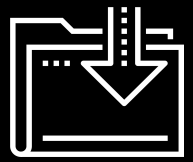
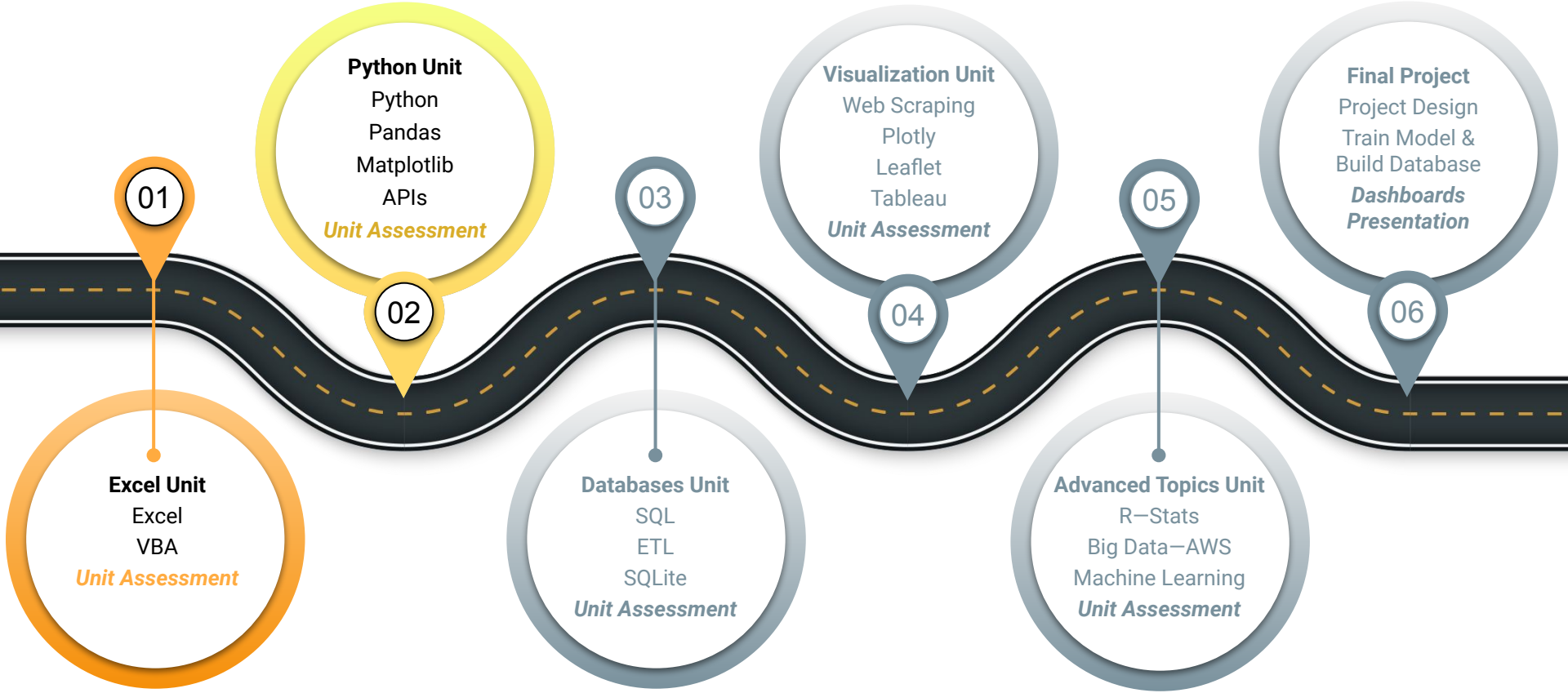
Python APIs

Data Boot Camp

Lesson 6.2



The Big Picture



Module 6

This Week: Python APIs

Module 6

Today’s Agenda

This Week: Python APIs

By the end of this week, you'll know how to:

- Perform tasks and write functions using new Python libraries and modules
- Retrieve and use data from an API "get" request to a server
- Retrieve and store values from a JSON array
- Use `try-except` blocks to resolve errors
- Create scatter plots using the Matplotlib library, and apply styles and features to a plot
- Perform linear regression, and add regression lines to scatter plots
- Create heatmaps and add markers using the Google Maps API

This Week's Challenge

Using the skills learned this week, add features to an existing weather application to allow users to enter input statements to filter data, create travel itineraries, and more.

