Project Report

Introduction

The project is designed to interact with Instagram's backend using the Instaloader library. It automates the extraction of user data, retrieval of followers and followees, downloading of posts from a target profile, and application of image filters using OpenCV and Instafilter.

Objectives

1. Automate Instagram login and data extraction.
2. Retrieve and print user profile information.
3. Gather and list usernames of followers and followees.
4. Download posts from a specified Instagram profile.
5. Apply predefined filters to images using the Instafilter library and OpenCV.

Modules and Libraries Used

- **Instaloader**: For interacting with Instagram's backend to fetch profile data and download posts.
- **OpenCV (cv2)**: For image processing and saving the filtered images.
- **Instafilter**: For applying predefined filters to images.

Implementation Details

1. **Instaloader Setup**:

- The Instaloader class is instantiated.
- Login is performed using the provided username and password.

2. **Profile Data Extraction**:

- The script retrieves and prints the profile information such as username, user ID, number of posts, followers, followees, and biography.

3. **Followers and Followees Retrieval**:

- Usernames of all followers and followees are fetched and printed.

4. **Posts Download**:

- Posts from a specified target profile are downloaded and saved locally.

5. **Image Filtering**:

- An image filter is applied using the Instafilter library.
- The filtered image is saved using OpenCV.

Challenges and Solutions

- **Login Failures**: Proper exception handling ensures that login issues are reported and the script exits gracefully.
- **Data Retrieval Failures**: Exception handling is used to manage and report failures in fetching profile data, followers, followees, and posts.
- **Image Processing**: Ensuring the Instafilter and OpenCV libraries work seamlessly for applying and saving filters.

Conclusion

This project successfully demonstrates the automation of Instagram interactions and image processing using Python libraries. It can be extended to include more features such as automated posting, direct messaging, and advanced image manipulations.