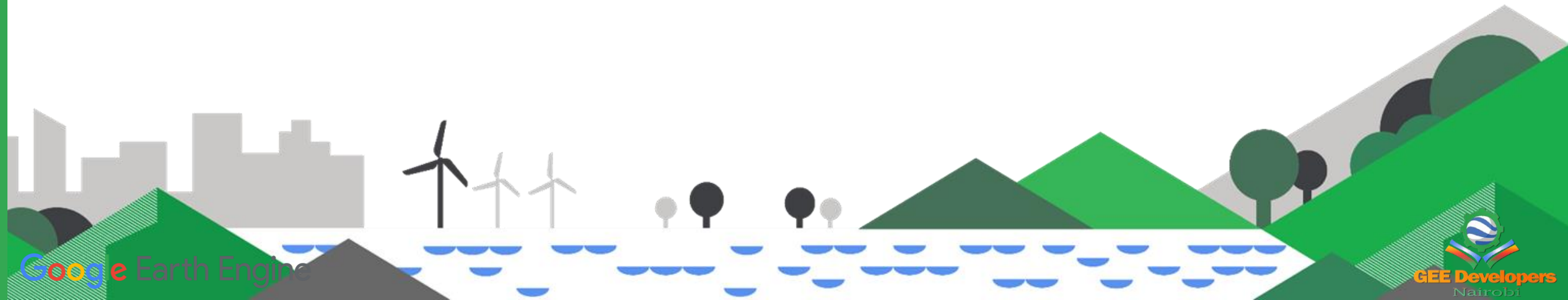


Earth Engine Coding Basics

Google Earth Engine Developer Community Nairobi

October 10th 2023 ||



Agenda

1. Intro to EE API
2. Benefits of EE API
3. EE Popular Supported APIs
4. Java Script Syntax
5. Java Script variable declaration