Today’s Agenda

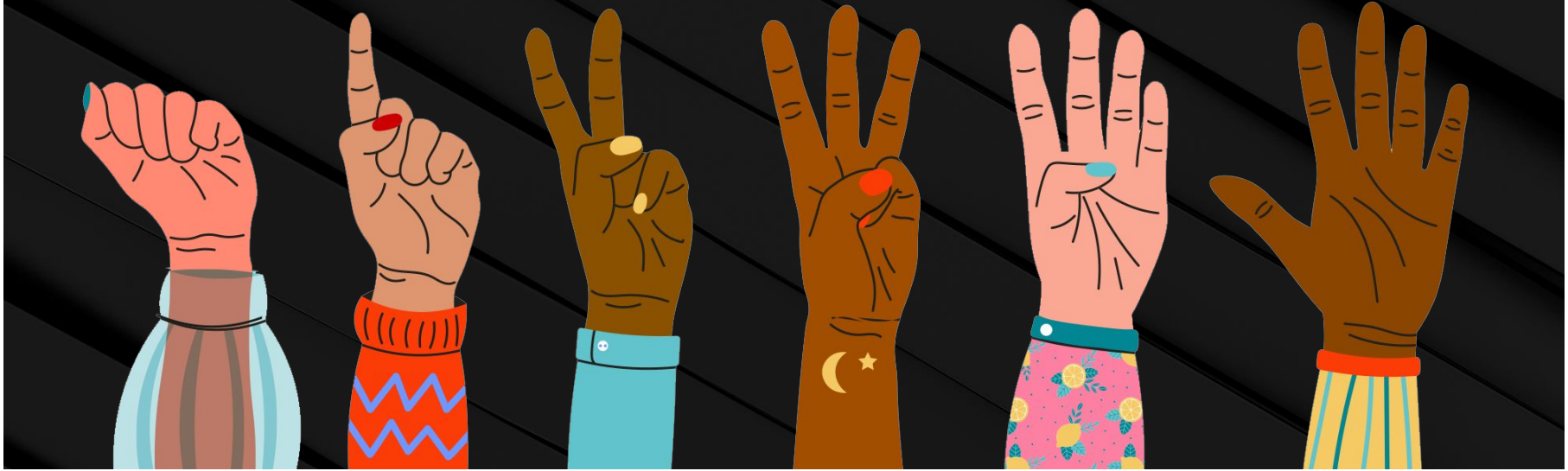
By completing today’s activities, you’ll learn the following skills:

01 Google Maps API

Make sure you’ve downloaded any relevant class files!

FIST TO FIVE:

How comfortable do you feel with this topic?



Time to Code

Google Maps API

Suggested Time:

10 minutes

Instructor Demonstration

Google Geocode

Remember: Printing the URL will also expose your key

Google Geocode

- Run a Python request on the URL.
- Explore the resulting JSON in a pretty-printed format.
- Extract the desired components of the JSON: the latitude and longitude.
- Format the results for printing.

%s can be used to substitute a string variable.

Questions?

Instructor Demonstration

Google Places

Google Places

Nearby Search: Searches for places within an area

```
https://maps.googleapis.com/maps/api/place/nearbysearch/output?parameters
```

Text Search: Returns info about a set of places based on a string

```
https://maps.googleapis.com/maps/api/place/textsearch/output?parameters
```

Place Search: Searches for place information based on category

```
https://maps.googleapis.com/maps/api/place/findplacefromtext/output?parameters
```

Activity: Google Drills

In this activity, you will make calls to both the Google Places and Google Geocoding APIs.

Suggested Time:

15 minutes

Questions?

Pandas with the Google API

During the last class, we learned how to make multiple queries and handle missing data using `try-except` and list comprehension

Instructor Demonstration

Nearest Restaurants

Activity: Google Complex (Airport)

In this activity, you will be tasked with obtaining the user rating for every airport in the top 100 metropolitan areas. You will be given a list of airports and cities, and will need to use the Google Geocoding API and Google Places API to obtain the rating information.

Suggested Time:

15 minutes

Time’s Up! Let’s Review.

Jupyter Gmaps

Gmaps is a plugin for Jupyter that allows users to embed Google maps directly into their notebooks.

Jupyter Gmaps

This grants the ability to visualize multiple layers of data and to customize the appearance of the map.

In [27]:
```
marker_locations = [
    (-34.0, -59.166672),
    (-32.23333, -64.433327),
    (40.166672, 44.133331),
    (51.216671, 5.0833302),
    (51.333328, 4.25)
]

fig = gmaps.figure()
markers = gmaps.marker_layer(marker_locations)
fig.add_layer(markers)
fig
```

Time to Code

Jupyter Gmaps

Suggested Time:

10 minutes

Activity: Hot Airports

In this activity, you will be tasked with creating a heat map based on the airport ratings obtained in a previous activity.

Suggested Time:

15 minutes

Time’s Up! Let’s Review.

Creating Direction Maps

Google's Directions API allows us to plot routes on maps.

Time to Code

Itinerary

Suggested Time:

15 minutes

Questions?