MICROSERVICES API DEVELOPMENT USING PYTHON

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DAY 1

1. Web and RESTful APIs
   - REST
   - REST APIS and HTTP CRUD
   - REST and OpenStack
   - URI analysis and formation
   - Wireshark capturing
   - cURL
   - Etcd keystore
   - Creating a Python client to interact with API endpoints
   - API dev keys
   - SSH and Python
   - Secure password retrieval
   - Tokens and API
   - Test services using Postman

2. Python Protocol Clients
   - Scripting the browser
   - Scripting with HTTP
   - Creating an HTTP Client & Server
   - Python and SSH
   - Building an SFTP Client & Server
   - Python and SFTP limitations
   - Paramiko for SSH
   - Netmiko and Major Network Vendors (Cisco, Juniper, Arista)

DAY 2

1. JSON, YAML, XML, CSV and Excel

- JSON RFC 7159
- JSON Formatting
- YAML intro
- YAML lists
- YAML dictionaries
- YAML line spanning
- Reading YAML is easy
- XML
- CSV
- Import json
- Import yaml
- Decoding json and yaml to use
- Using python to decode data structures like YAML, XML, CSV, and JSON
- Reading from Excel
- Writing to Excel

2. Generating and Sending Emails
- Overview of email modules
- Creating simple emails
- Interfacing with your email account

3. Dates and Times
- Python and Cron
- Import time and time.time()
- Suspending with sleep()
- Dealing with time
- Time formatting
- Time tuples
- Creating Calendars

4. Python Regular Expression (Regex)
- Metacharacter review
- Re modules
- search() and match()
- findall()
- Compiling regex search patterns
- Creating highly efficient searches
- Sorting data sets
- Complex sorts
- sort() vs sorted()

- Sorting with functions
- Applying Regex to file searches
- Applying Regex to API results

5. Code Review
- Best practice
- Using pylint
- Conventions
- Underscore
- Double underscore
- Monkey Patching
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DAY 3

6. Web API Design with Flask
- Flask Overview
- Decorators
- Building APIs with Python and Flask
- APIs returning Jinja2 templating
- Returning a 'cookie'
- Building Sessions
- Redirecting from URIs
- Build an API to accept a file upload

7. SQLlite
- Overview
- Connecting to Python
- Read / Write operations
- Other useful instructions
- Connecting APIs and SQLite
- Reading and Writing to Databases with APIs

8. Processes and Threads
- Threading
- Context change
- Deadlock errors
- Thread starvation
- Racing conditions and racing specifics
- Working with Locks