

Hunter College Open Data Showcase



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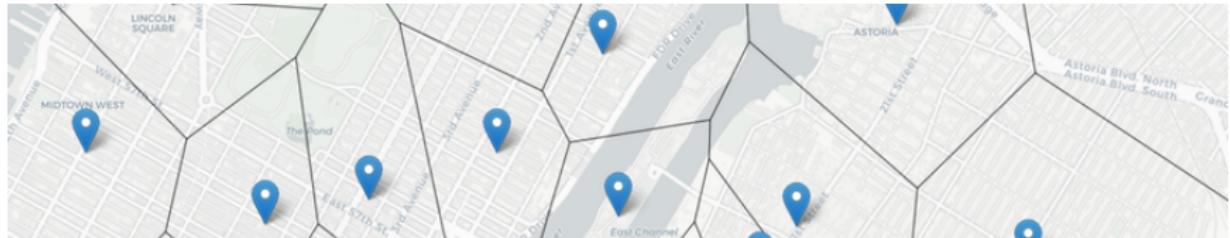
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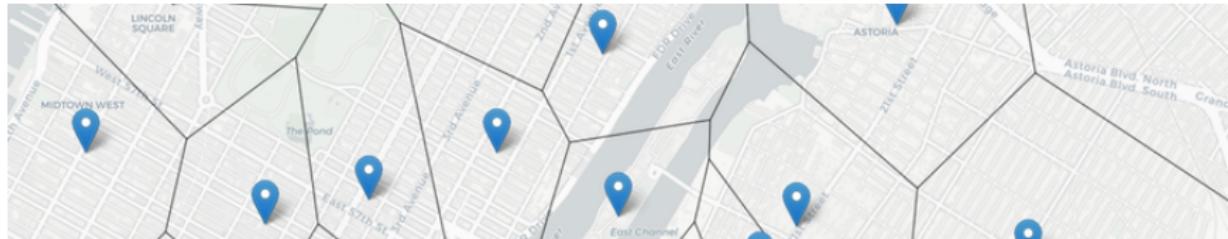
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 - ▶ explore NYC OpenData,
 - ▶ see how much fun Python is,
 - ▶ interact with our fabulous computer science students.

Hunter College Open Data Showcase



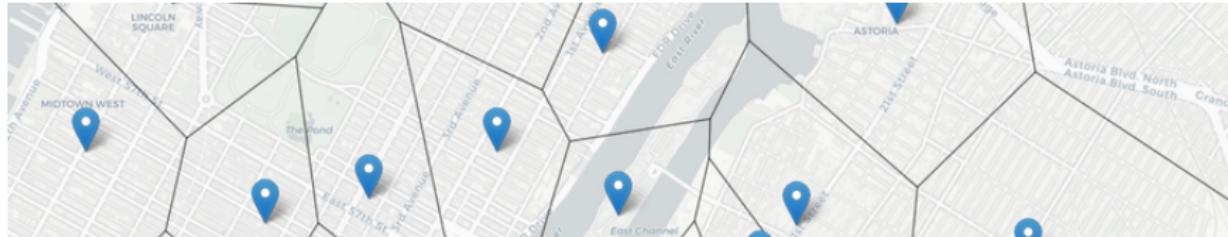
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Hunter College Open Data Showcase



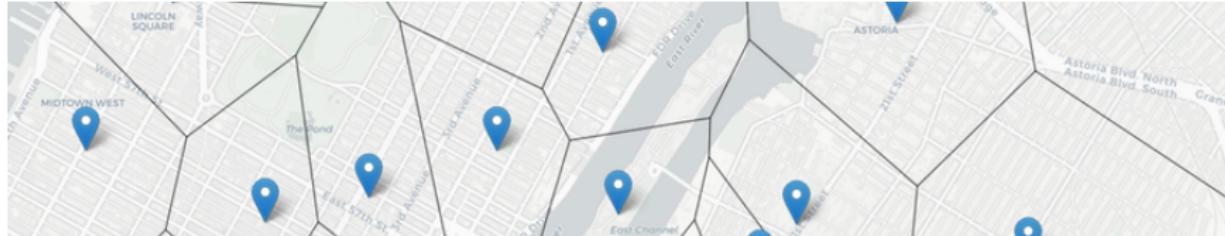
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- Getting started with Python: GIS data of NYC libraries,
- Using structured data: who gets the most parking tickets, and
- If time, making HTML maps of WIFI locations and 311 calls.

