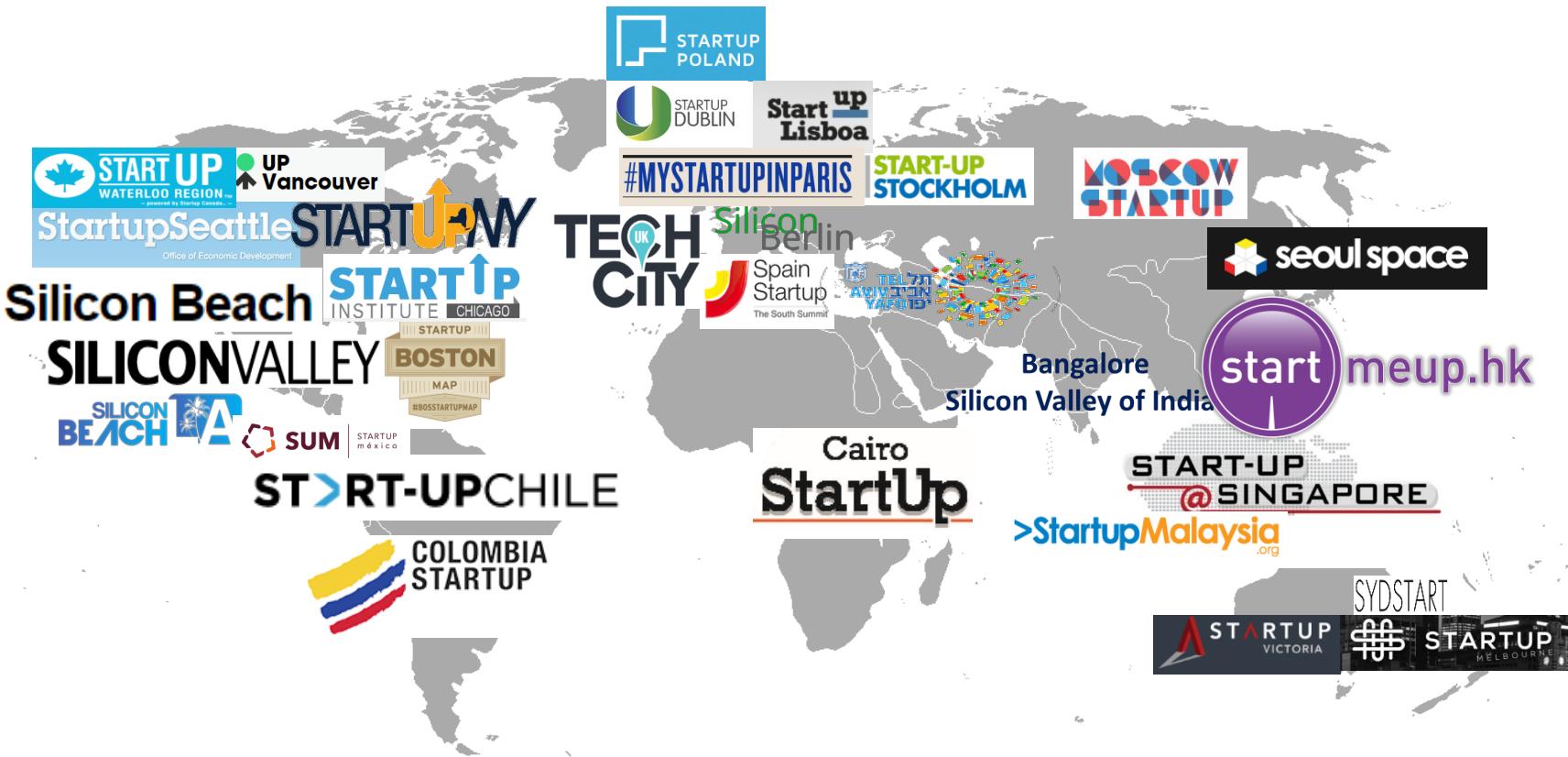
Web 2.0: The rise of platforms.



The rise of the mobile internet

This is roughly 3 seconds delayed from live east coast feed. Very cool.

Fuelled by the rise of the global startup movement.





Tencent 腾讯

Baidu 百度



Microsoft

Alphabet

amazon





NETFLIX



Industry innovation and disruption comes from digital and technology platforms



Industry innovation and disruption comes from digital and technology platforms.

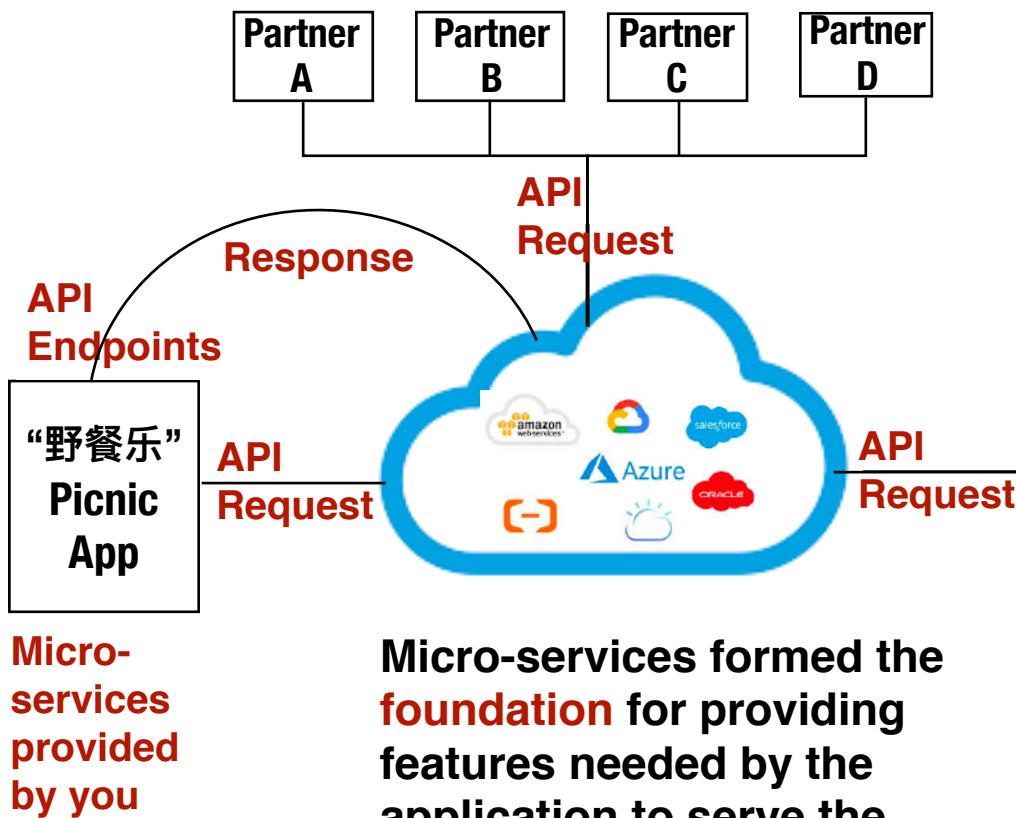


Who rules the platform will rule the world.

What is a **platform**?

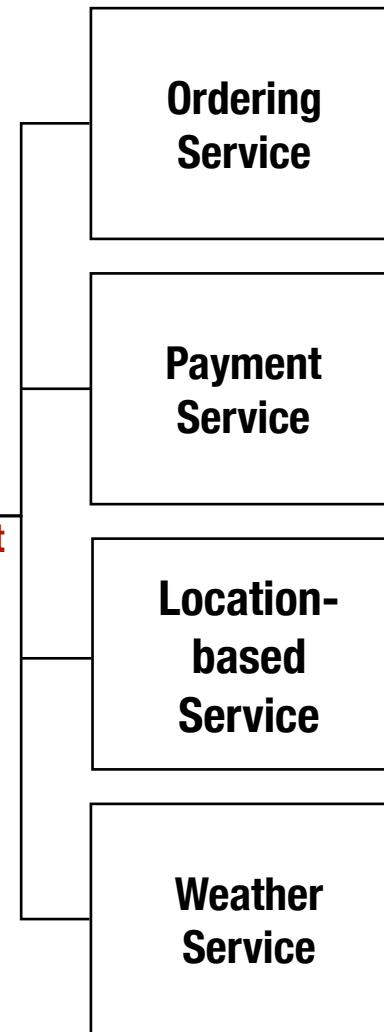
1. An eco-system for linking new users, customers, business partners, vendors, regulators, and complementars to create values.
2. Extend beyond traditional supply chain for **value exchange**, resulting in network effect.
3. The agreed upon protocol for value exchange enforces standards for data exchange through API.

Business partners requesting your services through API.



Micro-services formed the foundation for providing features needed by the application to serve the ultimate users/customers

Micro-services



API (e.g. REST)



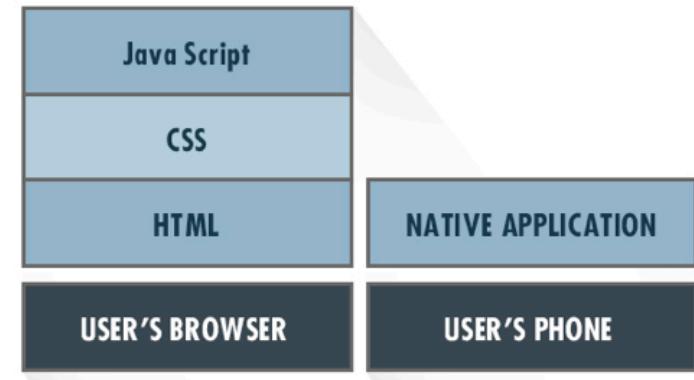
BACK-END TECHNOLOGY

后台

WHAT IS YOUR “CLOUD” AND “STACK” STRATEGY?
云架构及前端和后端的全栈策略

{ JSON }

THE INTERNET



CLIENT-SIDE

FRONT-END TECHNOLOGY

前台

What is **API**?

API, Application Program Interface, is a protocol for exchanging data between software applications so as to extend the functionality and reach beyond one's original scope and targets.

GROWTH STRATEGY

The Strategic Value of APIs

by Bala Iyer and Mohan Subramaniam

JANUARY 07, 2015

McKinsey&Company
Digital McKinsey

How We Help Clients Our Insights Careers Our People Contact Us

Article
October 2017

Management's next frontier: Making the most of the ecosystem economy

By Jürgen Metzert and Anand Swaminathan

API經濟來了：從開放創新到Open API

by 《數位時代》整合行銷部 2014.11.04



McKinsey&Company
Digital McKinsey

How We Help Clients Our Insights Careers Our People Contact Us

Article
September 2017

What it really takes to capture the value of APIs

≡ Deloitte.
Insights

Article

API economy

From systems to business services



Search



IBM Institute for Business

Our insights



C-suite Study



COVID-19

Cognitive Enterprise

Benchmarking

About the IBV

Home | Emerging and Other technologies | Realizing the economic value of APIs

Follow IBV on social media



Realizing the economic value of APIs

Download the report →

Get insights via email →



[Log in](#)

Introduction

Webhook

Getting started

Checking signatures

Payloads

Deliveroo endpoints

Authentication

Endpoints

HTTP status codes

Welcome!

Integrate Deliveroo and your restaurant's Point of Sale (POS) system to send Deliveroo orders straight to the till using our POS API. With it, restaurants can see all their orders in one place, in real time.

This API is for developers. If you work for a restaurant and you're interested in integrating, ask your POS supplier or developer to read all the documentation and request an account.

How the POS API works

1. A customer orders on Deliveroo's website or app
2. The restaurant accepts (or rejects) this order
3. If the order is accepted, Deliveroo sends you an order event (HTTPS request) with the [order details payload](#)
4. You send an order [sync status](#) (HTTPS request) back to Deliveroo

Want to integrate with Deliveroo?

For a successful application, you'll have to be either a restaurant with your own POS system or a POS company with a number of shared restaurant partners. If that's you, request an account and you'll hear from us within a week.

[Request an account](#)

<https://developers.deliveroo.com/partner-api/introduction>

Find the right products for your custom map

Discover what you need to transform your maps and location-based experiences.



Maps

Help users explore the world with detailed, custom maps products.

[See all](#)

Routes

Count on rich, detailed maps to help users navigate.

[See all](#)

Places

Show users places and points of interest with details at their fingertips.