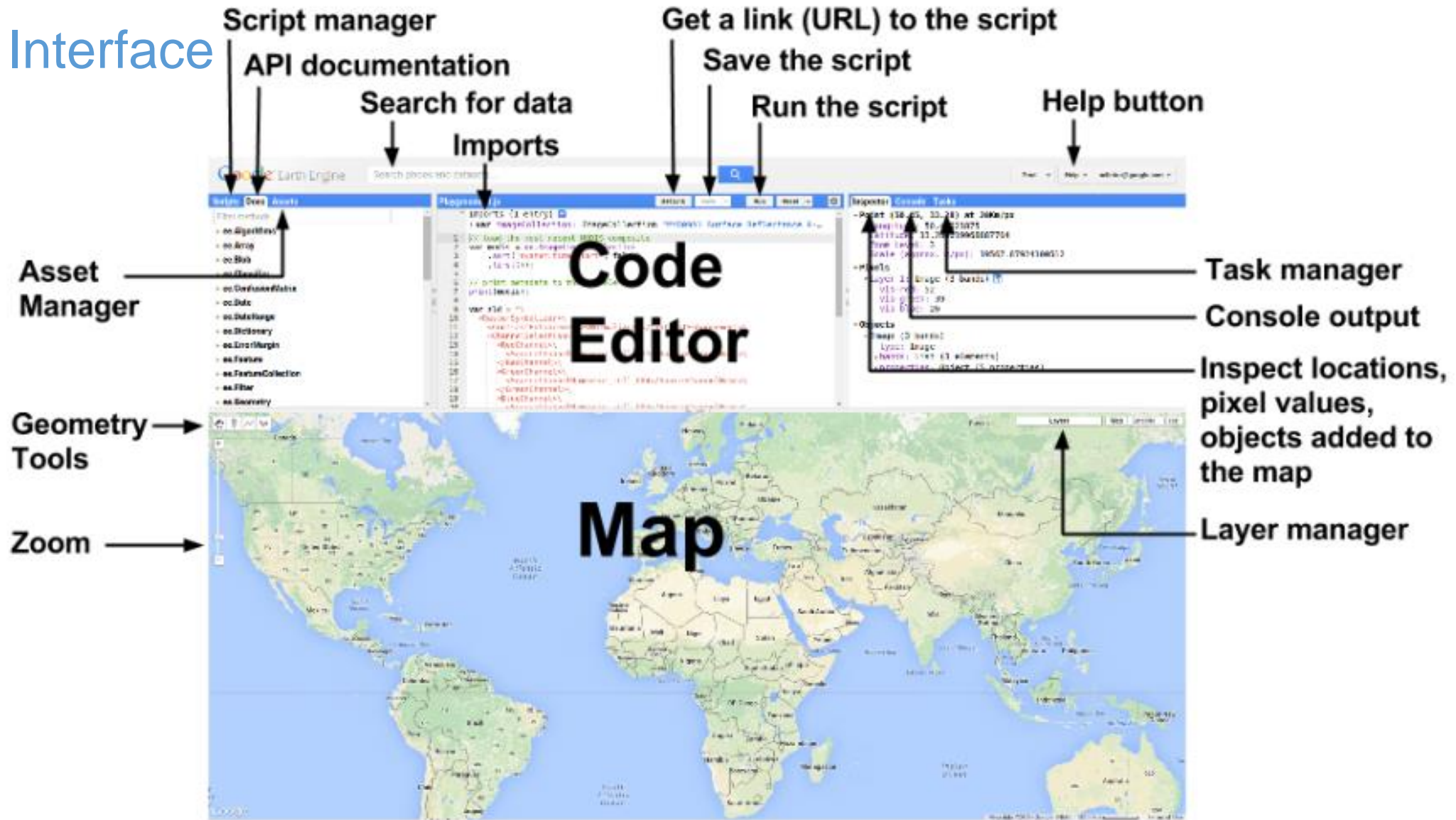
Intro to EE API

- Google Earth Engine - is a cloud-based platform for scientific data analysis.
- Provides ready-to-use, cloud-hosted datasets and a large pool of servers.

Benefits

- Earth Engine API has high ability to run large computations very fast by distributing them across a large pool of servers.
- The ability to efficiently use cloud-hosted datasets and computation is enabled by the Earth Engine API.

EE Interface



What's an API

An API is a **way to communicate with Earth Engine servers** - It allows you to specify what computation you would like to do, and then to receive the results.

- -It's designed to relieve users stress of understanding the backend computation **distribution** across a cluster of machines.
- -Users of the API simply specify what needs to be done and the rest is magic in Google Cloud.

Why use an API

- -Simplifies the code by hiding the implementation detail from the users.
- -Makes Earth Engine very approachable for users who are not familiar with writing code.

Client Libraries to use in EE API

- -Google provides official client libraries to use the API from both **JavaScript** and **Python**.
- -Earth Engine API remains largely the same regardless of the programming language you use.
- The main difference is the syntax used to call the API functions. Once you learn the syntax for programming languages, your code can be adapted easily because they all use the same API functions.

JavaScript API- It's the most mature and easiest to use when getting started.

The screenshot displays the Google Earth Engine web interface. At the top, the 'Google Earth Engine' logo is on the left, and a search bar with the text 'Search places and datasets...' is in the center. On the right, there's a user profile icon and the username 'ee-geedevsnairobilearning'.

Below the header, the interface is divided into several panels. On the left, the 'Scripts' panel shows a list of scripts with a 'NEW' button and a refresh icon. The 'Docs' and 'Assets' tabs are also visible. The main central area is titled 'New Script *' and contains a code editor with the following JavaScript code:

```
1
2
3 // Print Hello GEE Devs Community Nairobi
4
5 print ('Hi GEE Devs Community Nairobi, This is our first EE Class!')
```

At the top of the code editor, there are buttons for 'Get Link', 'Save', 'Run', 'Reset', and 'Apps'. To the right of the code editor is the 'Inspector' panel, which shows the output of the script: 'Hi GEE Devs Community Nairobi..'. Above this output, there's a message: 'Use print(...) to write to this console'.

At the bottom of the interface is a map of Nairobi, Kenya, showing various neighborhoods like Lavington, Kilimani, Upper Hill, and Industrial Area. The map is centered on Nairobi, with the Nairobi Expressway visible. The map controls on the left include a hand icon for panning, a location pin, a scale bar, and a zoom in/out button.

Java Script Variables and Definition

- **Variables** used to store data values.
Are defined using **var** keyword followed by the name of the variable name.
Text string in the code should be surrounded by either double or single quotes and they must match at the beginning and end of each string.
In your programs, it is advisable to be consistent

```
// First Print
print ('Hi GEE Devs Community Nairobi, This is our first EE Class!');

// Define variables and assigning string values
var Community = 'GEE Nairobi';
print(Community);

// Assigning numeric values
var EventsDone = 102;
print(EventsDone);

// Define Lists are written using the Square brackets and can hold multiple values
var GEEDevsEventTypes = ['Expert_Talks', 'Hands-on', 'Bootcamp Class'];
print (GEEDevsEventTypes);
```

JavaScript Objects

JavaScript Objects allow you to store key-value pairs - each value can be referred to by its **key**.

- -You can create a dictionary using the curly braces {}.
- -Let's try to create City Information dictionary.

```
var geeDevs = {  
  'Community': Community,  
  'Subscribers': 1200,  
  'Events': 102,  
};  
print(geeDevs);
```


JavaScript Comments

Single Line Comment: Done using double back slash

```
// This is how we comment a single line
```

Multi-Line Comment: Done using Slash and asterisk symbol

```
/* This paragraph is a multiline commend
```

```
The next line starts here
```

```
Then we can add another line here
```

```
*/
```

Participate in an Earth Engine Class Exercise

Scan the QRCode to test your understanding

Or

Follow the link



<https://tinyurl.com/2tucfmcs>

Thank you!

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Data Scientist

Resources

Eefabook.org

<https://www.eefabook.org/>

Spatialthoughts

<https://courses.spatialthoughts.com/end-to-end-gee.html>

EE Beginner's Cookbook

<https://developers.google.com/earth-engine/tutorials/community/beginners-cookbook>

