INDIAN INSTITUTE OF REMOTE SENSING, DEHRADUN

QGIS customization using Python

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9/22/2022

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QGIS
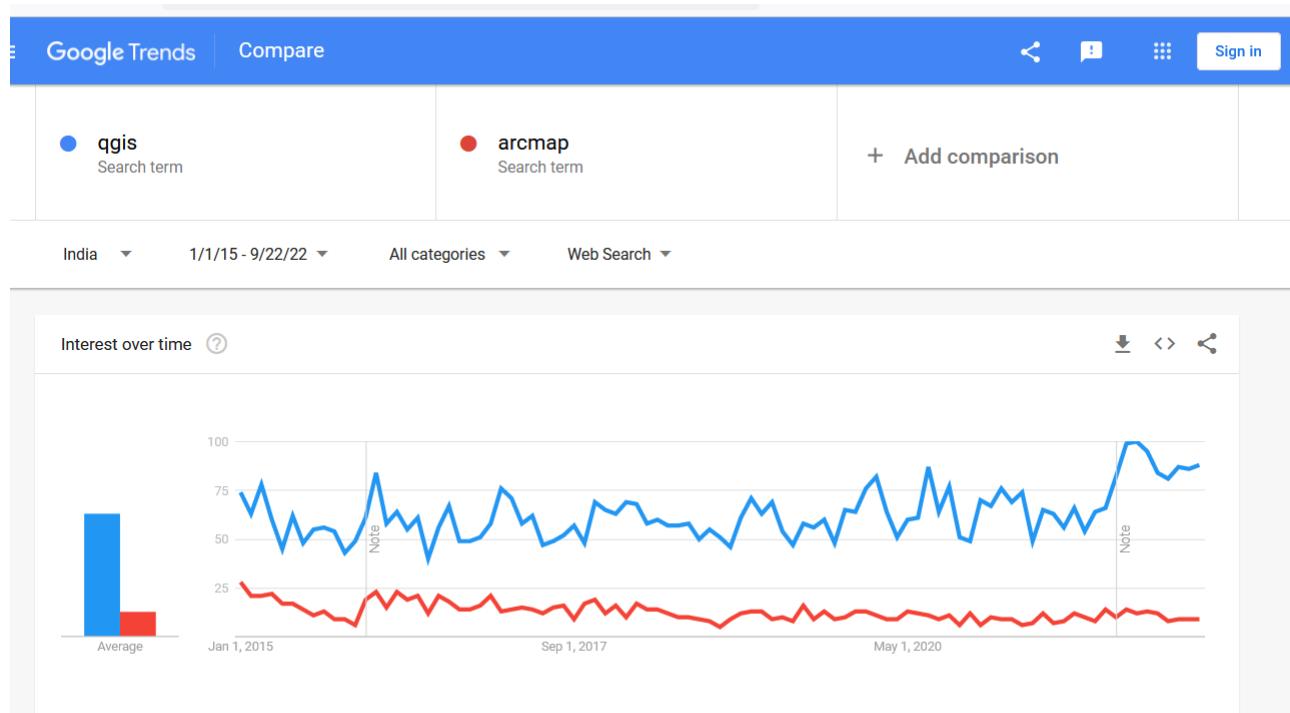
- Create, edit, visualise, analyse and publish geospatial information on Windows, Mac, Linux and mobile devices

- For your desktop, server, in your web browser and as developer libraries

- FOSS4G (Free and Open Source Software For Geospatial)

- GNU GPL (General Public License)

- A software that can display, compose, edit, export and analyze geospatial data and maps