[See all](#)

<https://mapsplatform.google.com/maps-products/>



微信支付

商户平台

首页

接入指引

产品中心

解决方案

文档中心

接入微信支付

指引文档

API字典

接口规则

SDK

名词表

接入规范

更新日志

简介

文档首页 / 简介

简介

为了在 **保证支付** 安全的前提下，带给商户 **简单、一致且易用的开发体验**，我们推出了全新的微信支付API v3。

相较于之前的微信支付API，主要区别是：

- 遵循统一的REST 的设计风格
- 使用JSON作为数据交互的格式，不再使用XML
- 使用基于非对称密钥的SHA256-RSA的数字签名算法，不再使用MD5或HMAC-SHA256
- 不再要求HTTPS客户端证书
- 使用AES-256-GCM，对回调中的关键信息进行加密保护

在[接口规则中](#)，你将了解到微信支付API v3的基础约定，如数据格式，参数兼容性，错误处理等。随后我们重点介绍了微信支付API v3新的[认证机制](#)。你可以跟随[签名指南](#)，使用命令行或者你熟悉的编程语言，一步一步实践如何签名和验签。在最后的[常见问题](#)中，我们总结了商户接入过程中的各种常见和不常见的问题。

我们提供了API v3的[Postman](#) 调试工具和某些开发语言的库。你可以通过我们的[Github](#)获取。

如果你有任何问题，欢迎访问我们的[开发者社区](#)。

文档内容是否对您有帮助？

有帮助

没帮助

如果文档内容没有解决您的问题，您还可以前往[微信开放社区](#) 寻求帮助

<https://pay.weixin.qq.com/wiki/doc/apiv3/wechatpay/wechatpay-1.shtml>

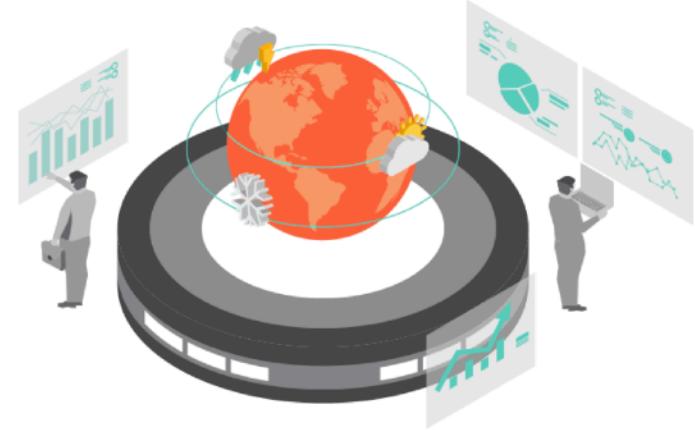


OpenWeather global services

Weather forecasts, nowcasts and history in fast and elegant way

2 Billion Forecasts Per Day
2,500 new subscribers a day

2,600,000 customers
20+ weather APIs



Search city

Search



Different Weather?

Metric: °C, m/s

Imperial: °F, mph

3:39pm, Sep 12

London, GB



<https://openweathermap.org/>

By city name

Description:

You can call by city name or city name, state code and country code. API responds with a list of weather parameters that match a search request.

API call:

```
api.openweathermap.org/data/2.5/weather?q={city name}&appid={your api key}
```

```
api.openweathermap.org/data/2.5/weather?q={city name},{state code}&appid={your api key}
```

```
api.openweathermap.org/data/2.5/weather?q={city name},{state code},{country code}&appid={your api key}
```

Parameters:

q city name, state code and country code divided by comma, use ISO 3166 country codes. You can specify the parameter not only in English. In this case, the API response should be returned in the same language as the language of requested location name if the location is in our predefined list of more than 200,000 locations.

Examples of API calls:

```
api.openweathermap.org/data/2.5/weather?q=London
```

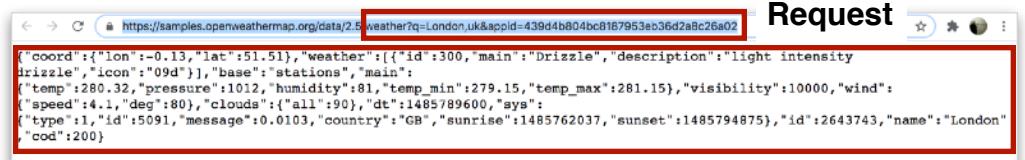
```
api.openweathermap.org/data/2.5/weather?q=London,uk
```

Searching by states available only for the USA locations.

There is a possibility to receive a central district of the city/town with its own parameters

- List of condition codes
- Min/max temperature in current weather API and forecast API
- Other features
 - Format
 - Units format
 - Multilingual support
 - Call back function for JavaScript code

Request



```
https://samples.openweathermap.org/data/2.5/weather?q=London,uk&appid=439d4b804bc8187953eb36d2a8c26a02
{
  "coord": {"lon": -0.13, "lat": 51.51}, 
  "weather": [{"id": 300, "main": "Drizzle", "description": "light intensity drizzle", "icon": "09d"}], 
  "base": "stations", 
  "main": {"temp": 280.32, "pressure": 1012, "humidity": 81, "temp_min": 279.15, "temp_max": 281.15}, 
  "visibility": 10000, 
  "wind": {"speed": 4.1, "deg": 80}, 
  "clouds": {"all": 90}, 
  "dt": 1485789600, 
  "sys": {"type": 1, "id": 5091, "message": 0.0103, "country": "GB", "sunrise": 1485762037, "sunset": 1485794875}, 
  "id": 2643743, 
  "name": "London", 
  "cod": 200
}
```

Response

<https://openweathermap.org/current>

```
1 {"coord":{"lon":-0.13,"lat":51.51}, "weather":[{"id":300,"main": "Drizzle","description":"light intensity drizzle","icon": "09d"}],"base":"stations","main":{"temp":280.32,"pressure": 1012,"humidity":81,"temp_min":279.15,"temp_max":281.15}, "visibility":10000,"wind":{"speed":4.1,"deg":80}, "clouds": {"all":90}, "dt":1485789600,"sys":{"type":1,"id":5091, "message":0.0103,"country":"GB","sunrise":1485762037,"sunset":1485794875}, "id":2643743,"name":"London","cod":200}]
```

Result mode:

view ▾

Load Url

Browse

Tree Viewer

2 Tab Space ▾

Beautify

ⓘ ×

Website Designer Near You

Stallions SEO LLC

We want to make you
businesses phone ring!

OPEN

Minify

Validate

Ln: 1 Col: 460

object ► coord ►

```
▼ weather [1]
  ▼ 0 {4}
    id : 300
    main : Drizzle
    description : light intensity drizzle
    icon : 09d
  base : stations
  ▼ main {5}
    temp : 280.32
    pressure : 1012
    humidity : 81
    temp_min : 279.15
    temp_max : 281.15
    visibility : 10000
  ▶ wind {2}
  ▶ clouds {1}
    dt : 1485789600
  ▶ sys {6}
    id : 2643743
    name : London
    cod : 200
```

Weather API

City:

Submit

overcast clouds

17°

Paris

Weather API

City:

Submit

light rain

25°

Shanghai

Weather API

City:

Submit

light rain

30°

Hong Kong

产品经理，你该懂点API知识了！



大房同学的产品之路

关注

1 2019.06.16 20:06:41

字数 2,989

阅读 971

13赞

赏

赞赏

回复

下载App

还记得5月，人生第一个产品经理面试，面试官问你知道api吗，当时脑袋一懵。事后，决定一定要把它弄清楚。在查询资料后发现，API确实对于产品经理来说那是相当重要：1.对技术理解更深刻，结合已有新的接口，让产品有更丰富的可行性，并降低工作量。2.更好地预估开发工作量，制定合适产品方案

文章将从API介绍，分类，API文档内容和案例四个方面进行介绍。

1.API是什么

全名：Application Programming Interface 中文名：应用程序编程接口

百度百科释义：API是一些预先定义的函数，目的是提供应用程序与开发人员得以访问一组例程的能力，而又无需访问源码，或理解内部工作机制的细节。

看到这你是不是和我一样有点懵，这也太抽象了。于是我又找了一些相关文

https://www.jianshu.com/p/c1b107be9879?utm_campaign=maleskine&utm_content=note&utm_medium=seo_notes&utm_source=recommendation

产品经理，你要懂点API接口知识！



LinKID

关注作者

2019-04-11

40评论 · 2.9万浏览 · 292收藏 · 10分钟

业内首套系统教学课程，从0-1快速掌握移动APP核心设计模块和逻辑，学完打造专属APP，了解一下 >>



释放双眼，带上耳机，听听看~!

00:00

00:00



产品经理不需要深入地去了解各个接口的实现原理，毕竟术业有专攻，但是了解什么场景应该使用什么样的接口还是很有必要的，可以方便更好地对外提供数据服务。

<http://www.woshipm.com/pmd/2203403.html>



Meituan API Endpoints (接口) Example

<https://developer.meituan.com/ka/docs/wmapi-1>

到餐API文档

> 团购API

> 茶饮版 API

智能版 API

门店-获取营业日起...

获取授权资源ID列表

门店-获取物品（分...

总部-获取物品（分...

门店-获取物品类别...

总部-获取物品类别...

门店-获取供应商（...

总部-获取供应商（...

门店-获取物品单位...

总部-获取物品单位 ...

HTTP请求示例

```
(提示: 实际请求需要进行 urlencode 编码)
POST /rms/base/v1/auth/resources/get HTTP/1.1
Host: api-open-cater.meituan.com
Content-Type: application/x-www-form-urlencoded; charset=utf-8

appAuthToken=qwe&
timestamp=123&
sign=sdsadfsfd&
charset=utf-8&
developerId=100&
version=1&
biz={}
```

REQUEST

响应示例

Json示例

```
{
  "code": "OP_SUCCESS",
  "msg": "成功",
  "traceId": 123,
  "data": {
    "resources": {
      "orgType": "1 总部, 5 门店",
      "rootOrgId": 123,
      "orgId": 123
    }
  }
}
```

RESPONSE

评价管理

外卖门店在延迟发配送名单内才能设置延迟时间

活动管理

订单管理

订单推送

取消订单推送

退款信息推送

图片上传

门店装修

安心卡

在线联系IM

接口code码集合

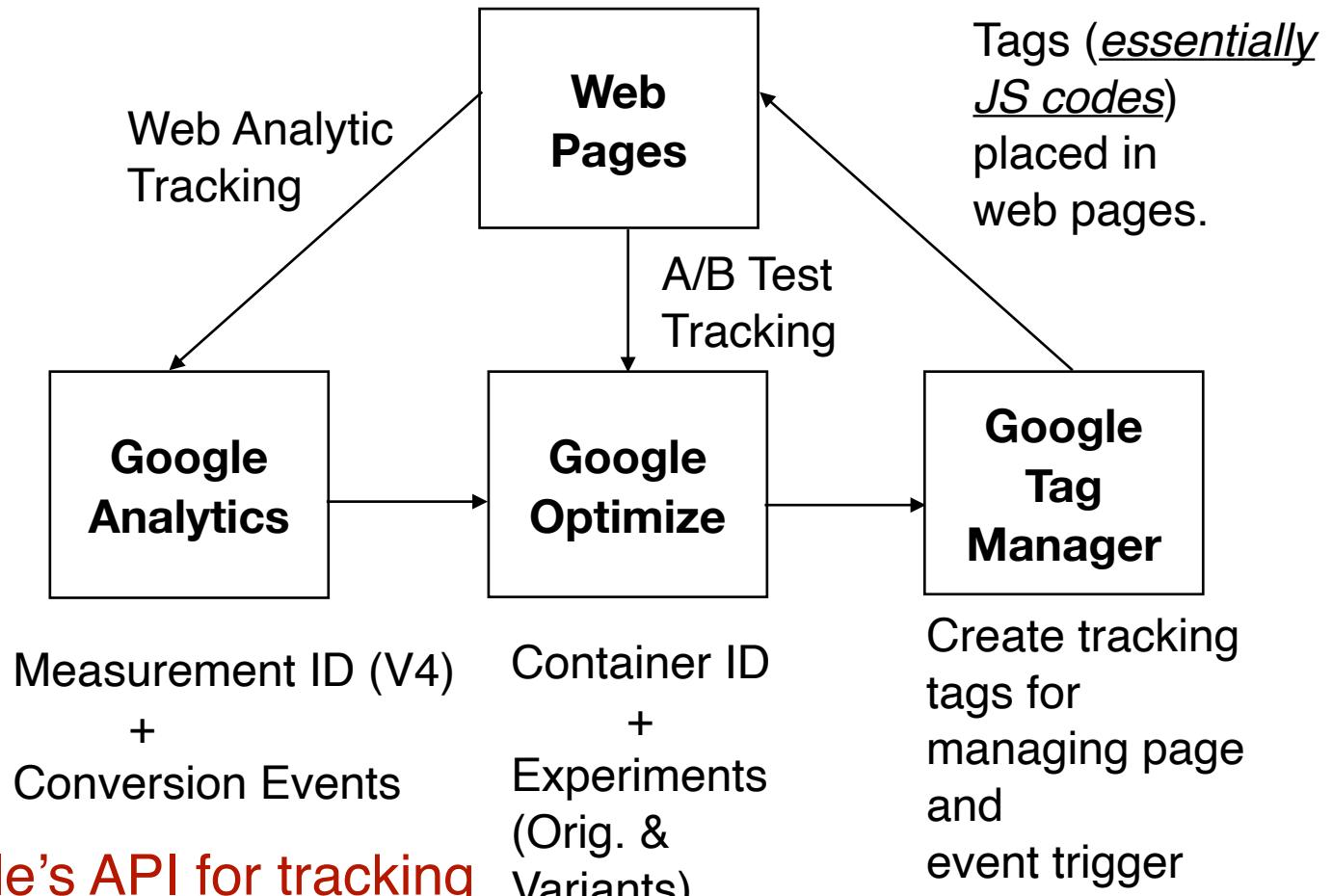
> 到餐API文档

> 茶饮版 API

API接口	接口描述
poi/save	创建或更新门店信息
poi/getids	获取门店ID
poi/mget	批量获取门店详细信息
poi/close	门店设置为休息状态
poi/online	门店设置为上线状态
poi/updatepromoteinfo	更改门店公告信息
poiTag/list	获取门店品类列表
shippingtime/update	更新门店营业时间
poi/logistics/isDelayPush	查询门店是否延迟发配送
poi/logistics/setDelayPush	设置门店延迟发配送时间