Introductions

Joint event:

- Hunter College Computer Science,
- Hunter College Undergraduate Admissions, and
- The Mayor's Office for Data Analytics.



Katherine St. John
Professor
Computer Science



William Sakas
Professor & Chair
Computer Science



Joe Fantozzi, Jr.
Deputy Director
Undergraduate
Admissions



Stewart Weiss
Professor
Computer Science



Dominic Mauro
Assistant General Counsel
NYC Dept of
Information Technology
& Telecommunications

Teaching Assistants & Volunteers



- We have over 600 computer science majors at Hunter College.

Teaching Assistants & Volunteers



- We have over 600 computer science majors at Hunter College.
- With us today: the amazing teaching assistants and volunteers are computer science majors and minors.

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- With us today: the amazing teaching assistants and volunteers are computer science majors and minors.
- Thanks to the Undergraduate Teaching Assistants Program and the Hunter Women in Computer Science Club!

Introductions: Your Turn



- Introduce yourself to two others (that you have not met before).
- If you are just arriving, you can exchange your ID for a computer. Access info on the table tents.

First Activity: Getting Started

The screenshot shows a Python code editor with a script named `main.py`. The code uses the `turtle` module to draw a purple circle at a specific location on a map of Manhattan. The map is titled "Result" and shows the New York City skyline with the word "MANHATTAN" visible. The code includes comments explaining the steps: scaling coordinates, setting up the screen, and drawing a turtle.

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main.py
1 # Mapping cities
2 import turtle
3
4 # A Function for scaling NYC coordinates to fit the map:
5 def scalePoints(lat,lon):
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- Using Python `turtle`: A simple, whimsical graphics package.

First Activity: Getting Started

The screenshot shows a Python code editor with a script named `main.py`. The code uses the `turtle` module to draw on a map of Manhattan. A purple dot is drawn at the coordinates (-73.964, 40.768), which corresponds to the Hunter College location. The map also shows the Empire State Building and the Apollo Theatre.

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- Plotting GIS coordinates

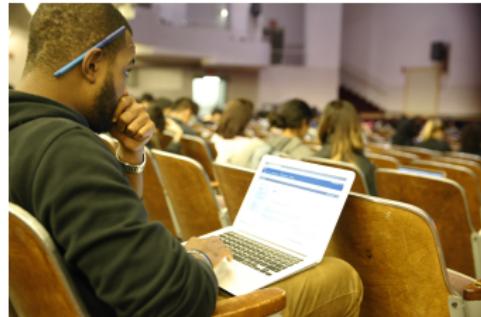
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- NYC OpenData: locations of libraries

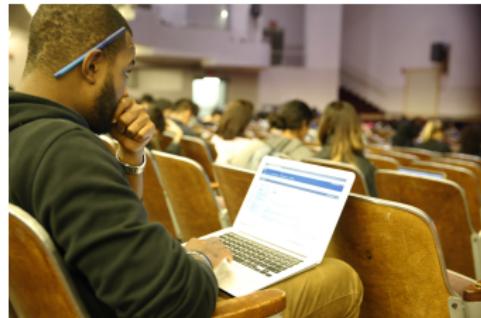
In Pairs or Triples: Getting Started



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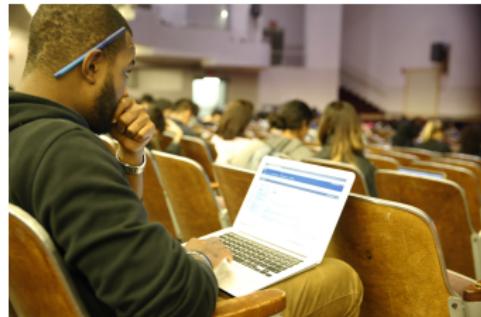
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- Launch browser (left hand menu).



