

| | | |
|--|--|--|
|  Marwadi University <small>Marwadi Chandarana Group</small> | NAAC  A+ | Marwadi University Faculty of Engineering & Technology Department of Information and Communication Technology |
| Subject: Programming With Python (01CT1309) | Aim: Practical based on Interacting with Web APIs | |
| Experiment No: 21 | Date: | Enrollment No: 92510133011 |

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()
```

| | | |
|--|--|--|
|  Marwadi University <small>Marwadi Chandarana Group</small> |  NAAC A+ | Marwadi University Faculty of Engineering & Technology Department of Information and Communication Technology |
| Subject: Programming With Python (01CT1309) | Aim: Practical based on Interacting with Web APIs | |
| Experiment No: 21 | Date: | Enrollment No: 92510133011 |

```

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}")

```

Output:

```

Subjects/Python/WebAPIs/web1.py"
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

```

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
}
```

| | | |
|---|--|-----------------------------------|
|  Marwadi University Marwadi Chandarana Group | NAAC  A+ | Marwadi University |
| Subject: Programming With Python (01CT1309) | Aim: Practical based on Interacting with Web APIs | |
| Experiment No: 21 | Date: | Enrollment No: 92510133011 |

}

```
# Make a POST request

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

```
# 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}")
```

Output:

```
PS D:\SEM 3 Subjects\Python> & "d:/SEM 3 Subjects/Python/person
Subjects/Python/WebAPIs/web2.py"
Created Post:
Title: My New Post
Body: This is the content of my new post.
```

Error Handling

Handle potential errors in API requests.

```
import requests
```

| | | |
|--|--|--|
|  Marwadi University <small>Marwadi Chandarana Group</small> |  NAAC A+ | Marwadi University Faculty of Engineering & Technology Department of Information and Communication Technology |
| Subject: Programming With Python (01CT1309) | Aim: Practical based on Interacting with Web APIs | |
| Experiment No: 21 | Date: | Enrollment No: 92510133011 |

```
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}")
```

Output:

Error: 404 - Not Found

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:

```
import requests

class JSONPlaceholderClient:
    def __init__(self):
        self.base_url = "https://jsonplaceholder.typicode.com"

    def fetch_posts(self):
        """Fetches a list of posts."""
        try:
            response = requests.get(f"{self.base_url}/posts")
```



Marwadi University
Faculty of Engineering & Technology
Department of Information and Communication Technology

Subject: Programming With Python (01CT1309)

Aim: Practical based on Interacting with Web APIs

Experiment No: 21

Date:

Enrollment No: 92510133011

```
        response.raise_for_status()
        return response.json()
    except requests.exceptions.RequestException as e:
        print("Error fetching posts:", e)
        return None

def create_post(self, title, body, user_id):
    """Creates a new post."""
    payload = {"title": title, "body": body, "userId": user_id}
    try:
        response = requests.post(f"{self.base_url}/posts", json=payload)
        response.raise_for_status()
        return response.json()
    except requests.exceptions.RequestException as e:
        print("Error creating post:", e)
        return None

if __name__ == "__main__":
    client = JSONPlaceholderClient()
    posts = client.fetch_posts()
    if posts:
        print("Fetched posts:", posts[:2])
        new_post = client.create_post("Sample Title", "Sample body content", 1)
        if new_post:
            print("Created post:", new_post)
```

Output:

```
Fetched 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 s\\t rem eveniet architecto"}, {"userId": 1, "id": 2, "title": "qui est esse", "body": "est rerum tempore vitae\\nsequi sint nihil repreh\\erit dolor beatae ea dolores neque\\nfugiat blanditiis voluptate porro vel nihil molestiae ut reiciendis\\nqui aperiam non debitis possi\\s qui neque nisi nulla"}]
Created post: {"title": "Sample Title", "body": "Sample body content", "userId": 1, "id": 101}
```

Github link:

<https://github.com/trupalijsansi05/trupali-jasani>