3 Chrome extensions required for tracking:

- Google Tag assistant
- GA debugger
- Google Optimize



Leveraging Google's API for tracking web page and event traffic

All accounts > com5961-2022
supint.pythonanywhere.com

Search workspace

Workspace Versions Admin GTM-T7BS97V Workspace Changes: 0 Preview Submit

CURRENT WORKSPACE

Default Workspace >

Triggers

Name ↑

Registration Form Submitted

Registration Link

Overview Tags Triggers Variables Folders Templates

Install Google Tag Manager

Copy the code below and paste it onto every page of your website.

Paste this code as high in the <head> of the page as possible:

```
<!-- Google Tag Manager -->
<script>(function(w,d,s,l,i){w[l]=w[l]||[];w[l].push({'gtm.start':
new Date().getTime(),event:'gtm.js'});var f=d.createElement(s),j=d.getElementsByTagName(s)[0],
j=d.createElement(s),dl=l!='dataLayer'?l+'!'+i:j.async=true;j.src=
'https://www.googletagmanager.com/gtm.js?id='+i+dl;f.parentNode.insertBefore(j,f);
})(window,document,'script','dataLayer','GTM-T7BS97V');</script>
<!-- End Google Tag Manager -->
```

Additionally, paste this code immediately after the opening <body> tag:

```
<!-- Google Tag Manager (noscript) -->
<noscript><iframe src="https://www.googletagmanager.com/ns.html?id=GTM-T7BS97V"
height="0" width="0" style="display:none;visibility:hidden"></iframe></noscript>
<!-- End Google Tag Manager (noscript) -->
```

For more information about installing the Google Tag Manager snippet, visit our [Quick Start Guide](#).

OK

Tag manager's API for tracking page and event tags.

← Optim X Container settings

Experiences Actions

This container

All

Find an experience

DRAFT

Name: com5961-2022-d

ENDED

Name: com5961-2022-d

Setup instructions

Install the Optimize snippet

Optimize is installed by adding a small snippet of code to your website to display new experiences to your visitors. Add the following code to the top of the <HEAD> tag on every page you wish to optimize.

[Learn more](#) about how to install Optimize and about advanced installation options.

```
<script src="https://www.googleoptimize.com/optimize.js?id=OPT-PJRNQXD"></script>
```

Google Optimize's API for tracking A/B test results.

redirect experiments or

Additional Settings

- Notifications >
- User management >
- Accounts Go to accounts

What is a **data-driven** product?

1. The **platform** is the product. And the data provides the glue to link everybody in the platform **eco-system** together to create values.
2. The data makes the product **smarter** and **more connected**. Being smarter allows the product to improve its performance over time through **analytics** and **machine learning** and being more connected allows the product to amplify the **network effect** by linking with more stakeholders and complementary products.
3. The **API** based services form an extended data infrastructure to **capture values** created by other stakeholders within the eco-system.

Two key API questions to ask:

**Which external API services should I leverage
and what internal API services should I develop
and share to build network effects and to make
our product smarter and more connected?**

Case Study: Nike Plus

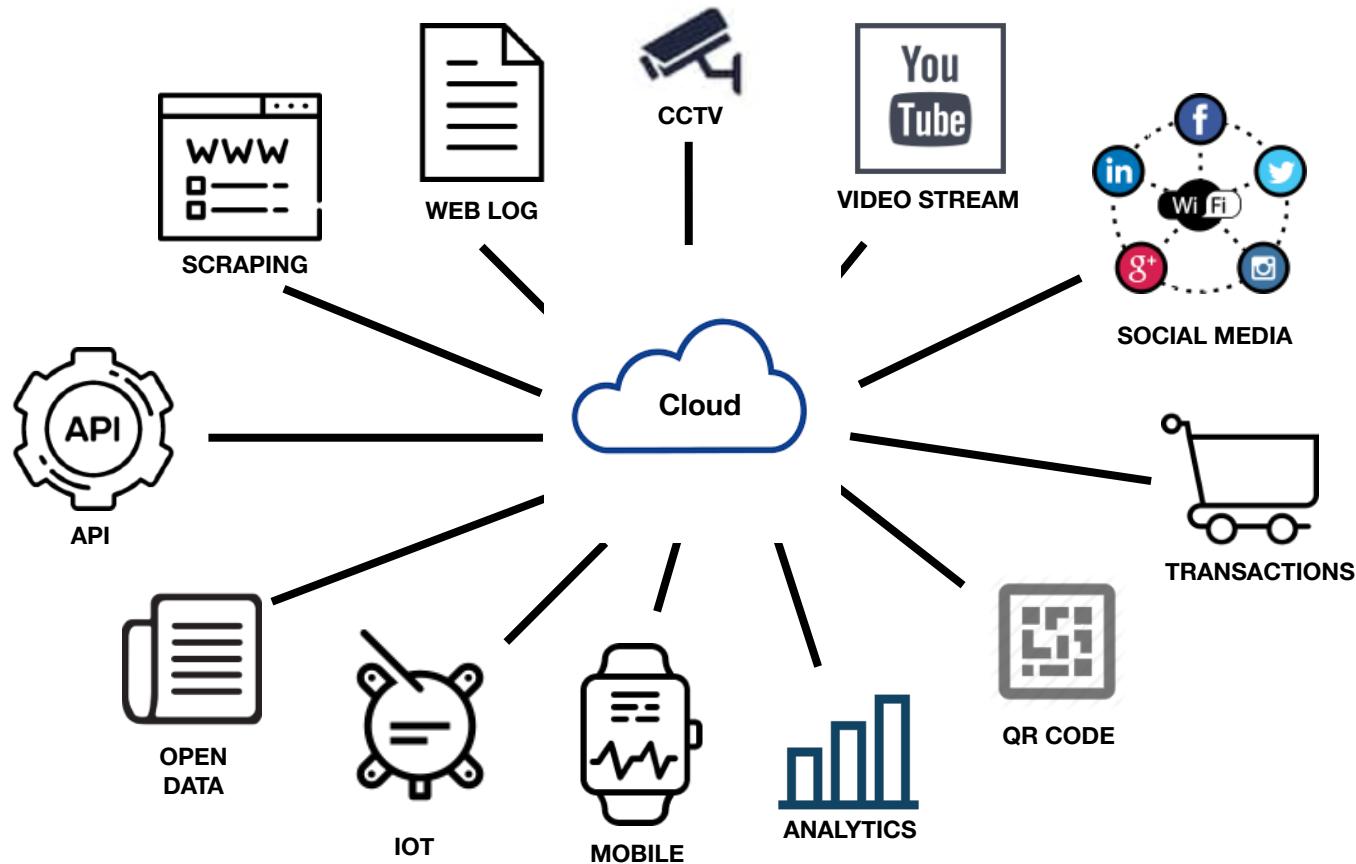


Source: Nike YouTube Promo

What makes NikePlus a **data-driven** product?

1. NikePlus is a **platform** for linking runners, music providers, and coaches together. Through the circulation of running profile data, NikePlus provides the glue to link everybody on the platform together to create **values**.
2. Being **smarter** allows NikePlus to improve the running and sharing experience through dashboard analytics and being **more connected** allows NikePlus to amplify the network effect by connecting more runners, music lovers, and coaches.
3. Deliver **API** based services to social networking apps to make sharing **stretched beyond** running to other sports lovers.

Structured and Un-structured Data Sources



How does web application works?

Full-stack web development: Front-end vs. Back-end

Browser

Screen Display



Frontend

Web Server

HTML/CSS/JS



```
<!DOCTYPE html>
<html lang="en">
<head>
<meta charset="utf-8">
<title> A Tiny HTML Document </title>
<link href = "styles.css" rel="stylesheet">
<script src= "scripts.js"></script>
</head>

<body>
<p>Let's rock the browser, HTML5 style.</p>
</body>
</html>
```

App Server

NodeJS/Python
Php/C#/Java



```
#!/usr/bin/python
# ref powerx,y
# ref powerx,y
# take input from the user
print("Select operation:")
print("1.Add")
print("2.Subtract")
print("3.Multiply")
print("4.Divide")
print("5.Power")
choice = input("Enter choice(1/2/3/4/5):")

num1 = int(input("Enter first number:"))
num2 = int(input("Enter the second number:"))

if choice == '1':
    print(num1, "+", num2, "=", num1+num2)
    print(value, ..., sep=' ', end='\n', file=sys.stdout, flush=True)
```