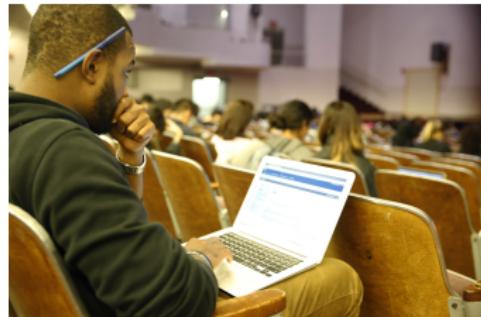
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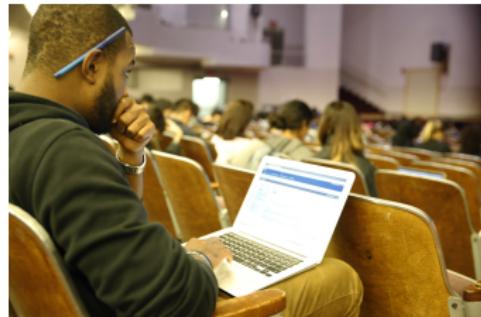


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In Pairs or Triples: Getting Started



- Login info on table tents.
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- First activity completely on-line.
- Alternate whose typing, so, all get a chance.
- Work at your own speed (all material is available on-line for later).

Recap: Python, Turtles, and OpenData

The screenshot shows a code editor window with a Python script named `main.py` on the left and its execution result on the right.

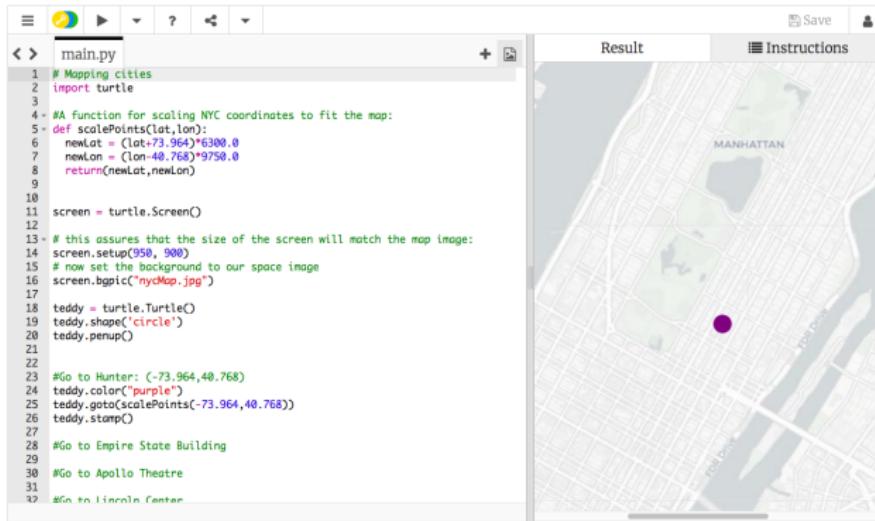
Code (main.py):

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Result: The execution result shows a map of Manhattan, New York City. A purple dot is placed on the map at the coordinates corresponding to Hunter College, located near the intersection of First Avenue and 8th Street.

- Wrote simple Python programs with the `turtle` package.

