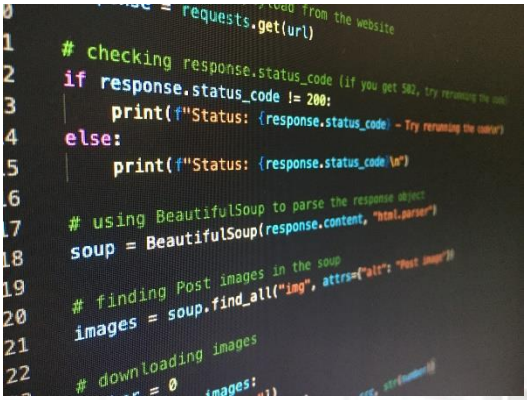
AC203 - GIS Programming with Python, JavaScript & jQuery Course

Course Duration: 7 Days
Training Fee: KSH 56,000 | USD 560
Course Registration: **Register Here>>**

1.0. Introduction



The diversity of programming languages and tools being used in GIS (in general in the Geospatial industry) today is truly staggering. Python has been a standard language in GIS because ESRI and open source tend to gravitate toward it. It allows automation of workflows and repetition of redundant tasks, which helps to save plenty of time and money. JavaScript is undoubtedly one of the core languages of the web. It has popular use in Web GIS, with its capabilities being used to develop core applications being used in GIS such as ArcGIS Web APIs, MapBox, CARTO, Google Maps API, OpenLayers, Leaflet, the list can go on. jQuery is a JavaScript Library which greatly simplifies JavaScript programming. In general, knowledge and competence in programming is an essential skill set and a critical requirement for most Geospatial job opportunities these days. These languages are easy to learn, good at data manipulation, and has many useful libraries that are apt or could be easily adapted for geospatial analysis.

1.1. Course Overview

This course introduces building blocks needed to use Python. You will create and run scripts using these building blocks, and you can apply them directly inside of ArcGIS and to your own workflows. Learners will also be introduced to the mapping tools/functions available through the JavaScript API produced by ESRI.

1.2. Course Objectives

- Determine where to write and run a Python script.
- Differentiate Python language elements and determine where to apply them.
- Develop a Python script to run statements and functions.
- Solve common syntax errors.
- Get started on ArcGIS APIs using JavaScript and Python.

1.3. Course Content/Outline

i. Introduction to Python for GIS

– What is Python? Python language fundamentals; Syntax; Comments; variables; Data Types; Functions; Scripting.

- Exploring and manipulating spatial data, working with geometries and rasters, map scripting, debugging and error handling, creating functions and classes, and creating and sharing script tools.
- Introduction to ArcPy; Handling Python and ArcPy Extension; Debugging your scripts; Using Describe Objects; Automating Scripts with Python Lists; Creating and updating data with Cursor objects; Automating Map Production with ArcPy Mapping Module, ArcPy and Vector Processing; ArcPy potpourri; ArcPy and NumPy
- Use Python to geocode addresses and place them on a map; manipulating the map.
- Running your scripts in ArcToolbox; Creating and updating Geometry Objects; Manipulating data schema and working with subsets of Data;
- Place the results of your spatial analysis into chart or graphs using Python.

ii. Introduction to JavaScript for GIS

- JS Introduction, syntax; Variables; Operators; data Types; Functions; Objects; Numbers; Loops, etc.
- ArcGIS API for JavaScript: Analytics; Directions and Routing; Editing; Geocoding; Image layers; Maps; Renderers; Query and select; Mobile etc.
- Introduction to jQuery; jQuery Introduction; What is jQuery; Syntax; Effects; References; Examples.

1.4. Case Study: Developing a Web Mapping Application for Mombasa City using Python and JS.

1.5. Expected Outcomes

At the end of this course, learners should

- To understand the importance of programming in GIS using Python scripts
- Be proficient in performing basic spatial analyses using Python Scripts
- Be proficient in creating simple interactive web Maps using JavaScript

1.6. Training Material (Hardware and Software)

i. A laptop or a PC
ii. QGIS/ArcGIS
iii. Python Console
iv. JavaScript etc.

1.7. Who Should attend

- GIS/Geospatial Students
- Web Developers
- Entrepreneurs
- Geographers
- GeoICT experts
- eCommerce persons etc.