Backend

Database Server

SQL/NoSQL
Data



Table: contacts									
SERIAL	ID	NAME	PHONE	POPULARNAME	PREFERREDNAME	LATITUDE	LONGITUDE	EMAIL	ADDRESS
1	1194020	00994414	popular_name_00994414	preferred_name_00994414	00994414	23.789675	120.278967		
2	1194021	00994415	popular_name_00994415	preferred_name_00994415	00994415	23.789675	120.278967		
3	1194022	00994416	popular_name_00994416	preferred_name_00994416	00994416	23.789675	120.278967		
4	1194023	00994417	popular_name_00994417	preferred_name_00994417	00994417	23.789675	120.278967		
5	1194024	00994418	popular_name_00994418	preferred_name_00994418	00994418	23.789675	120.278967		
6	1194025	00994419	popular_name_00994419	preferred_name_00994419	00994419	23.789675	120.278967		
7	1194026	00994420	popular_name_00994420	preferred_name_00994420	00994420	23.789675	120.278967		
8	1194027	00994421	popular_name_00994421	preferred_name_00994421	00994421	23.789675	120.278967		
9	1194028	00994422	popular_name_00994422	preferred_name_00994422	00994422	23.789675	120.278967		
10	1194029	00994423	popular_name_00994423	preferred_name_00994423	00994423	23.789675	120.278967		
11	1194030	00994424	popular_name_00994424	preferred_name_00994424	00994424	23.789675	120.278967		
12	1194031	00994425	popular_name_00994425	preferred_name_00994425	00994425	23.789675	120.278967		
13	1194032	00994426	popular_name_00994426	preferred_name_00994426	00994426	23.789675	120.278967		
14	1194033	00994427	popular_name_00994427	preferred_name_00994427	00994427	23.789675	120.278967		
15	1194034	00994428	popular_name_00994428	preferred_name_00994428	00994428	23.789675	120.278967		
16	1194035	00994429	popular_name_00994429	preferred_name_00994429	00994429	23.789675	120.278967		
17	1194036	00994430	popular_name_00994430	preferred_name_00994430	00994430	23.789675	120.278967		
18	1194037	00994431	popular_name_00994431	preferred_name_00994431	00994431	23.789675	120.278967		
19	1194038	00994432	popular_name_00994432	preferred_name_00994432	00994432	23.789675	120.278967		
20	1194039	00994433	popular_name_00994433	preferred_name_00994433	00994433	23.789675	120.278967		
21	1194040	00994434	popular_name_00994434	preferred_name_00994434	00994434	23.789675	120.278967		
22	1194041	00994435	popular_name_00994435	preferred_name_00994435	00994435	23.789675	120.278967		
23	1194042	00994436	popular_name_00994436	preferred_name_00994436	00994436	23.789675	120.278967		
24	1194043	00994437	popular_name_00994437	preferred_name_00994437	00994437	23.789675	120.278967		
25	1194044	00994438	popular_name_00994438	preferred_name_00994438	00994438	23.789675	120.278967		
26	1194045	00994439	popular_name_00994439	preferred_name_00994439	00994439	23.789675	120.278967		
27	1194046	00994440	popular_name_00994440	preferred_name_00994440	00994440	23.789675	120.278967		
28	1194047	00994441	popular_name_00994441	preferred_name_00994441	00994441	23.789675	120.278967		
29	1194048	00994442	popular_name_00994442	preferred_name_00994442	00994442	23.789675	120.278967		
30	1194049	00994443	popular_name_00994443	preferred_name_00994443	00994443	23.789675	120.278967		
31	1194050	00994444	popular_name_00994444	preferred_name_00994444	00994444	23.789675	120.278967		
32	1194051	00994445	popular_name_00994445	preferred_name_00994445	00994445	23.789675	120.278967		
33	1194052	00994446	popular_name_00994446	preferred_name_00994446	00994446	23.789675	120.278967		
34	1194053	00994447	popular_name_00994447	preferred_name_00994447	00994447	23.789675	120.278967		
35	1194054	00994448	popular_name_00994448	preferred_name_00994448	00994448	23.789675	120.278967		
36	1194055	00994449	popular_name_00994449	preferred_name_00994449	00994449	23.789675	120.278967		
37	1194056	00994450	popular_name_00994450	preferred_name_00994450	00994450	23.789675	120.278967		
38	1194057	00994451	popular_name_00994451	preferred_name_00994451	00994451	23.789675	120.278967		
39	1194058	00994452	popular_name_00994452	preferred_name_00994452	00994452	23.789675	120.278967		
40	1194059	00994453	popular_name_00994453	preferred_name_00994453	00994453	23.789675	120.278967		
41	1194060	00994454	popular_name_00994454	preferred_name_00994454	00994454	23.789675	120.278967		
42	1194061	00994455	popular_name_00994455	preferred_name_00994455	00994455	23.789675	120.278967		
43	1194062	00994456	popular_name_00994456	preferred_name_00994456	00994456	23.789675	120.278967		
44	1194063	00994457	popular_name_00994457	preferred_name_00994457	00994457	23.789675	120.278967		
45	1194064	00994458	popular_name_00994458	preferred_name_00994458	00994458	23.789675	120.278967		
46	1194065	00994459	popular_name_00994459	preferred_name_00994459	00994459	23.789675	120.278967		
47	1194066	00994460	popular_name_00994460	preferred_name_00994460	00994460	23.789675	120.278967		
48	1194067	00994461	popular_name_00994461	preferred_name_00994461	00994461	23.789675	120.278967		
49	1194068	00994462	popular_name_00994462	preferred_name_00994462	00994462	23.789675	120.278967		
50	1194069	00994463	popular_name_00994463	preferred_name_00994463	00994463	23.789675	120.278967		
51	1194070	00994464	popular_name_00994464	preferred_name_00994464	00994464	23.789675	120.278967		
52	1194071	00994465	popular_name_00994465	preferred_name_00994465	00994465	23.789675	120.278967		
53	1194072	00994466	popular_name_00994466	preferred_name_00994466	00994466	23.789675	120.278967		
54	1194073	00994467	popular_name_00994467	preferred_name_00994467	00994467	23.789675	120.278967		
55	1194074	00994468	popular_name_00994468	preferred_name_00994468	00994468	23.789675	120.278967		
56	1194075	00994469	popular_name_00994469	preferred_name_00994469	00994469	23.789675	120.278967		
57	1194076	00994470	popular_name_00994470	preferred_name_00994470	00994470	23.789675	120.278967		
58	1194077	00994471	popular_name_00994471	preferred_name_00994471	00994471	23.789675	120.278967		
59	1194078	00994472	popular_name_00994472	preferred_name_00994472	00994472	23.789675	120.278967		
60	1194079	00994473	popular_name_00994473	preferred_name_00994473	00994473	23.789675	120.278967		
61	1194080	00994474	popular_name_00994474	preferred_name_00994474	00994474	23.789675	120.278967		
62	1194081	00994475	popular_name_00994475	preferred_name_00994475	00994475	23.789675	120.278967		
63	1194082	00994476	popular_name_00994476	preferred_name_00994476	00994476	23.789675	120.278967		
64	1194083	00994477	popular_name_00994477	preferred_name_00994477	00994477	23.789675	120.278967		
65	1194084	00994478	popular_name_00994478	preferred_name_00994478	00994478	23.789675	120.278967		
66	1194085	00994479	popular_name_00994479	preferred_name_00994479	00994479	23.789675	120.278967		
67	1194086	00994480	popular_name_00994480	preferred_name_00994480	00994480	23.789675	120.278967		
68	1194087	00994481	popular_name_00994481	preferred_name_00994481	00994481	23.789675	120.278967		
69	1194088	00994482	popular_name_00994482	preferred_name_00994482	00994482	23.789675	120.278967		
70	1194089	00994483	popular_name_00994483	preferred_name_00994483	00994483	23.789675	120.278967		
71	1194090	00994484	popular_name_00994484	preferred_name_00994484	00994484	23.789675	120.278967		
72	1194091	00994485	popular_name_00994485	preferred_name_00994485	00994485	23.789675	120.278967		
73	1194092	00994486	popular_name_00994486	preferred_name_00994486	00994486	23.789675	120.278967		
74	1194093	00994487	popular_name_00994487	preferred_name_00994487	00994487	23.789675	120.278967		
75	1194094	00994488	popular_name_00994488	preferred_name_00994488	00994488	23.789675	120.278967		
76	1194095	00994489	popular_name_00994489	preferred_name_00994489	00994489	23.789675	120.278967		
77	1194096	00994490	popular_name_00994490	preferred_name_00994490	00994490	23.789675	120.278967		
78	1194097	00994491	popular_name_00994491	preferred_name_00994491	00994491	23.789675	120.278967		
79	1194098	00994492	popular_name_00994492	preferred_name_00994492	00994492	23.789675	120.278967		
80	1194099	00994493	popular_name_00994493	preferred_name_00994493	00994493	23.789675	120.278967		
81	1194100	00994494	popular_name_00994494	preferred_name_00994494	00994494	23.789675	120.278967		
82	1194101	00994495	popular_name_00994495	preferred_name_00994495	00994495	23.789675	120.278967		
83	1194102	00994496	popular_name_00994496	preferred_name_00994496	00994496	23.789675	120.278967		
84	1194103	00994497	popular_name_00994497	preferred_name_00994497	00994497	23.789675	120.278967		
85	1194104	00994498	popular_name_00994498	preferred_name_00994498	00994498	23.789675	120.278967		
86	1194105	00994499	popular_name_00994499	preferred_name_00994499	00994499	23.789675	120.278967		
87	1194106	00994500	popular_name_00994500	preferred_name_00994500	00994500	23.789675	120.278967		
88	1194107	00994501	popular_name_00994501	preferred_name_00994501	00994501	23.789675	120.278967		
89	1194108	00994502	popular_name_00994502	preferred_name_00994502	00994502	23.789675	120.278967		
90	1194109	00994503	popular_name_00994503	preferred_name_00994503	00994503	23.789675	120.278967		
91	1194110	00994504	popular_name_00994504	preferred_name_00994504	00994504	23.789675	120.278967		