Recap: Python, Turtles, and OpenData

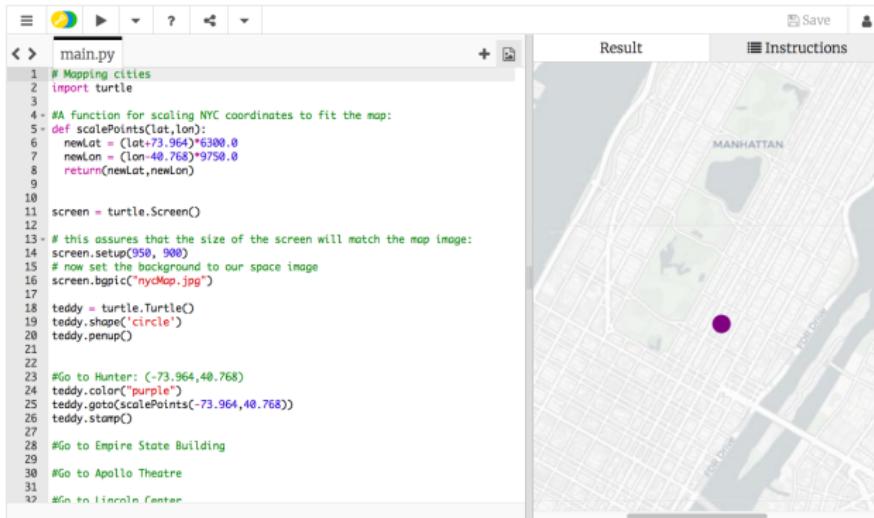


The screenshot shows a code editor with a Python script named `main.py` and a result window displaying a map of Manhattan. The code in `main.py` uses the `turtle` module to draw a purple circle at a specific coordinate on a map background.

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- Plotted GIS coordinates.

Recap: Python, Turtles, and OpenData



The screenshot shows a code editor window with a Python script titled "main.py". The script uses the "turtle" module to draw on a map of New York City, specifically Manhattan. It includes functions for scaling coordinates and plotting them as a purple circle. The resulting map shows the Manhattan grid with a purple dot located near the Empire State Building area.

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- Wrote simple Python programs with the `turtle` package.
- Plotted GIS coordinates.
- Used NYC OpenData library locations for the map.

Introduction to Python

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- Python is popular for its ease-of-use, flexibility, and extendibility.
- The next activity goes into step-by-step details of getting Python running locally.
- Then, it details using the popular data analysis package, pandas, with NYC OpenData (parking tickets).

Accessing Structured Data: NYC Open Data

Open Data for All New Yorkers

Where can you find public Wi-Fi in your neighborhood? What kind of tree is in front of your office? Learn about where you live, work, eat, shop and play using NYC Open Data.

Search Open Data for things like 311, Buildings, Crime

The slide features a blue background with white text and icons. It includes a call-to-action button for searching open data and a row of four diverse human silhouettes at the bottom. A cluster of speech bubble icons above the silhouettes represents various data categories.

- Freely available source of data.

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- Maintained by the NYC data analytics team.

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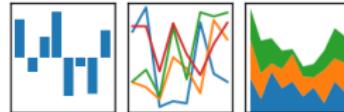
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Structured Data

pandas

$$y_{it} = \beta' x_{it} + \mu_i + \epsilon_{it}$$

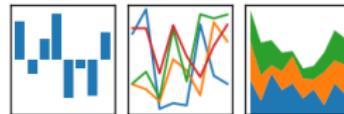


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Hands-On Acticity: Parking Tickets



- Using Python locally.



Hands-On Acticity: Parking Tickets



- Using Python locally.
- Accessing NYC OpenData.



Hands-On Acticity: Parking Tickets



- Using Python locally.
- Accessing NYC OpenData.
- Using the pandas (data analysis) library.



Hands-On Acticity: Parking Tickets



- Using Python locally.
- Accessing NYC OpenData.
- Using the pandas (data analysis) library.
- Who get the most parking tickets?

OpenData & Open Source Initiatives at Hunter



- Hunter is a leader in incorporating NYC OpenData and open source software into the curriculum.

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- Hunter is a leader in incorporating NYC OpenData and open source software into the curriculum.
- Part of the Teaching Open Source Initiative.

folium

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- Outputs .html files which you can open in a browser.
- An extra step:

Write code. → *Run program.* → *Open .html in browser.*

Hands-On Acticity: HTML Map of WIFI Locations



- Using the `folium` mapping package.



Hands-On Acticity: HTML Map of WIFI Locations



- Using the `folium` mapping package.
- Accessing NYC OpenData.



Hands-On Acticity: HTML Map of WIFI Locations



- Using the `folium` mapping package.
- Accessing NYC OpenData.
- Make an interactive map of WIFI locations in NYC.

Thank You for Joining Us!



Interested in knowing more?

- We analyze OpenData from our very first courses.

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