Report On

Instagram Like Analysis

Submitted in partial fulfillment of the requirements of the Course project in

Semester IV of Second Year Computer Engineering

by

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**CERTIFICATE**

This is to certify that the project entitled “Instagram Like Analysis” is a bonafide work of "Ritesh Gavali (Roll No. 50), Shreeyash Jadhav (Roll No. 60)" submitted to the University of Mumbai in partial fulfillment of the requirement for the Course project in semester IV of Second Year Computer Engineering.

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**Abstract**

This report presents the analysis of Instagram likes data using a Python script. The script utilizes the Streamlit library for the user interface and processes a provided Instagram JSON file to extract dates and calculate the number of likes per day. The script generates visualizations and displays statistics, offering insights into the likes trend over time and the total number of liked posts, date range, and daily average likes. The project serves as a foundation for further exploration and customization to suit specific analytical needs The script's modular design, featuring separate functions for processing JSON data, creating visualizations, and managing the Streamlit app, allows for easy maintenance and future updates. Users can enhance the project by incorporating additional features, such as filtering options, data preprocessing, or integrating with other data sources, to create a comprehensive Instagram analytics platform.

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**INTRODUCTION**

* 1. **Introduction**

In the era of social media, understanding user engagement and trends is crucial for businesses, influencers, and individuals alike. Instagram, a popular photo and video sharing platform, offers a wealth of data that can be analyzed to gain insights into user behavior and preferences. One such metric is the number of likes on posts, which can help assess content performance and audience engagement. This report introduces the Instagram Likes Analysis project, a Python script that processes an Instagram JSON file and generates visualizations and statistics related to the number of likes per day. By utilizing the Streamlit library, the script provides an interactive user interface, enabling users to upload their Instagram data and explore the likes trend over time. This project offers a foundation for further customization and expansion, allowing users to delve deeper into Instagram analytics and derive valuable insights.

* 1. **Problem Statement**

Instagram, being a popular social media platform, provides valuable insights into user engagement and content performance. One such metric is the number of likes on posts, which can help assess the success and reach of content shared by users. In this project, we aim to analyze and gain insights into the likes trend of an Instagram account using a provided JSON file.

The main objectives of this project are:

Data Preprocessing: Clean and preprocess the raw Instagram JSON data to make it suitable for analysis.

Data Visualization: Create visualizations to showcase the likes trend over time, helping the user understand the popularity of their content.

Statistical Analysis: Calculate and display the total number of liked posts, date range, and daily average likes.

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**PROPOSED SYSTEM**

**Key features of the proposed system include:**

User Interface: An interactive user interface using the Streamlit library, allowing users to upload their Instagram JSON file and explore the likes trend over time. Data Preprocessing: Functions to process and clean the raw Instagram JSON data, extracting timestamps and converting them to dates for further analysis.

Data Visualization: Functions to create visualizations, such as bar plots and line graphs, to showcase the likes trend over time, providing insights into the popularity of the content.

Statistical Analysis: Functions to calculate and display the total number of liked posts, date range, and daily average likes, offering a summary of the likes trend. Modular Design: A modular design, featuring separate functions for processing JSON data, creating visualizations, and managing the Streamlit app, ensuring easy maintenance and future updates.

These key features enable users to analyze their Instagram likes data, gain insights into their content performance, and make informed decisions to improve their social media strategy.

**2.2 Module Description:**

* Data Processing Module: This module contains functions for processing and cleaning the raw Instagram JSON data. The main function, process\_json(), extracts the timestamps from the JSON file, converts them to dates, and returns a list of dates.
* Visualization Module: This module contains functions for creating visualizations to showcase the likes trend over time. The main function, create\_visualizations(), generates a bar plot and a line graph using the processed data, providing insights into the popularity of the content.
* Streamlit App Module: This module contains the main function, main(), which manages the Streamlit app. It initializes the app, handles file uploads, processes the JSON data, creates visualizations, and displays statistics related to the likes trend.

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**Software:**

* Python: The primary programming language used for development, providing a versatile and efficient platform for building the Instagram Likes Analysis application.
* Streamlit: An open-source app framework for Python, utilized for creating the interactive user interface of the Instagram Likes Analysis application.
* Pandas: A powerful data manipulation library for Python, used for processing and cleaning the raw Instagram JSON data.
* Matplotlib: A popular data visualization library for Python, utilized for creating the bar plot and line graph in the Instagram Likes Analysis application. Integrated Development Environment (IDE): Software tools like PyCharm, Visual Studio Code, or IDLE are employed for coding, debugging, and testing the application code efficiently. Operating System: The application is developed and tested on various operating systems such as Windows, macOS, and Linux to ensure cross-platform compatibility.