**Browser (e.g. Chrome) translates HTML/
CSS/JS into web pages ordinary human
can understand.**

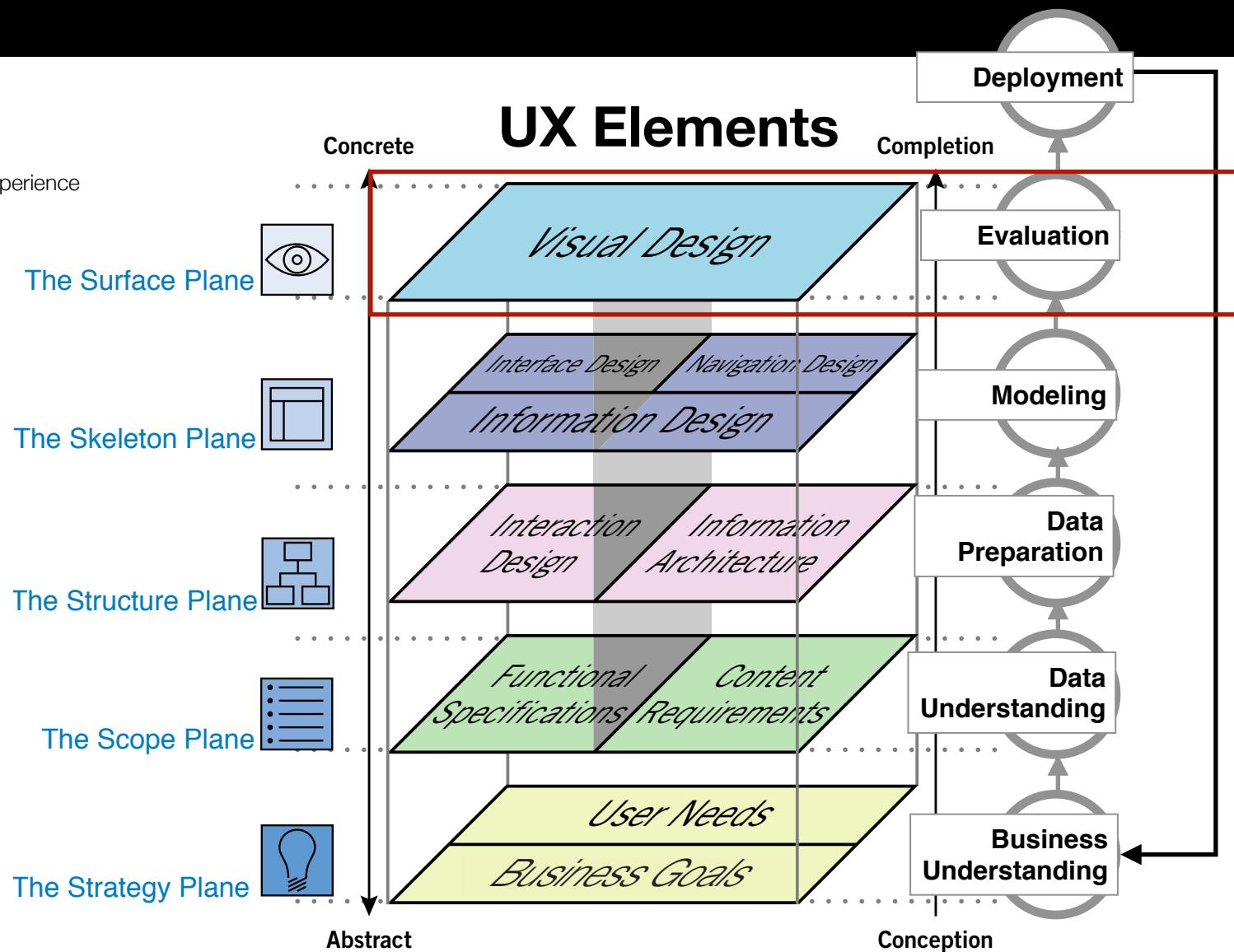
Solution Space

how and
how much

Problem Space

who, what,
and why

Source: Elements of User Experience
by Jesse James Garrett

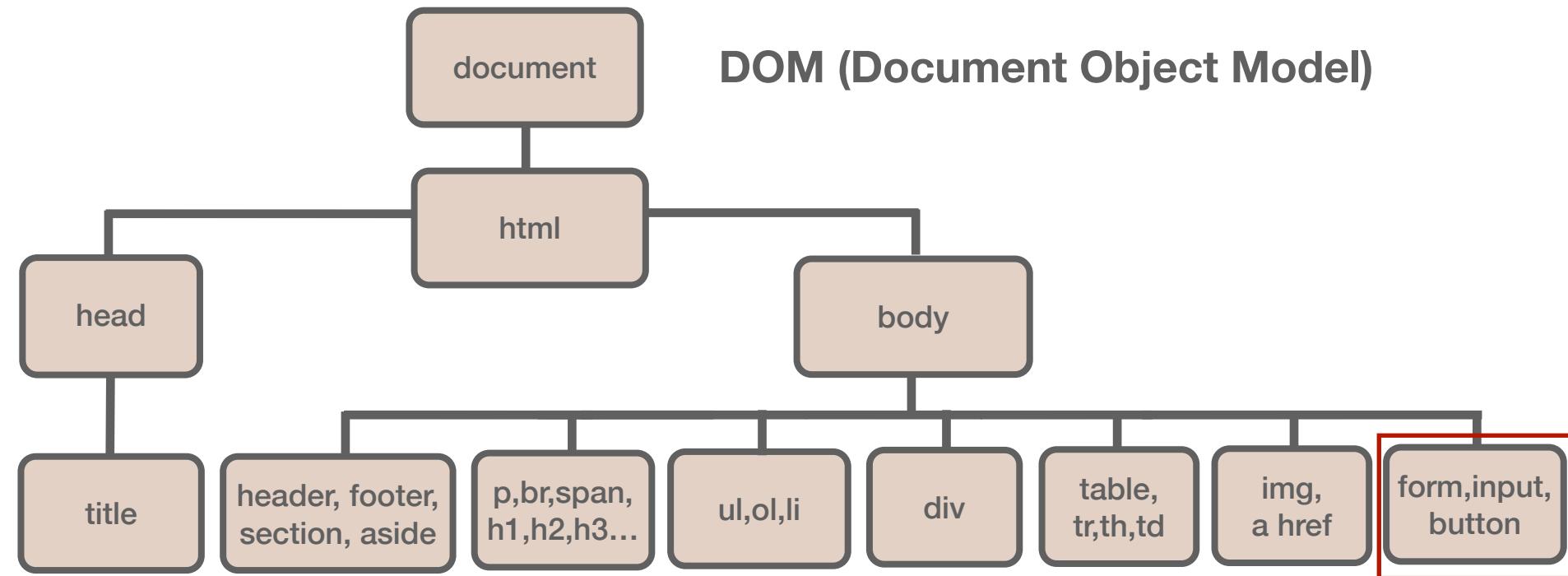


Business Goals

**Making UI easy to use, useful,
and beautiful.**

**HTML provides the basic elements
to be used on screen.**

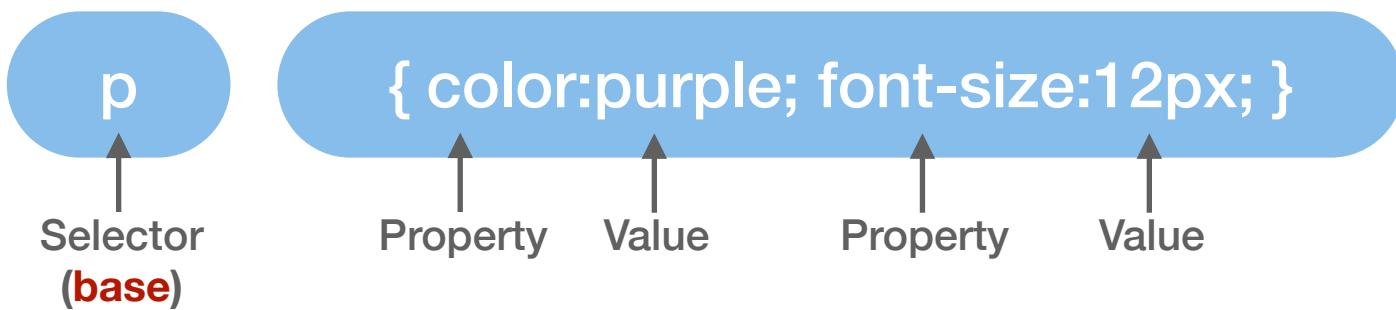
DOM (Document Object Model)



<https://www.runoob.com/htmldom/htmldom-tutorial.html>

**Targeting HTML elements for styling
through Selectors.**

CSS



In CSS, the HTML tags are called **selectors**.

CSS

You define the name

.box

Selector
(custom
id, class)

{ margin:5px; padding:3px; }

Property

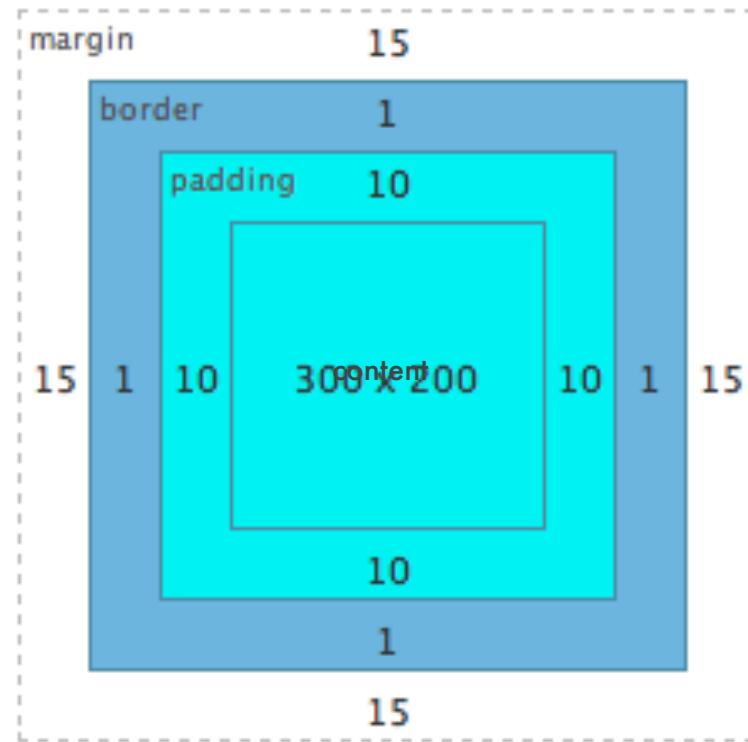
Value

Property

Value

In CSS, the HTML tags are called **selectors**.

The Box Model



- 1. Combination of Selectors for Choosing Styling Target.**
 - 1.1 Multiple** selectors for choosing target.
 - 1.2 Parent-child** selector hierarchy for choosing target.
 - 1.3 Same styles** for different targets.
- 2. Apply Multiple Classes to Target**

**Web page composition using
Responsive Design.**

**Responsive Design = View Port (in HTML) +
Media Query (in CSS & JS) + Max/Min width
setting (in CSS & JS)**

Practical website services for color styling.

! NEW FEATURE: You can now create a gradient out of 3 colors!



Beta

ColorSpace

NEW

PALETTES

GRADIENT

3-COLOR-GRADIENT

CONTACT INFO



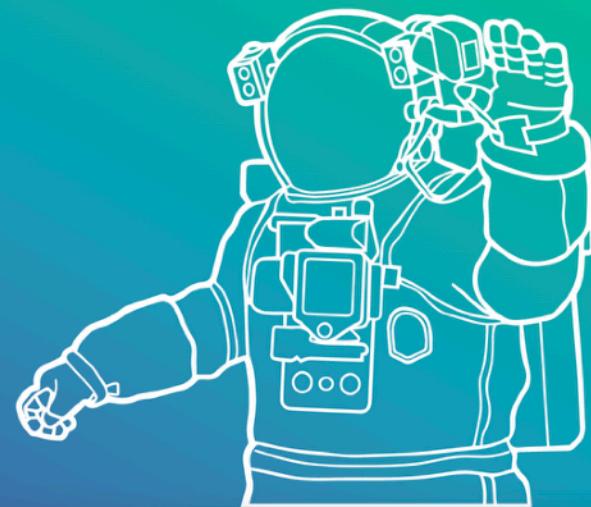
Never waste Hours on finding the perfect Color Palette again!

JUST ENTER A COLOR!

And Generate nice Color Palettes

#59AB6E

GENERATE



<https://mycolor.space/>



Login

This is a test.

User name

Password

Submit

You need to login again.

JUSTIFY-CONTENT-BETWEEN ALL-ITEMS-CENTER"> flex

...  Zay == \$0

<button class="navbar-toggler" ... v.navbar.navbar-expand-lg.navb

Styles Computed Layout >

File :hov .cls + element.style { }

.navbar- bootstrap.min.css:6 light

.navbar-brand { color: #000000; }

.text- templatem.css:55 success { color: #59ab6e !important; }

.logo { templatem.css:52 font-weight: 500 !important; }

.h1 { templatem.css:37 font-family: 'Roboto' !important; }

⋮ Console What's New ×



#59AB6E

GENERATE

Natural Palette



#59AB6E

#719A79

#EFFDF1

#F6EDD9

Matching Palette



#59AB6E

#3C4A3E

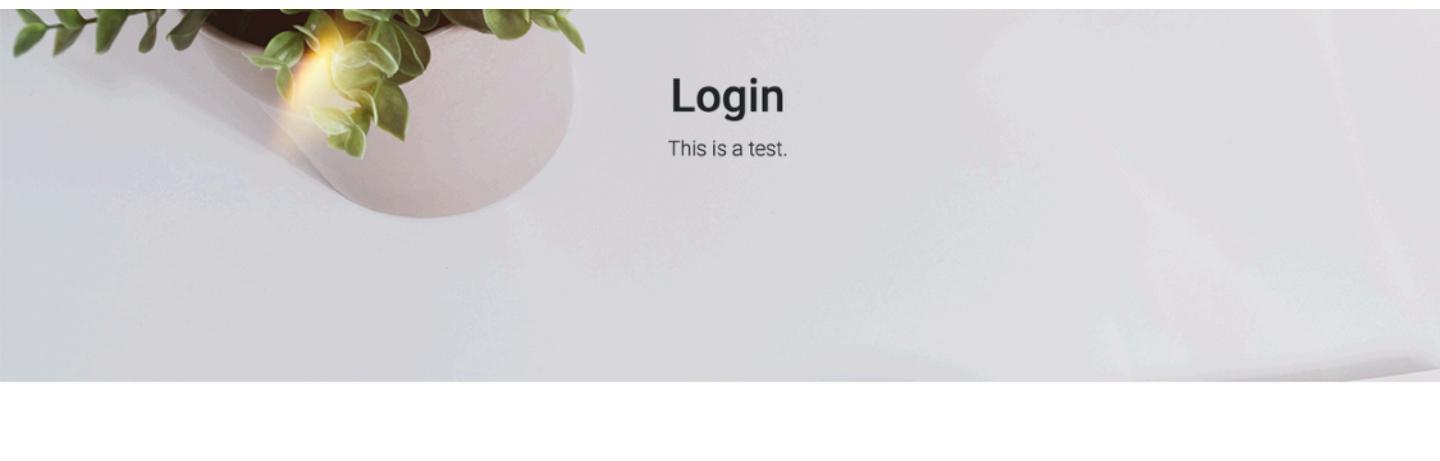
#9FAFA1

#8C94E5

#5561AD

Squash Palette





Login

This is a test.

User name

Password

Submit

You need to login again.

```
</uiv>
<br>
<button type="submit"
"btn btn-primary">Sub
</button> == $0
▶<div class="alert alert
inc" role="alert"><
...
... on.container.py-5  div.std_form ...
Styles Computed Layout >
File :hover .cls +, □ element.style {
}
[type=button]:no
t(:disabled),
[type=reset]:not(:disabled),
[type=submit]:not(:disabled),
button:not(:disabled) {
    cursor: pointer;
}
.btn-
primary bootstrap.min.css:6
{
    color: □#fff;
background-color:
    #59AB6E;
border-color: ▶ □#59AB6E;
margin-bottom: 5%;
}
```

Console What's New X

**How about you don't have a key color yet but only
an image ... how do you derive a color scheme
from the image?**

Pick Color From Image Color Picker

...pick your color online

November 23 - 25, 2021 

OPEN

Ad



PALETTE:



Show more

Use Your Image

We think data protection is important! [No data is sent.](#) The magic happens in your browser.

<https://imagecolorpicker.com/>

**If we can build UI with HTML/CSS
and back-end Python codes, why
do we need JS ?**

JS provides interactive supports for web navigation, form processing, database updates, and multimedia display.

Welcome to My Homepage

Use the menu to select different Stylesheets

Stylesheet 1

[Stylesheet 2](#)

[Stylesheet 3](#)

[Stylesheet 4](#)

[No Stylesheet](#)

Same Page Different Stylesheets

This is a demonstration of how different stylesheets can change the layout of your HTML page. You can change the layout of this page by selecting different stylesheets in the menu, or by selecting one of the following links:
[Stylesheet1](#), [Stylesheet2](#), [Stylesheet3](#), [Stylesheet4](#).

No Styles

This page uses DIV elements to group different sections of the HTML page.

Click [here](#) to see how the page looks like with no stylesheet:

[No Stylesheet](#).

Side-Bar

Lore ipsum dolor sit amet,
consectetuer adipiscing elit,
sed diam nonummy nibh euismod tincidunt
ut laoreet dolore magna aliquam erat volutpat.