- Supports raster and vector layers
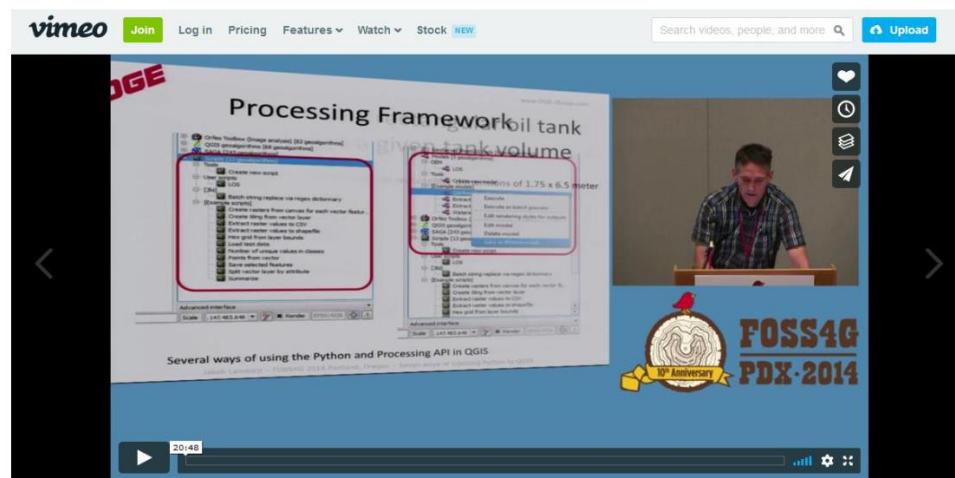
Python in QGIS

- Python is a great versatile programming language
- Widely used in the GIS world and beyond
- Enables you to be more efficient by automating workflows and making your work reproducible
- If you have installed QGIS, you already have a working installation of Python on your system.
- Launch QGIS and open the Python console (Plugins | Python console) - to check

https://vimeo.com/106874213

PyQGIS 101: Introduction to QGIS Python programming for non-programmers

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40 Comments

This tutorial aims to help GIS users to get started with Python programming for QGIS 3. In contrast to many tutorials out there, the idea is to **not assume any previous programming knowledge**.

If you found this tutorial on your own, you probably won't require much external motivation to give this programming thing a go. (If you do, check out "Benefits of Learning Python".) Python is a great versatile programming language that is widely used in the GIS world and beyond. Knowing how to program will enable you to be more efficient by automating workflows and making your work reproducible.

Unlike many introductions to Python, this one does not start with an installation and setup guide. Why? Because if you have installed QGIS, you already have a working installation of Python on your system. All you need to get started is to launch QGIS and open the Python console (Plugins | Python console).
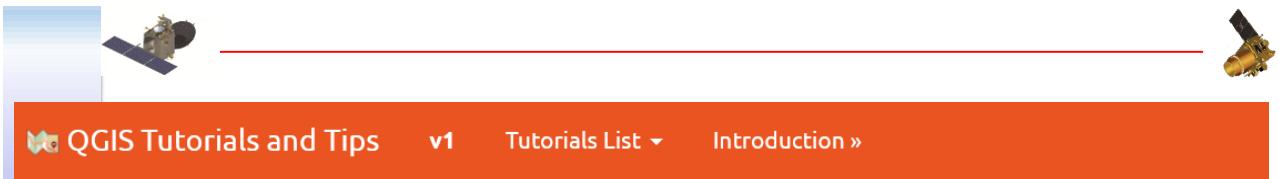
If you are looking for a more classical introduction, I strongly recommend Gary Sherman's PyQGIS Programmer's Guide.

Contents

1. Hello world!
2. Loading a vector layer
3. Viewing vector layer attributes
4. Filtering features
5. Styling vector layers
    a. Advanced point layer styling
6. Loading a raster layer
7. Running Processing tools
8. Exporting layouts
9. Creating & editing a new vector layer
10. Chaining Processing tools
11. Managing project layers (renaming & removing)
12. Using expressions to compute new field values
13. Creating functions to load GeoPackage layers
14. Writing a Processing script

This is a work in progress. I'd appreciate any feedback, particularly from beginners!

https://anitagraser.com/pyqgis-101-introduction-to-qgis-python-programming-for-non-programmers/

