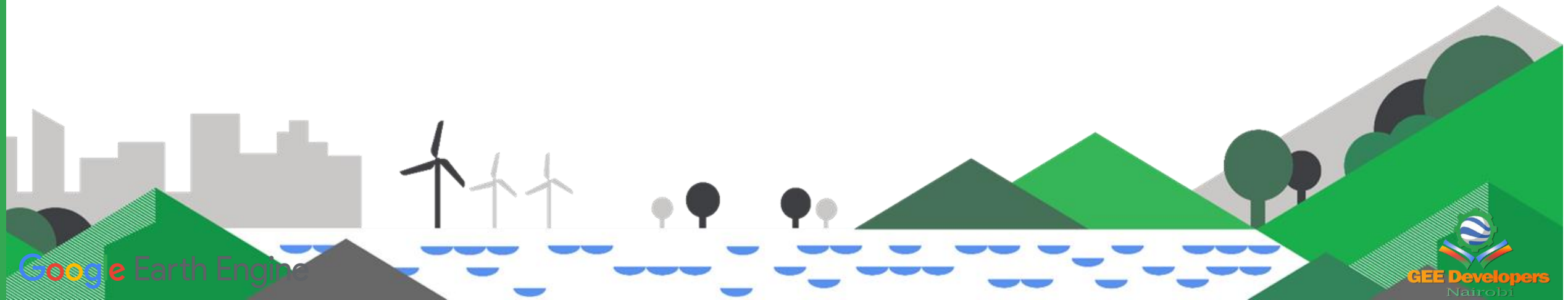
Earth Engine Coding Basics

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

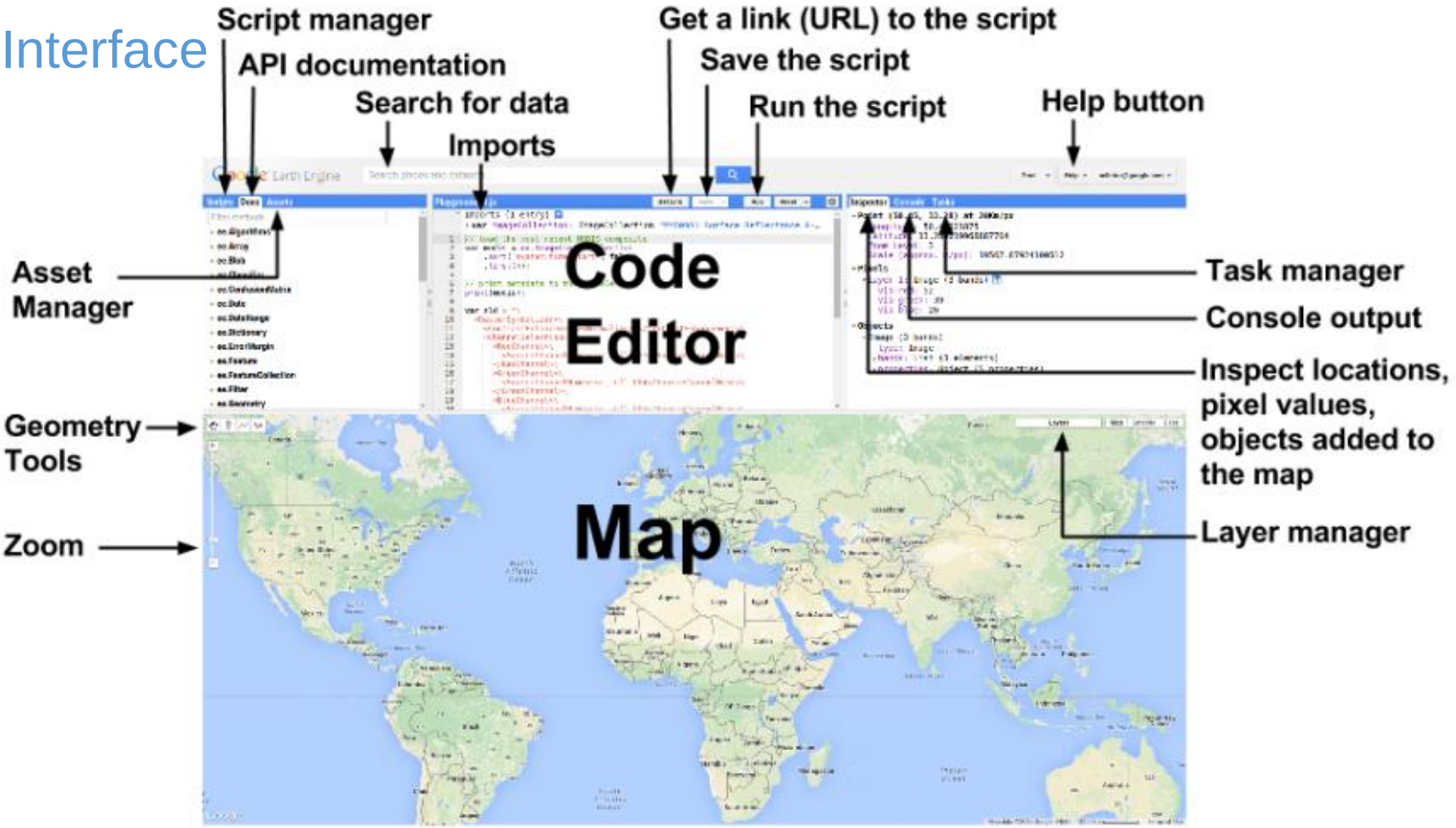
Intro to EE API

- 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 relief 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.

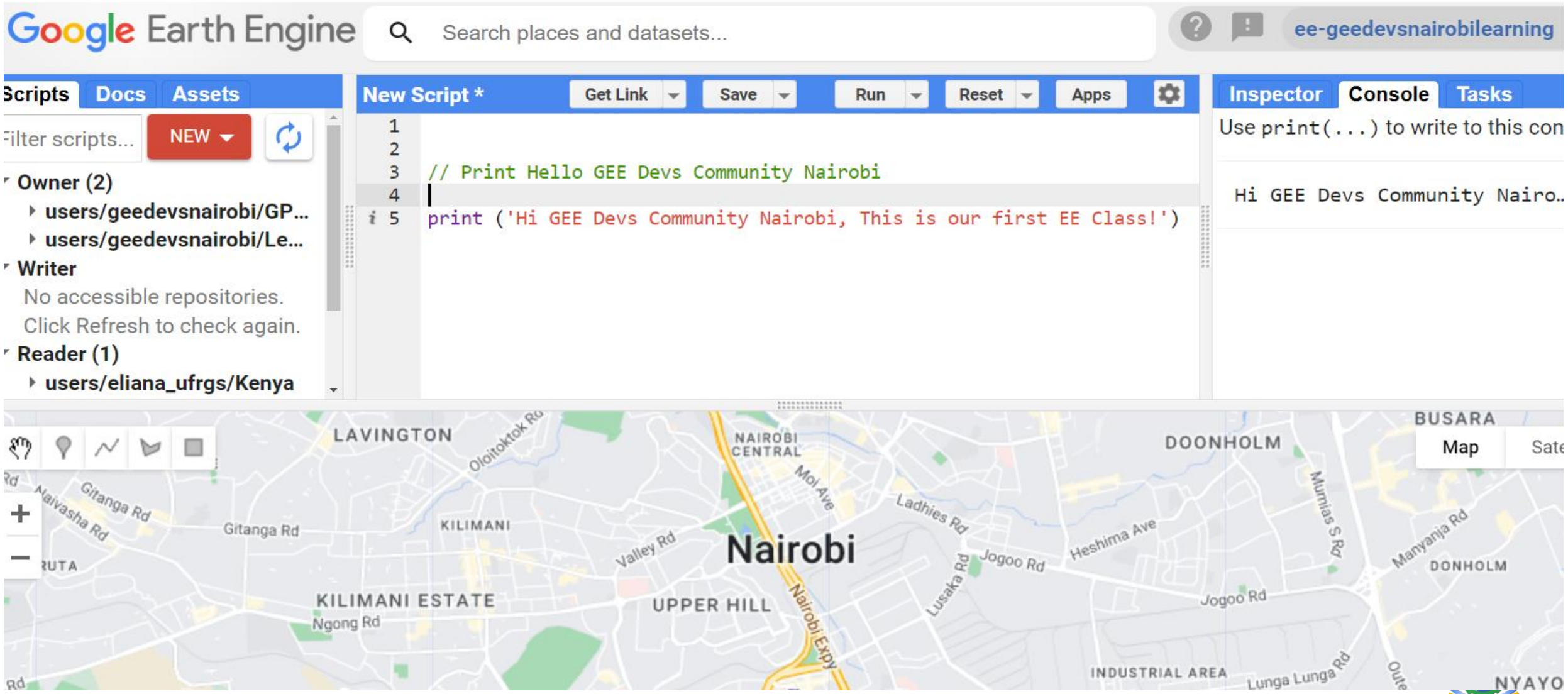
Why use an API

- -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.

Java Script API- It’s the most mature and easiest to use when getting started.



Java Script Varables 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 writen using the Squre 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

Google Earth Engine

GEE Developers Nairobi

Thank you!

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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