Lore ipsum dolor sit amet, consectetuer adipiscing elit, sed diam nonummy nibh euismod tincidunt ut laoreet dolore magna aliquam erat volutpat. Ut wisi enim ad minim veniam, quis nostrud exerci tation ullamcorper suscipit lobortis nisl ut aliquip ex ea commodo consequat. Duis autem vel eum iriure dolor in hendrerit in vulputate velit esse molestie consequat, vel illum dolore eu feugiat nulla facilisis at vero eros et accumsan et iusto odio dignissim qui blandit praesent luptatum zzril delenit augue duis dolore te feugait nulla facilisi.

https://www.w3schools.com/css/demo_default.htm#

```
<html>
<head>
<style>/ * Stylesheet 1: */</style>
body {
    font: 100% Lucida Sans, Verdana;
    margin: 20px;
    line-height: 26px;
}

.container {
    xmin-width: 900px;
}

.wrapper {
    position: relative;
    overflow: auto;
}

#top, #sidebar, #bottom, .menuitem {
    border-radius: 4px;
    margin: 4px;
}

#top {
    background-color: #04AA6D;
    color: #ffffff;
    padding: 15px;
}

#menubar {
    width: 200px;
    float: left
}

#main {
    padding: 10px;
    margin: 0 210px;
}

<style>/ * Stylesheet 2: */</style>
body {
    font-family: Arial;
    background-color: #d14836;
    line-height: 20px;
}

.container {
    xmin-width: 900px;
}

.wrapper {
    position: relative;
    overflow: auto;
}

#top {
    color: #ffffff;
    padding: 15px;
    font-size: 30px;
    line-height: 26px;
}

#top h1 {
    margin:0;
    line-height: 50px;
}

#menubar {
    width: 190px;
    float: right;
}

#main {
    padding: 10px;
    background-color: #ffffff;
    font: 80% Verdana;
}

<style>/ * Stylesheet 3: */</style>
body {
    font: 100% Verdana;
    margin: 20px;
    line-height: 26px;
}

.container {
    xmin-width: 900px;
}

.wrapper {
    position: relative;
    overflow: auto;
}

#sidebar {
    background-color: #f1f1f1;
    border: 1px solid #d4d4d4;
    padding-left: 10px;
}

#bottom {
    text-align: center;
    padding: 10px;
    font-size: 70%;
    line-height: 14px;
}

h1, h2, h3 {
    color: #4CAF50;
}

#menulist {
    padding: 0;
    position: relative;
    overflow: auto;
}

<style>/ * Stylesheet 4: */</style>
body {
    font: 100% Courier New;
    margin: 20px;
    line-height: 26px;
    background-color: #000000;
}

.container {
    xmin-width: 900px;
}

.wrapper {
    position: relative;
    overflow: auto;
}

#top {
    color: #84c754;
    padding: 15px;
}

#main {
    padding: 10px;
    color: #84c754;
}

#sidebar {
    color: #ffffff;
    border: 1px solid #ffffff;
    border-radius: 4px;
    padding: 10px;
    width: 320px;
    top: 0;
    right: 0;
    position: absolute;
    font-size: 80%;
    line-height: 20px;
}
```

Welcome to My Homepage

Use the menu to select different Stylesheets

Stylesheet 1

Stylesheet 2

Stylesheet 3

Stylesheet 4

No Stylesheet

Same Page Different Stylesheets

This is a demonstration of how different stylesheets can change the layout of your HTML page. You can change the layout of this page by selecting different stylesheets in the menu, or by selecting one of the following links:

[Stylesheet1](#), [Stylesheet2](#), [Stylesheet3](#), [Stylesheet4](#).

No Styles

This page uses DIV elements to group different sections of the HTML page. Click here to see how the page looks like with no stylesheet:

[No Stylesheet](#).

Lorem ipsum dolor sit amet, consectetur adipiscing elit, sed diam nonummy nibh euismod tincidunt ut laoreet dolore magna aliquam erat volutpat. Ut wisi enim ad minim veniam, quis nostrud exercitation ullamcorper suscipit lobortis nisl ut aliquip ex ea commodo consequat. Duis autem vel eum iriure dolor in hendrerit in vulputate velit esse molestie consequat, vel illum dolore eu feugiat nulla facilisis at vero eros et accumsan et iusto odio dignissim qui blandit praesent luptatum zzril delenit augue duis dolore te feugait nulla facilisi.

Setting the CSS style of a **DOM object** with codes through the inspector console.

The screenshot shows a browser's developer tools open, specifically the console tab. At the top, there are various icons for navigating between tabs and panels. Below the tabs, the word "Console" is underlined, indicating it is the active tab. The main area of the console shows a command being run: `> document.styleSheets[0].disabled = false`. This line of code is highlighted with a red rectangle. Above this command, there is a message: "1 Issue: 1 true". The status bar at the bottom of the console shows "5 hidden" items.

```
<div class="wrapper">
  <div id="menubar">
    <ul id="menuList">
      <li class="menuItem" onclick="reStyle(0)">Stylesheet 1
      <li class="menuItem" onclick="reStyle(1)">Stylesheet 2
      <li class="menuItem" onclick="reStyle(2)">Stylesheet 3
      <li class="menuItem" onclick="reStyle(3)">Stylesheet 4
      <li class="menuItem" onclick="noStyles()">No Stylesheet
    </ul>
  </div>
  <div id="main">
    <h1>Same Page Different Stylesheets</h1>
    <p>This is a demonstration of how different stylesheets can change the layout of your HTML page. You can change the layout of this page by selecting different stylesheets in the menu, or by selecting one of the following links:<br>
      <a href="#" onclick="reStyle(0);return false">Stylesheet1</a>,
      <a href="#" onclick="reStyle(1);return false">Stylesheet2</a>,
      <a href="#" onclick="reStyle(2);return false">Stylesheet3</a>,
      <a href="#" onclick="reStyle(3);return false">Stylesheet4</a>.
    </p>
    <h2>No Styles</h2>
    <p>This page uses DIV elements to group different sections of the HTML page. Click here to see how the page looks like with no stylesheet:<br><a href="#" onclick="noStyles();return false">No Stylesheet</a>.</p>
  </div>
  <div id="sidebar">
    <h3>Side-Bar</h3>
    <p>Lorem ipsum dolor sit amet, consectetuer adipiscing elit, sed diam nonummy nibh euismod tincidunt ut laoreet dolore magna aliquam erat volutpat.</p>
  </div>
</div>
```

```
<div id="menubar">
  <ul id="menulist">
    <li class="menuitem" onclick="reStyle(0)">Stylesheet 1
    <li class="menuitem" onclick="reStyle(1)">Stylesheet 2
    <li class="menuitem" onclick="reStyle(2)">Stylesheet 3
    <li class="menuitem" onclick="reStyle(3)">Stylesheet 4
    <li class="menuitem" onclick="noStyles()">No Stylesheet
  </ul>
</div>
<div id="main">
  <h1>Same Page Different Stylesheets</h1>
  <p>This is a demonstration of how different stylesheets can change the layout of your the layout of this page by selecting different stylesheets in the menu, or by selecting one
    <a href="#" onclick="reStyle(0);return false">Stylesheet1</a>,
    <a href="#" onclick="reStyle(1);return false">Stylesheet2</a>,
    <a href="#" onclick="reStyle(2);return false">Stylesheet3</a>,
    <a href="#" onclick="reStyle(3);return false">Stylesheet4</a>.
  </p>

```

```
function noStyles() {
  document.styleSheets[0].disabled = true;
  document.styleSheets[1].disabled = true;
  document.styleSheets[2].disabled = true;
  document.styleSheets[3].disabled = true;
}

function reStyle(n) {
  noStyles()
  document.styleSheets[n].disabled = false;
}
```

VERB

JS

JavaScript acts on a HTML tag (CSS selector), CSS property or responds to an event triggered by user action.

Most popular programming languages in 2022.

Programming, scripting, and markup languages



2022 marks JavaScript's tenth year in a row as the most commonly used programming language.

But, it's a different picture for those learning to code. HTML/CSS, Javascript and Python are almost tied as the most popular languages for people learning to code. People learning to code are more likely than Professional Developers to report using Python (58% vs 44%), C++ (35% vs 20%), and C (32% vs 17%).

Compared to Professional Developers, those learning to code are less likely to report using SQL (38% vs 53%), TypeScript (15% vs 40%), and Bash/Shell (19% vs 29%).



Source: <https://survey.stackoverflow.co/2022/#technology-most-popular-technologies>



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Node.js® is an open-source, cross-platform JavaScript runtime environment.

Download for macOS (x64)

18.12.1 LTS

Recommended For Most Users

19.1.0 Current

Latest Features

[Other Downloads](#) | [Changelog](#) | [API Docs](#) [Other Downloads](#) | [Changelog](#) | [API Docs](#)

For information about supported releases, see the [release schedule](#).

Express 4.18.1

Fast, unopinionated, minimalist web framework for [Node.js](#)

```
$ npm install express --save
```

 Express 5.0 beta documentation is now available.

The beta [API documentation](#) is a work in progress. For information on what's in the release, see the Express [release history](#).

Web Applications

Express is a minimal and flexible Node.js web application framework that provides a robust set of features for web and mobile applications.

APIs

With a myriad of HTTP utility methods and middleware at your disposal, creating a robust API is quick and easy.

Performance

Express provides a thin layer of fundamental web application features, without obscuring Node.js features that you know and love.

Frameworks

Many [popular frameworks](#) are based on Express.

React

A JavaScript library for building user interfaces

[Get Started](#)[Take the Tutorial >](#)

Declarative

React makes it painless to create interactive UIs. Design simple views for each state in your application, and React will efficiently update and render just the right components when your data changes.

Declarative views make your code more predictable and easier to debug.

Component-Based

Build encapsulated components that manage their own state, then compose them to make complex UIs.

Since component logic is written in JavaScript instead of templates, you can easily pass rich data through your app and keep state out of the DOM.

Learn Once, Write Anywhere

We don't make assumptions about the rest of your technology stack, so you can develop new features in React without rewriting existing code.

React can also render on the server using Node and power mobile apps using [React Native](#).

Support Ukraine  [Help Provide Humanitarian Aid to Ukraine.](#)



Development ▾

Contributing

Community

Showcase

Blog



Search  

 Follow @reactnative

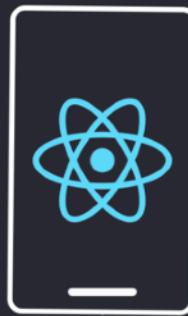
 Star

React Native

Learn once, write anywhere.

Get started

Learn the basics ›



Create native apps for Android, iOS, and more using React

React Native combines the best parts of native development with React, a best-in-class JavaScript library for building user interfaces.

Use a little—or a lot. You can use React Native today in your existing Android and iOS projects or

Data Types in JavaScript (Refer to Jupyter Notebook)

Assigning HTML Element to Variable

**Assigning a value to a variable is called:
declaring a **variable**
and its data type:**

- **String** - e.g. **let str_var = “This is a string.”;**
- **Numeric** - e.g. **let num_var = 3.2;**
- **Boolean** - e.g. **let bool_var = true;**

Basic Input/Output Commands

- **Entering a variable** - e.g. **let x = prompt("Enter x value");**
- **Displaying a variable** - e.g. **alert("x = " + x_var);**

Boolean and **String** data types in JavaScript
(Refer to Jupyter Notebook)

Basic Logical and Mathematical Operations (Refer to Jupyter Notebook Example)

- `==` equal (comparing string and boolean)
- `!=` not equal (comparing string and boolean)
- `=` equal (comparing numerical values)
- `>=` greater than or equal to (comparing numerical values)
- `<=` smaller or equal to (comparing numerical values)
- `+, -, *, /, %, &&, ||, !` (addition, subtraction, multiplication, division, modular, and, or, not)

Using Conditional Structure in JavaScript

if (condition) {action} else {action}

Examples:

- **if (boolean_var == true) {alert("That is correct");} else {alert("That is incorrect");}**
- **if (string_var != "Peter") {alert("Not Peter");}**
- **if (num_var >= 8) {alert("The number is greater than or equal to eight.");} else {alert("The number is smaller than eight.");}**

Using Conditionals in JavaScript

(Refer to Jupyter Notebook)

Loop, Array, and Object

Loop is an iterative programming construct suitable for handling JavaScript array and object.

```
for (initialization; condition; increment) {  
    JavaScript statements  
}
```

Try the following steps:

- 1) let fruits = [];
- 2) **for (i=1; i< 10 ;i++) {**
fruits[i] =
prompt("Enter
fruit:");
}
- 3) **alert("fruits contain"**
+ fruits);

Using Array, Object, and Loop in JavaScript

(Refer to Jupyter Notebook)

Basic Structure of a JavaScript Function

```
<head>  
<script>
```

```
function function_name(parameter1, parameter 2...) {
```