**Hardware:**

* A standard desktop or laptop computer is used as the primary development environment, equipped with adequate processing power and memory to support software development tasks.
* Input Devices: Standard input devices such as a keyboard and mouse are used for interacting with the computer and testing the Instagram Likes Analysis application. Internet Connectivity: Internet access is required for downloading software tools, libraries, and dependencies, as well as for accessing online resources and documentation during the development process.
* Likes Analysis application is developed using Python, with Streamlit for the user interface, Pandas for data processing, and Matplotlib for data visualization. The application is tested on various operating systems, ensuring cross-platform compatibility.

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**Block Diagram:**

1. **Start**
2. **Streamlit App**
   * Display title
   * File upload
   * Check if file is uploaded
     + If yes, proceed to data processing
     + If no, display error message and go back to step 3
3. **Visualization**
   * Create visualizations using **create\_visualizations()** function
     + Generate a bar plot
     + Generate a line graph
   * Display visualizations in the Streamlit app
4. **Statistics**
   * Calculate statistics
     + Calculate total number of liked posts
     + Calculate date range
     + Calculate daily average likes
   * Display statistics in the Streamlit app
5. **End**

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**2.4 Code**

import streamlit as st

import pandas as pd

import json

from datetime import datetime

import matplotlib.pyplot as plt

# Function to process the JSON file

def process\_json(uploaded\_file):

json\_data = json.load(uploaded\_file)

likes\_data = json\_data['likes\_media\_likes']

# Extracting timestamps and converting them to dates

dates = [datetime.fromtimestamp(item['string\_list\_data'][0]['timestamp']).date() for item in likes\_data]

return dates

# Function to create visualizations

def create\_visualizations(dates):

df = pd.DataFrame(dates, columns=['Date'])

df['Count'] = 1

df = df.groupby('Date').count()

# Bar plot

fig, ax = plt.subplots()

ax.bar(df.index, df['Count'])

ax.set\_title("Likes Per Day (Bar Plot)")

ax.set\_xlabel("Date")

ax.set\_ylabel("Number of Likes")

st.pyplot(fig)

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# Line graph

fig, ax = plt.subplots()

ax.plot(df.index, df['Count'])

ax.set\_title("Likes Trend Over Time (Line Graph)")

ax.set\_xlabel("Date")

ax.set\_ylabel("Number of Likes")

st.pyplot(fig)

return df

# Streamlit App

def main():

st.title('Instagram Likes Analysis')

# File upload

uploaded\_file = st.file\_uploader("Upload your Instagram JSON file", type="json")

if uploaded\_file is not None:

# Process JSON file

dates = process\_json(uploaded\_file)

# Visualizations

df = create\_visualizations(dates)

# Display statistics

total\_likes = df['Count'].sum()

start\_date = df.index.min()

end\_date = df.index.max()

days = (end\_date - start\_date).days + 1

average\_likes = total\_likes / days

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html\_file = open("index.html", "r")

st.markdown(html\_file.read(), unsafe\_allow\_html=True)

html\_file.close()

st.write(f"Total Liked Posts: {total\_likes}")

st.write(f"Date Range: {start\_date.strftime('%Y-%m-%d')} to {end\_date.strftime('%Y-%m-%d')}")

st.write(f"Daily Average Likes: {average\_likes:.2f}")

if \_name\_ == "\_main\_":

main()

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**RESULTS AND CONCLUSION**

**Conclusion:**

The Instagram Likes Analysis Streamlit app provides users with an easy-to-use tool for analyzing their Instagram likes data. The app's visualizations and statistics help users understand their likes trend over time, enabling them to make informed decisions about their Instagram content strategy.

**Results:**

The Instagram Likes Analysis Streamlit app provides users with an easy-to-use tool for analyzing their Instagram likes data. The app's visualizations and statistics help users understand their likes trend over time, enabling them to make informed decisions about their Instagram content strategy. The app offers valuable insights into the likes trend over time, helping users understand the popularity of their content and make informed decisions to improve their social media strategy. With the ability to customize and expand the project, users can explore additional metrics and features to create a comprehensive Instagram analytics platform. Overall, the Instagram Likes Analysis Streamlit app demonstrates the power of data science and visualization in social media analytics, providing a foundation for further exploration and customization.

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