Microsoft

REST APIs

Jan-Hendrik Peters, Microsoft
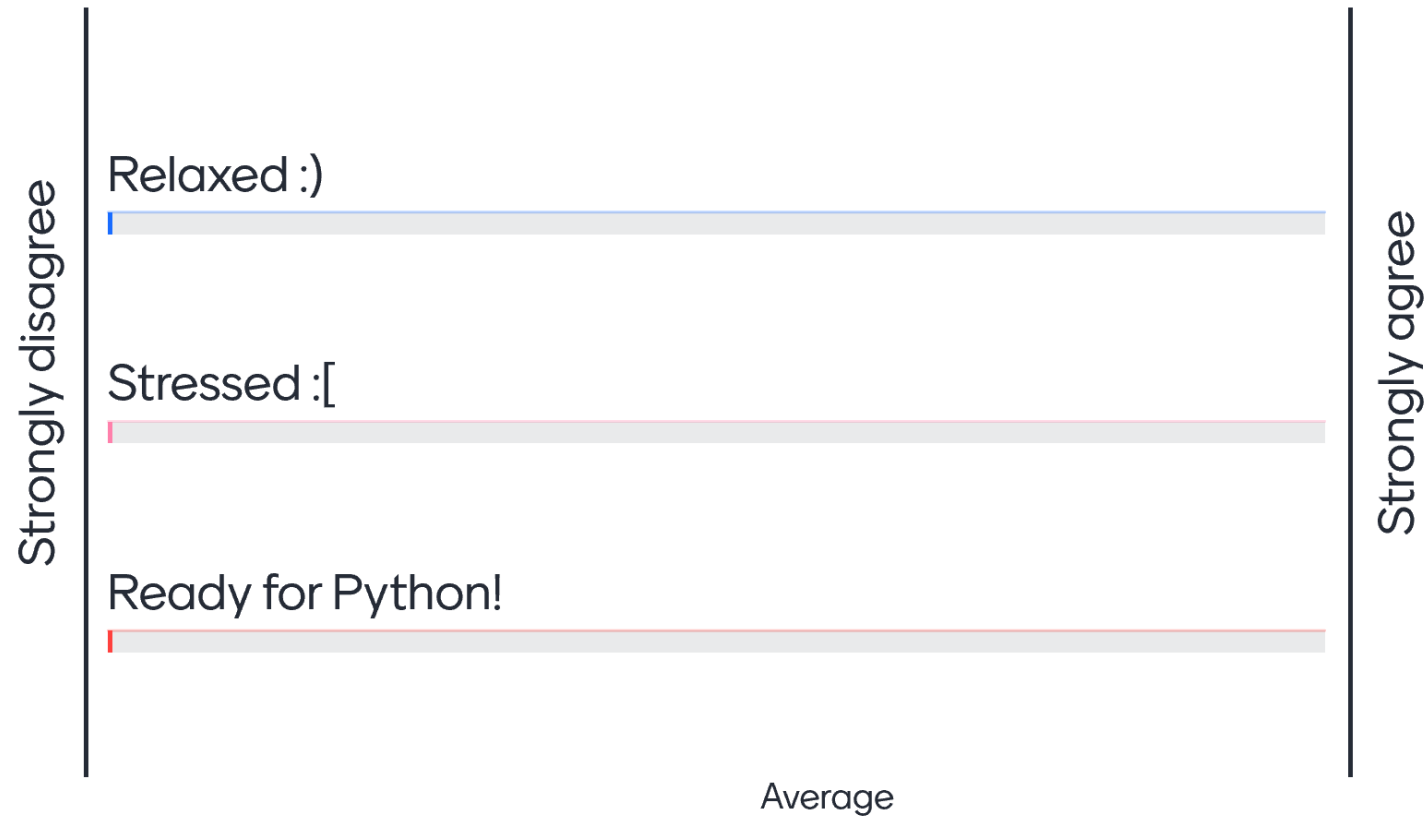
Agenda

What, and more important: Why?

How?

Mentimeter

How are you?

Strongly disagree

Relaxed :)

Stressed :[

Ready for Python!

Strongly agree

Average

Query-String

UPDATE

DELETE

Header

HTTP

API

CRUD

REST

Body

Response

PATCH

JSON

PUT

URI

GET

Path

Request

What?

REST stands for
Representational
State
Transfer

Repre...what?

The status of a resource at a point in time is represented

REST is an architectural standard for HTTP

Based around resources

Typically a Client-Server-Model

Server "serves" data

Client "consumes" data

Supports common HTTP methods like Get, Update, ...

Commonly referred to as CRUD – Create, Read, Update, Delete

Repre...what?

Resources are referenced by its URI (Uniform Resource Identifier)

Resources can have different representations

- Text
- XML
- JSON

REST is stateless

- Each request contains the necessary data

Being stateless, REST APIs can scale very well

API?

API stands for Application Programming Interface

APIs are ideal to connect different tools

    Compared to Python, APIs behave like modules

    APIs offer ways of interacting with objects

APIs are usually used to control access to resources

    Often, APIs support role-based access control

    Possibly even more often, APIs opt to use a pre-shared key, or API key instead

APIs are ubiquitous

    Cloud provider resources

    Operating System access from within programming languages

    Machine Learning and Artificial Intelligence services

    …

URI format

Resources are accessed through their identifier

The identifier is part of the URL, the Uniform Resource Locator

https://MyApi.contoso.com/api/users/1

https – Protocol, http (unencrypted) or https (encrypted)

MyApi.contoso.com – The resource repository, if you will

api/users – The API endpoint

users – The resource type is part of the URI

1 – The resource ID, here: A user with the ID 1

HTTP Methods

To retrieve information on the web, clients use methods
Typical methods pertain to Create, Read, Update and Delete
Usually, an API offers these basic CRUD methods

HTTP Method	CRUD Method	Description
GET	Read	Data retrieval
PUT, PATCH	Update	Update data (PATCH) or replace resources (PUT)
POST	Create	Create a new resource
DELETE	Delete	Remove a resource

How?

Accessing REST APIs in Python (a.k.a DEMO TIME!)