

- **Framework & Technology Labels: Integrating Twitter API with Python:** Upgraded Tweepy from v4.10.1 to v4.12.1 to leverage new media upload endpoints.
- **Security & Compliance Labels: Authentication for Twitter API Integration:** Rotated Twitter API keys on April 15, 2024, updated environment variables TWITTER\_API\_KEY and TWITTER\_API\_SECRET.

#### **Subplan 5 — May 5, 2024**

- **Progress & Development Labels: Building Hashtag Generation Tools:** Developed hashtag generator supporting dynamic keyword extraction using spaCy v3.5.0 NLP library.
- **Database & Data Management Labels: Data Warehousing for Engagement Metrics:** Designed PostgreSQL 14 schema for engagement\_metrics with partitioning by month for scalability.
- **Debugging & Troubleshooting Labels: Log Analysis for Facebook Graph API:** Detected “OAuthException: Error validating access token” on May 1, 2024, resolved by token refresh automation.

#### **Subplan 6 — May 20, 2024**

- **Implementation & Development Labels: Implementing Error Handling:** Added centralized error handler middleware in posting API, logging errors with Sentry v1.12.0.
- **Debugging & Troubleshooting Labels: Error Diagnosis for Twitter API Integration:** Fixed intermittent “ConnectionResetError” during media upload by adding retry with jitter.
- **DevOps & Deployment Labels: Containerization for Instagram Automation:** Updated Dockerfile to use multi-stage builds, reduced image size from 120MB to 85MB.

#### **Subplan 7 — June 5, 2024**

- **DevOps & Deployment Labels: Deploying Social Media Automation Tools:** Deployed v1.0.0 release on AWS EC2 t3.medium with 99.9% uptime SLA.
- **Integration & API Labels: Event-Driven Architecture for Social Media Automation:** Implemented AWS SNS topics for post status updates, integrated with Lambda v3.2.1 functions.
- **User Experience & Interface Labels: Mobile App Design for Social Media Automation:** Released beta version of React Native app on Android with basic scheduling and metrics display.

#### **Subplan 8 — June 20, 2024**

- **Progress & Development Labels: Developing Instagram Automation Tools:** Implemented batch media uploads for Instagram, supporting up to 10 images per carousel post.
- **User Experience & Interface Labels: Responsive Design for Scheduling:** Enhanced React 18.2 dashboard for scheduling with drag-and-drop post reordering, tested on Chrome and Safari.
- **Security & Compliance Labels: Encryption for Instagram Automation:** Migrated token storage to AWS KMS encrypted S3 bucket, access controlled via IAM roles.

#### **Subplan 9 — July 5, 2024**

- **Security & Compliance Labels: Authentication for Twitter API Integration:** Implemented OAuth 2.0 PKCE flow for enhanced security, tested with Postman v10.15.0.
- **Performance & Optimization Labels: Code Optimization for Twitter API Integration:** Reduced memory usage by 20% by optimizing data serialization and connection pooling.
- **Debugging & Troubleshooting Labels: Error Diagnosis for Twitter API Integration:** Fixed “TimeoutError” during high load by increasing HTTP client timeout from 10s to 30s.