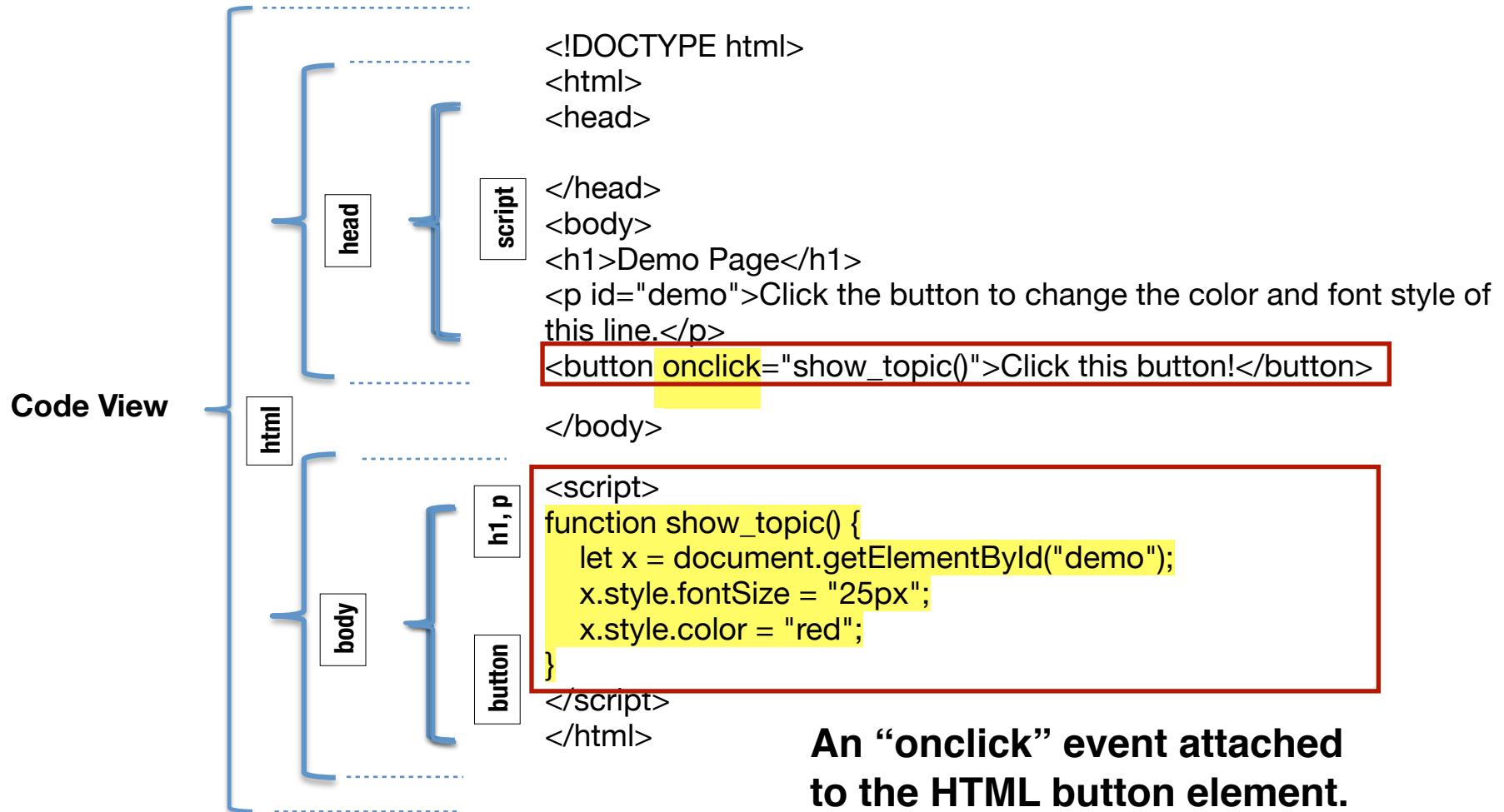
Embed data type variables, input/output commands and logical and mathematical operators in the function to compute and return values.

