
 <b>Marwadi University</b> <small>Marwadi Chandarana Group</small> 	<b>Marwadi University</b> <b>Faculty of Engineering &amp; Technology</b> <b>Department of Information and Communication Technology</b>	
<b>Subject: Programming With Python (01CT1309)</b>	<b>Aim:</b> Practical based on Interacting with Web APIs	
<b>Experiment No: 21</b>	<b>Date:</b>	<b>Enrollment No: 92400133181</b>

**Aim:** Practical based on Interacting with Web APIs

**IDE:**

To interact with web APIs using Python and libraries like requests. The practical will involve making GET and POST requests, handling responses, and parsing JSON data.

Library Installation

pip install requests

**Select an API:** Choose a public API for testing. For this tutorial, we'll use the JSONPlaceholder API, a free fake online REST API for testing and prototyping.

Making a GET Request

Fetch a list of posts.

```
import requests
```

```
# Define the API endpoint
```

```
url = 'https://jsonplaceholder.typicode.com/posts'
```

```
# Make a GET request
```



```
response = requests.get(url)
```

```
# Check the status code
```

```
if response.status_code == 200:
```

```
    # Parse JSON response
```

```
    posts = response.json()
```

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```

print("Fetched Posts:")

for post in posts[:5]: # Print the first 5 posts

    print(f"Title: {post['title']}")

else:

    print(f"Failed to retrieve posts. Status code: {response.status_code}")

Making a POST Request

Create a new post.

import requests

# Define the API endpoint

url = 'https://jsonplaceholder.typicode.com/posts'

# Define the data to send

new_post = {

    "title": "My New Post",

    "body": "This is the content of my new post.",



    "userId": 1

}

# Make a POST request

response = requests.post(url, json=new_post)

```

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```
# Check the status code
```

```
if response.status_code == 201:
```

```
    # Parse JSON response
```

```
    created_post = response.json()
```

```
    print("Created Post:")
```

```
    print(f"Title: {created_post['title']}")
```

```
    print(f"Body: {created_post['body']}")
```

```
else:
```

```
    print(f"Failed to create post. Status code: {response.status_code}")
```

Error Handling

Handle potential errors in API requests.

```
import requests
```

```
url = 'https://jsonplaceholder.typicode.com/posts/1000' # Non-existent post
```

```
response = requests.get(url)
```



```
if response.status_code == 200:
```

```
    post = response.json()
```

```
    print("Fetched Post:", post)
```

```
else:
```



```
    print(f"Error: {response.status_code} - {response.reason}")
```

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```

1  import requests
2
3  url = 'https://jsonplaceholder.typicode.com/posts'
4
5  response = requests.get(url)
6
7  if response.status_code == 200:
8      posts = response.json()
9      print("Fetched Posts:")
10     for post in posts[:5]:
11         print(f"Title: {post['title']}")
12 else:
13     print(f"Failed to retrieve posts. Status code: {response.status_code}")
14
15 import requests
16
17 # Define the API endpoint
18 url = 'https://jsonplaceholder.typicode.com/posts'
19
20 # Define the data to send
21 new_post = {
22     "title": "My New Post",
23     "body": "This is the content of my new post.",
24     "userId": 1
25 }
26
27 # Make a POST request
28 response = requests.post(url, json=new_post)
29

```



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```

29
30     # Check the status code
31     if response.status_code == 201:
32         # Parse JSON response
33         created_post = response.json()
34         print("Created Post:")
35         print(f"Title: {created_post['title']}")
36         print(f"Body: {created_post['body']}")
37     else:
38         print(f"Failed to create post. Status code: {response.status_code}")
39     import requests
40
41     url = 'https://jsonplaceholder.typicode.com/posts/1000'
42
43     response = requests.get(url)
44
45     if response.status_code == 200:
46         post = response.json()
47         print("Fetched Post:", post)
48     else:
49         print(f"Error: {response.status_code} - {response.reason}")
50

```

Output:

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```

...: response = requests.get(url)
...:
...: if response.status_code == 200:
...:     post = response.json()
...:     print("Fetched Post:", post)
...: else:
...:     print(f"Error: {response.status_code} - {response.reason}")
...:
Fetched Posts:
Title: sunt aut facere repellat provident occaecati excepturi optio reprehenderit
Title: qui est esse
Title: ea molestias quasi exercitationem repellat qui ipsa sit aut
Title: eum et est occaecati
Title: nesciunt quas odio
Created Post:
Title: My New Post
Body: This is the content of my new post.
Error: 404 - Not Found



In [21]:

```

## Post Lab:

**Building a Simple API Client (Write a simple Python class that encapsulates the functionality for making GET and POST requests to the JSONPlaceholder API. Include methods for fetching posts and creating a new post.)**



**Code:**

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```

1  import requests
2
3  class JSONPlaceholderClient:
4      BASE_URL = "https://jsonplaceholder.typicode.com"
5
6      def __init__(self):
7          self.session = requests.Session()
8
9      def get_posts(self):
10         """Fetch all posts"""
11         url = f"{self.BASE_URL}/posts"
12         response = self.session.get(url)
13         return response.json()
14
15     def get_post(self, post_id):
16         """Fetch a single post by ID"""
17         url = f"{self.BASE_URL}/posts/{post_id}"
18         response = self.session.get(url)
19         return response.json()
20
21     def create_post(self, title, body, user_id):
22         """Create a new post"""
23         url = f"{self.BASE_URL}/posts"
24         payload = {
25             "title": title,
26             "body": body,
27             "userId": user_id
28         }
29         response = self.session.post(url, json=payload)
30         return response.json()
31

```

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```

31
32     # Example usage:
33     if __name__ == "__main__":
34         client = JSONPlaceholderClient()
35
36         print("Fetching posts...")
37         posts = client.get_posts()
38         print(posts[:2]) # print first 2 posts
39
40         print("\nFetching post 1...")
41         print(client.get_post(1))
42
43         print("\nCreating a new post...")
44         result = client.create_post("My Title", "This is the body", 1)
45         print(result)
46

```

#### Output:

```

In [21]: %runfile C:/Users/devah/Documents/PWP/untitled4.py --wdir
Fetching posts...
[{'userId': 1, 'id': 1, 'title': 'sunt aut facere repellat provident occaecati
excepturi optio reprehenderit', 'body': 'quia et suscipit\nsuscipit recusandae
consequuntur expedita et cum\nreprehenderit molestiae ut ut quas totam\nnostrum
rerum est autem sunt rem eveniet architecto'}, {'userId': 1, 'id': 2, 'title':
'qui est esse', 'body': 'est rerum tempore vitae\nsequi sint nihil reprehenderit
dolor beatae ea dolores neque\nfugiat blanditiis voluptate porro vel nihil
molestiae ut reiciendis\nqui aperiam non debitis possimus qui neque nisi
nulla'}]

Fetching post 1...
{'userId': 1, 'id': 1, 'title': 'sunt aut facere repellat provident occaecati
excepturi optio reprehenderit', 'body': 'quia et suscipit\nsuscipit recusandae
consequuntur expedita et cum\nreprehenderit molestiae ut ut quas totam\nnostrum
rerum est autem sunt rem eveniet architecto'}

Creating a new post...
{'title': 'My Title', 'body': 'This is the body', 'userId': 1, 'id': 101}

```

#### GitHub:

<https://github.com/mallaadisrinivasu132035-code/python.git>