QGIS Tutorials and Tips   **v1**   Tutorials List ▾   Introduction »
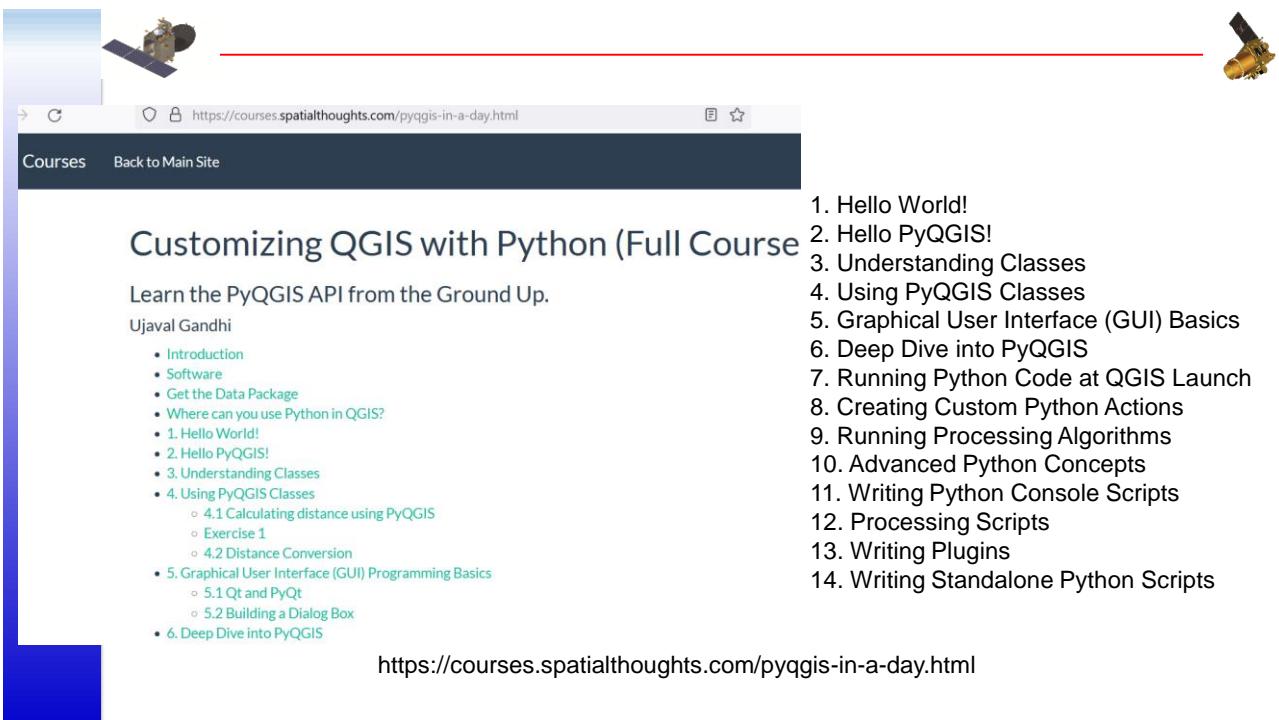
Author

Ujaval Gandhi

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Want to learn QGIS in a structured way?

- **Python Scripting (PyQGIS)**
  - Getting Started With Python Programming (QGIS3)
  - Running Processing Algorithms via Python (QGIS3)
  - Using Custom Python Expression Functions (QGIS3)
  - Writing Python Scripts for Processing Framework (QGIS3)
  - Building a Python Plugin (QGIS3)
  - Building a Processing Plugin (QGIS3)
  - Running and Scheduling QGIS Processing Jobs

http://www.qgistutorials.com/en/

Courses   Back to Main Site

https://courses.spatialthoughts.com/pyqgis-in-a-day.html

Customizing QGIS with Python (Full Course

Learn the PyQGIS API from the Ground Up.