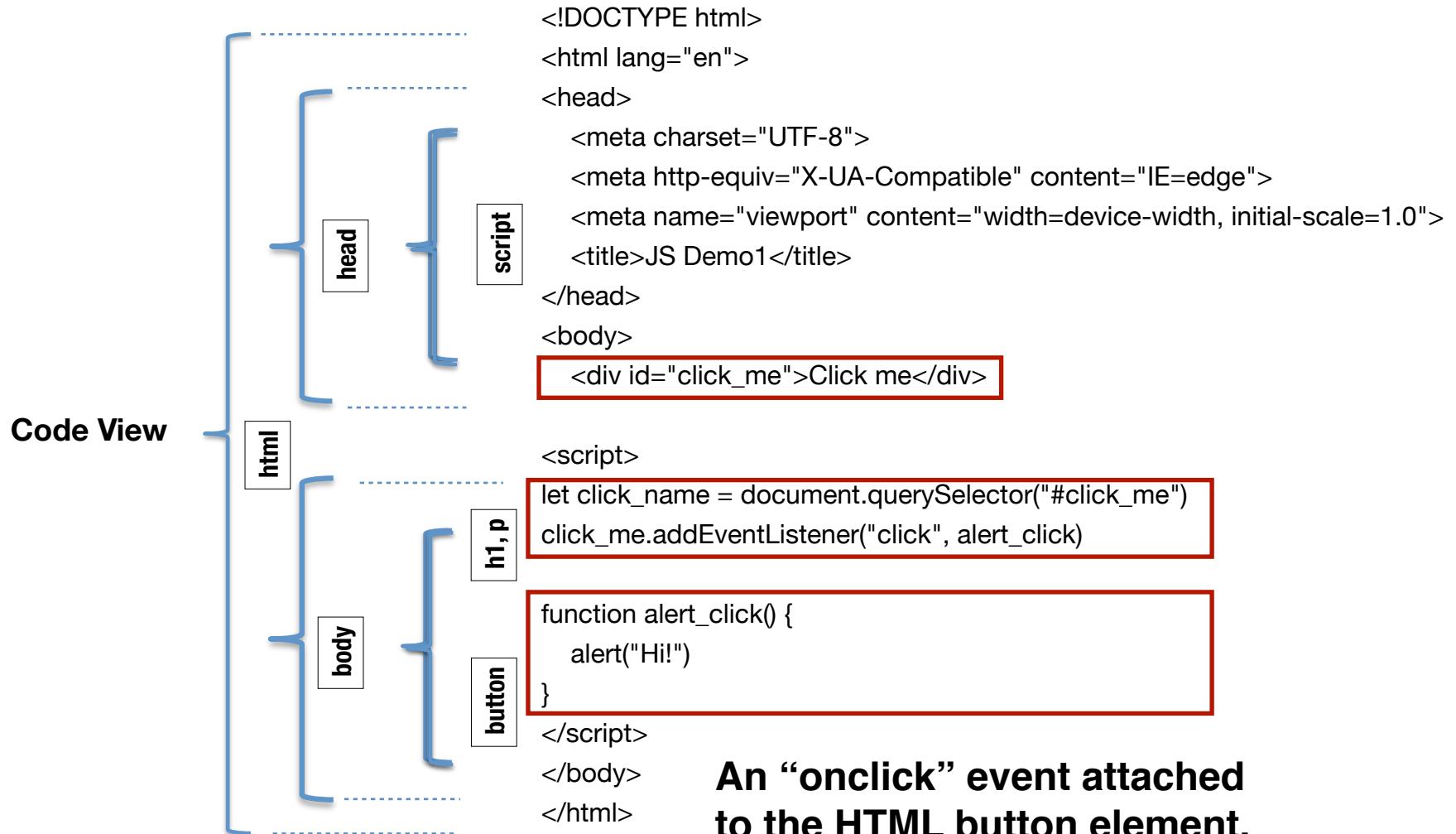
```
}
```

optional parameters

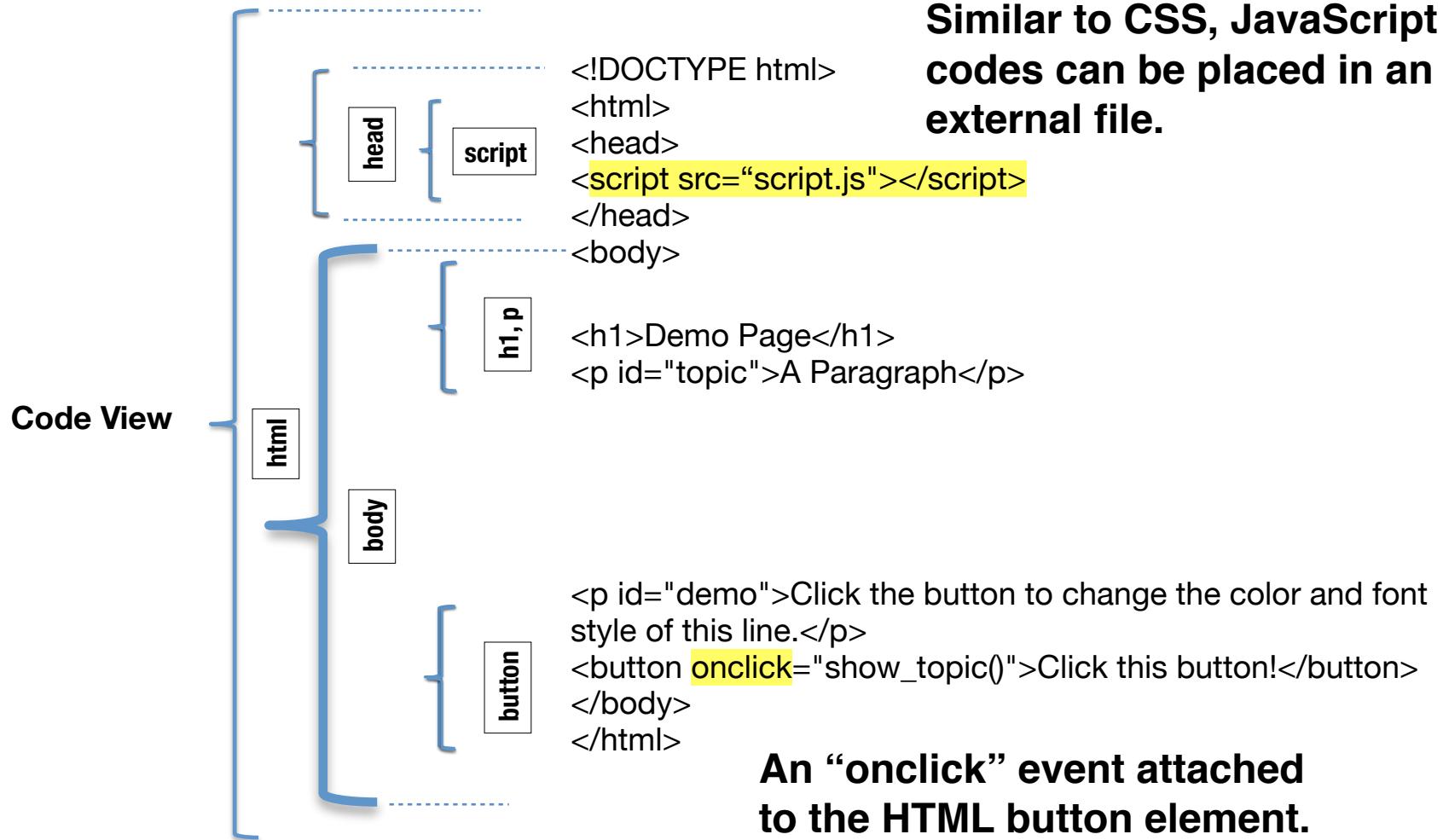


Using Function in JavaScript **(Refer to Jupyter Notebook)**





**Similar to CSS, JS can be placed in
an external File**



Basic Structure of a JavaScript Function

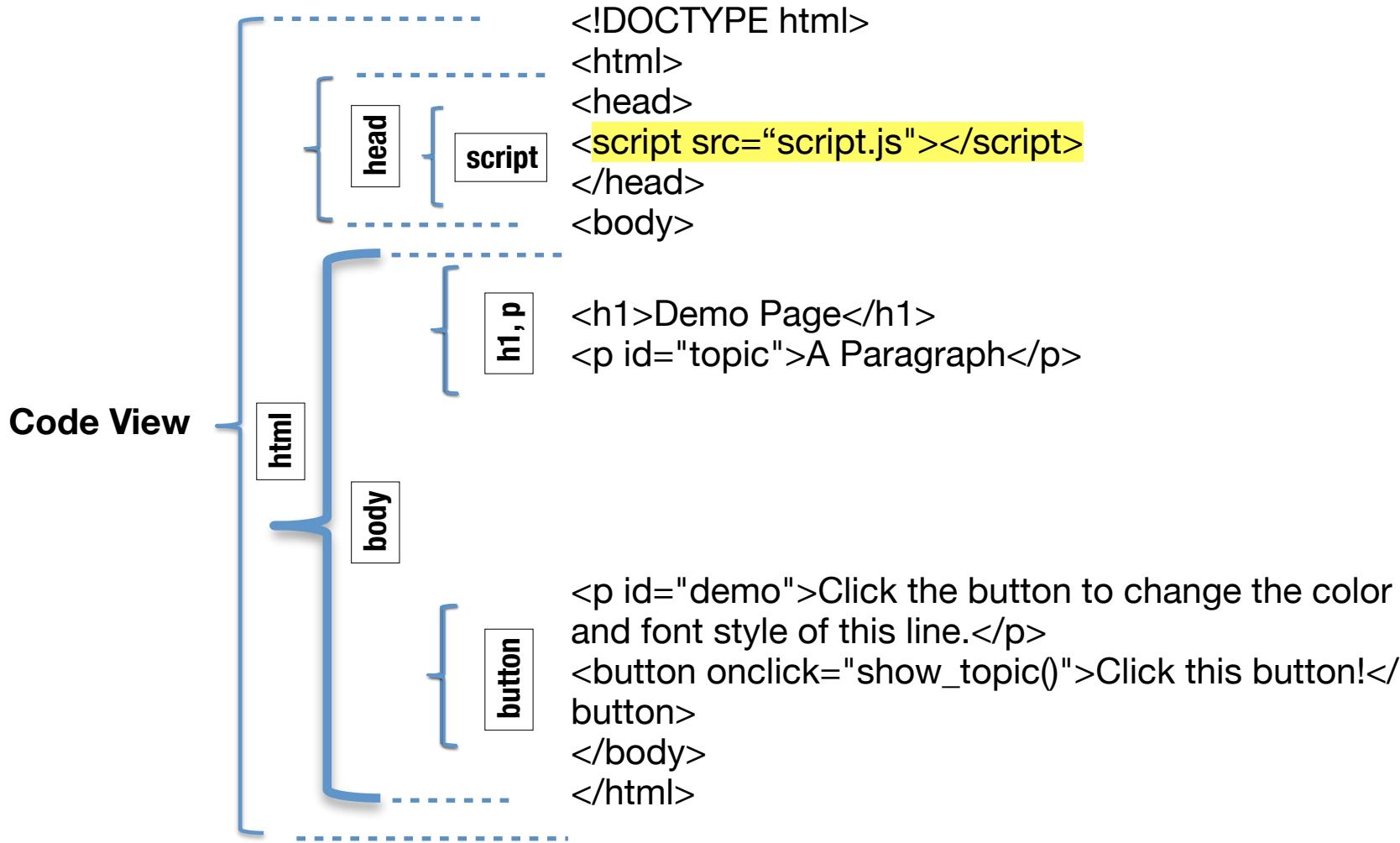
```
<!DOCTYPE html>
<html>
<head><script>
    function addition(a, b) {
        let a = parseInt(a);
        let b = parseInt(b);
        let c = a + b;
        let return c;
    }
    function get_values() {
        let a = prompt("Enter first number:");
        let b = prompt("Enter second number:");
        let z = addition(a,b);
        alert("The answer is:" + z);
    }
</script></head>
<body>
    <button onclick="get_values();">Click here</button>
</body>
</html>
```

An “onclick” event attached
to the HTML button element.

Use the querySelector and addEventListener for basic event handling.

What is “event handling”?

Ans: Call a function when the event gets triggered.



```
var var_name = document.querySelector("selector")  
var_name.addEventListener("event type", function_name)
```

Example:

```
<body>  
<div id="click_me">Click me</div>
```

```
<script>  
let click_name = document.querySelector("#click_me")  
click_me.addEventListener("click", alert_click)
```

```
function alert_click() {  
    alert("Hi!")  
}  
</script>
```

The HTML Form and Input Tags

New Blog

You are logged in as admin.

Title**Body****Meta Description**

newblog.html

```
<form id="new_form" action="/blog" method="POST">
  <div class="form-group">
    <label for="title">Title</label>
    <input id="title" type="text" class="form-control" id="title" placeholder="Enter title" name="title">
  <div class="form-group">
    <label for="body">Body</label>
    <textarea class="form-control" id="editor" name="body" rows="3"></textarea>
    <label for="meta_desc">Meta Description</label>
    <textarea id="meta_desc" class="form-control" name="meta_desc" rows="3"></textarea>
    <label for="meta_keywords">Meta Keywords</label>
    <textarea id="meta_keywords" class="form-control" name="meta_keywords" rows="3"></textarea>
  </div>
  <button id="submitBtn" class="btn btn-primary">Submit</button>
</form>
<script>
  document.getElementById('submitBtn').addEventListener('click', check_input);

  function check_input(event) {
    let title = document.getElementById('title').value;
    if (title.length > 0) {
      console.log("Title=", title)
      alert("Press enter to continue...");
      return true;
    } else {
      alert('title cannot be blank!');
      console.log("Title is blank!");
      event.preventDefault();
      return false;
    }
  }
</script>
```

newblog.html

Example

Prevent a link from opening the URL:

```
document.getElementById("myAnchor").addEventListener("click", function(event){  
  event.preventDefault()  
});
```

[Try it Yourself »](#)

More "Try it Yourself" examples below.

Definition and Usage

The `preventDefault()` method cancels the event if it is cancelable, meaning that the default action that belongs to the event will not occur.

For example, this can be useful when:

- Clicking on a "Submit" button, prevent it from submitting a form
- Clicking on a link, prevent the link from following the URL

Note: Not all events are cancelable. Use the `cancelable` property to find out if an event is cancelable.

Note: The `preventDefault()` method does not prevent further propagation of an event through the DOM. Use the `stopPropagation()` method to handle this.

[https://www.w3schools.com/jsref/event_preventdefault.asp#:~:text=The%20preventDefault\(\)%20method%20cancels,link%20from%20following%20the%20URL](https://www.w3schools.com/jsref/event_preventdefault.asp#:~:text=The%20preventDefault()%20method%20cancels,link%20from%20following%20the%20URL)

More JavaScript magic...

More Advanced JS Data Structures: **Array** and **Object**

- **Array** - a list of elements e.g.
`let fruits = ["apple","grape","pear"];`
`let student_list = []; // empty student list;`
- **Object** - a collection of properties represented in **name:values** pairs
e.g.
`let students {`
 `student_id: 1155115511;`
 `student_fname: "Bernard";`
 `student_lname:"Suen";`
 `student_major: "New Media";`
`}`

Let try out an example in Chrome console

```
> students = [];
> student1 = {name:'Peter Chan', id:'1001'};
> student2 = {name:'David Li', id:'1002'};
> student3 = {name:'Joyce Xu', id:'1003'};
> students.push(student1);
> students.push(student2);
> students.push(student3);
```



Push objects
into the array to
form an array of
objects.

Handling JS Object & Array in a Loop

The screenshot shows a web browser window with the Google homepage loaded. At the top, there is a navigation bar with icons for back, forward, search, and other functions. Below the navigation bar is a bookmarks bar containing links to various tech-related sites like Cyberport Bootcamp, Blockchain, NLP and Chatbot, FinTech, E-Commerce, Classes, Development Tools, Data Science, Machine Learning, Music, Drupal, and Cloud Providers. To the right of the bookmarks are links for Gmail, Images, and a user profile icon.

The main content area features the classic Google logo. Below the logo is a search bar with the placeholder "Search Google or type a URL". To the right of the search bar is a microphone icon for voice search.

At the bottom of the screen, the developer tools are open. The tabs for Elements, Console, Sources, Network, Performance, Memory, Application, Security, Audits, and JavaScript Profiler are visible. The Console tab is currently selected, showing the following log output:

```
newtab?ie=UTF-8:8
17:25:20.426 SW registered
> 17:26:54.913 var student1 = {name:'John',id:1001};
< 17:26:54.918 undefined
> 17:27:13.330 var student2 = {name:'Mary',id:1002};
< 17:27:13.335 undefined
> 17:28:15.340 student3 = {name:'David',id:1003};
< 17:28:15.346 > {name: "David", id: 1003}
> students = [];
```

The screenshot shows a web browser window with the Google homepage loaded. The browser's address bar and various toolbars are visible at the top. Below the address bar, there is a horizontal navigation bar with links to various categories like Apps, Cyberport Bootca..., Blockchain, NLP and Chatbot, FinTech, E-Commerce, Classes, Development Tools, Data Science, Machine Learning, Music, Drupal, and Cloud Providers. To the right of these links, there are icons for Gmail, Images, and other browser controls.

The main content area displays the classic Google logo. Below the logo is a search bar with the placeholder "Search Google or type a URL".

At the bottom of the screen, the developer tools are open, specifically the Console tab. The sidebar on the left of the console shows log levels: 23 messages (info), 2 user messages (warning), 0 errors (success), 4 warnings (warning), 14 info (info), and 5 verbose (verbose). The main pane of the console shows the following JavaScript output:

```
> 0: {name: "John", id: 1001}
  length: 1
  > __proto__: Array(0)

> 17:45:10.195 students.push(student2);
< 17:45:10.206 2

> 17:45:19.164 students.push(student3);
< 17:45:19.169 3

> 17:45:23.621 students;
< 17:45:23.629 ▶(3) [{} , {} , {} ] ⓘ
  > 0: {name: "John", id: 1001}
  > 1: {name: "Mary", id: 1002}
  > 2: {name: "David", id: 1003}
  length: 3
  > __proto__: Array(0)
```

The screenshot shows a web browser window with the Google homepage loaded. At the top, there is a search bar and a navigation bar with various bookmarks like 'Cyberport Bootca...', 'Blockchain', 'NLP and Chatbot', etc. Below the search bar is a toolbar with icons for Gmail, Images, and other utilities.

The main content area features the classic Google logo. Below it is another search bar. The bottom of the page contains the standard Google footer with links to 'About Google', 'Privacy', 'Terms', and 'Help'.

The browser's developer tools are open, specifically the 'Console' tab. On the left side of the console, there is a sidebar with various log levels and counts: 6 messages, 1 user message, 0 errors, 2 warnings, 2 info, and 2 verbose. The main pane shows the following log entries:

```
> 17:40:25.934 students.push[student2];
< 17:40:25.939 undefined
> 17:40:28.751 students.push[student3];
< 17:40:28.756 undefined
> 17:40:31.102 students.push[student3];
< 17:40:31.107 undefined
> 17:40:37.113 students
< 17:40:37.116 []
    length: 0
    > __proto__: Array(0)
> 17:41:33.699 students;
< 17:41:33.705 []
> for (i = 0; i<4; i++) {document.write(students[i].name + "/" + students[i].id + "<br>");}
```

A red rectangular box highlights the final line of code in the log: `> for (i = 0; i<4; i++) {document.write(students[i].name + "/" + students[i].id + "
");}`.

User Name:	<input type="text"/>
Password:	<input type="password"/>
<input type="button" value="Send"/>	

Student Id:	<input type="text"/>
student ID	
Student Name:	<input type="text"/>
student Name	

Student List

Student ID:1111

Student Name: John Yu

demo4.html

**Output without popup:
innerHTML**

Home page

Home Page

Simple Demo of JavaScript and JQuery

Welcome to HTML/CSS/JS play

This is a simple demonstration of JavaScript and JQuery providing the simple CSS styling.

X + Y = ?

Another X + Y = ?

Change Text Color of Welcome Message

Hide H2 text

Show H2 text in blue

Enter first number:

Enter second number:

demo5.html

Class Presentation (December 5th)

- a. Prepare a **5 min** in-class presentation of your website, stating its intended problem to be solved.**
- b. Highlight the **features** in the solution that address the problem and surpass the competition.**

Final Report + Prototype (December 16th)

- a. Create at least **two** event listeners, which trigger JavaScript functions needed to validate critical **UX/UI tasks** in your early adopters' onboarding journey.
- b. Use **event listeners** to track the buttons, div, link, or, image being pressed to trigger event handler functions to evaluate what are important to the users to **improve usability measures**.
- c. This will be used in the A/B test of **assignment #10**.

- d. Enhance your prototype with **data visualisation features**.
- e. Test with 5 users to obtain feedback on your improved design.
- f. Conduct an **A/B test** (with one variant) using Google Optimize and **share your results** with me.

- g. Integrate relevant works from your previous assignments into your final project (**report + prototype**).
- h. Separate your report into **four** major sections (problem background, requirements, design and test/evaluation) with sub-sections in each for elaborating the development of your ideas from problem definition to solution provision and evaluation.
- i. The evaluation sub-section should include usability and A/B tests results and **recommendations** about conducting further development and market studies (i.e. subjects for next term) to turn the prototype into a sustainable product.

Thanks for joining me today!