Ujaval Gandhi

- Introduction
- Software
- Get the Data Package
- Where can you use Python in QGIS?
- 1. Hello World!
- 2. Hello PyQGIS!
- 3. Understanding Classes
- 4. Using PyQGIS Classes
  - 4.1 Calculating distance using PyQGIS
  - Exercise 1
  - 4.2 Distance Conversion
- 5. Graphical User Interface (GUI) Programming Basics
  - 5.1 Qt and PyQt
  - 5.2 Building a Dialog Box
- 6. Deep Dive into PyQGIS

1. Hello World!
2. Hello PyQGIS!
3. Understanding Classes
4. Using PyQGIS Classes
5. Graphical User Interface (GUI) Basics
6. Deep Dive into PyQGIS
7. Running Python Code at QGIS Launch
8. Creating Custom Python Actions
9. Running Processing Algorithms
10. Advanced Python Concepts
11. Writing Python Console Scripts
12. Processing Scripts
13. Writing Plugins
14. Writing Standalone Python Scripts

https://courses.spatialthoughts.com/pyqgis-in-a-day.html

QGIS-Python programming

This repository contains an introductory course about using Python in QGIS.

It is based on QGIS 3. If you want to use QGIS 2 instead, check the qgis2 branch of the repository
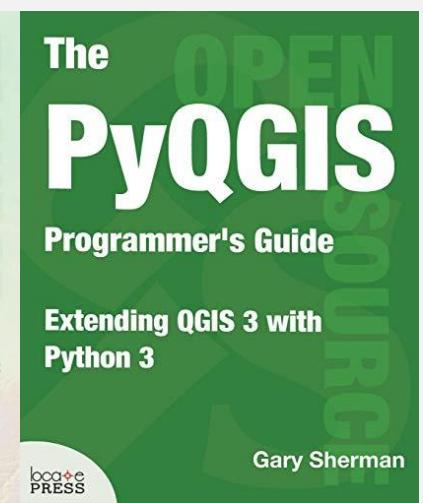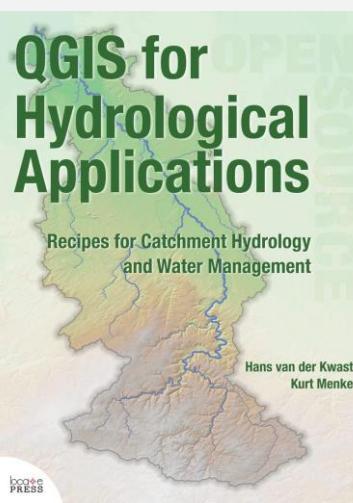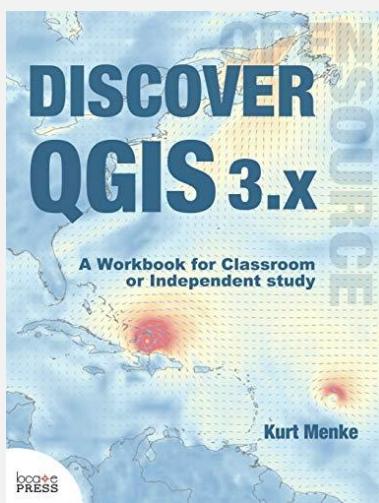
Content

- Understanding Python and QGIS. A brief introduction to how Python is installed within QGIS.
- The QGIS and PyQt APIs. You need to know how to use these APIs before you can write Python code to be run within QGIS.
- The Python console. The first place to start exploring the QGIS API.
- Expressions. How to create a custom Python expression and later use it in different places in QGIS.
- Custom Python actions. React to user interaction in the canvas or attributes table.
- Maptips. Custom behaviour of map tips using QGIS expressions with Python functions.
- Macros. Executing Python code to respond to QGIS events.
- Processing algorithms. In case the user needs to add analysis functionality, the best way to do it is to add a Processing algorithm.
- Creating plugins. How to create QGIS plugins that can be later distributed and installed in other QGIS instances.

https://github.com/volaya/qgis-python-course

Books

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Time for some hands-on using Python

Thank You

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