

# Product Requirements Document

TuTweetBiBot – Latest  
Tweet of your Best  
Streaming Website

## Product Requirements Document

1. Objective
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5. Pre-requisite Instructions, Working and Test
6. Analytics
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### Key Stakeholders

<b>Document Status</b>	Draft
<b>Engineering</b>	Rahul Khandalkar
<b>Design</b>	Rahul K, Ryan H, Steven T
<b>Product</b>	Rahul K, Ryan H
<b>Marketing / TME</b>	Rahul K
<b>Supportability / Telemetry</b>	Rahul K

### 1. Objective: [Mock-up objective/Assumption]

Vision	Retrieve the 10 most recent tweets of Twitter account to show on Slack channel
Goals	<p>Timeframe: 1 week – MVP</p> <p>Primary goal is simplifying the operations and management function that a website administrator has to perform for API integration of Twitter tool.</p> <p>Secondary goal of this API is for customer to adopt python framework solution and usage of library for Twitter API in an existing environment.</p>
Initiatives	Incorporated organization stylings and wireframes
Persona(s)	IT Systems Engineer, Technical Marketing Engineer, Sales

## 2. Release

Release	tutweetbibot-0.0.1
Date	May 26, 2021
Initiative	Tu Tweet Bi Bot 1
Milestones	<ol style="list-style-type: none"> <li>1. Minimum Valuable Product (MVP)</li> <li>2. Scalable solution</li> </ol>
Features	<ol style="list-style-type: none"> <li>1. Live streaming of latest 10 tweet from designated account</li> <li>2. Deployable solution as web application and API interface</li> </ol>
Dependencies	<ol style="list-style-type: none"> <li>1. Python 3.10</li> <li>2. Libraries: dotenv, schedule, time, os, tweepy, slack_sdk</li> <li>3. Supports all OS. Preferred Windows.</li> </ol>

## 3. Features

### 1. [Mock-up Story/Assumption]

Feature	Live streaming of latest 10 tweet from designated account
Description	The feature will enable the IT Systems engineer and Tubi marketer to provide product feature on tablet to show latest info of Tu Tweet Bi Bot. The live stream data will be updated on tablet from any location to show API data.
Purpose	One-click application to show live stream of tweets
User problem	The challenge to open browser for purpose of this feature is tedious
User value	One-click application provide easy access and better satisfaction
Assumptions	The end user have knowledge on Twitter knowledge, internet usage and Slack will provide required output
Not doing	None at the moment
Acceptance criteria	OS update version above x.x

2.

Feature	Deployable solution as web application and API interface
Description	The solution can be deployed as client-server architecture. The code works as deployable solution on server. The python framework capability to provide API interface can provide further development of MVP for frontend Angular.js to interface with middle layer Java application and H2 database
Purpose	Scalable and readable solution of tutweetbibot-0.0.1
User problem	Existing solution did not follow best practices of SLDC. The developer left the company and provided no documentation to cause frequent hotfixes. Thus, user did not receive reliable update on their earlier version of TuTweetBiBot .
User value	A properly followed SLDC best practice will provide product reliability
Assumptions	The end user has cleanly uninstalled the previous version of the application. The newly installed version is from TuTweetBiBot official repository.
Not doing	The web application is not developed to have Angular.js framework. The MVP is limited to running application 24 times in a day because free version of Twitter and Slack API allows limited request per day.
Acceptance criteria	Slack show the latest 10 tweets from designated Twitter account every hour Store count, start, running and end of each iteration.

## 4. Implementation

### **Limitation:**

1. MVP is built single-file/page application.
2. It does not follow Model, View, Controller framework.
3. All secrets will be stored in secret store.
4. Token needs to be refreshed every 12 hours manually.
5. Service can be run daemon in a linux web server or as needed for future version
6. Logs and observability tools implementation in future version

### **The application is broken in four layers:**

7. Initialization and Authentication: Load environmental variable(stored insecurely). Authenticate the consumer key and secret, access token and secret from Twitter. OAuth authorization for Twitter and Slack, preparation for API calls using rate limit, tweepy and slack\_sdk library.
8. Job Task: Retrieve 10 latest tweets from Twitter and display at Slack channel #general. Two function Job() and JobAnnouce() assist to perform this task. Job() does main task, JobAnnounce() is a helper function to keep count of iteration of calls. The code follows try, catch and finally to improve error handling.
9. Schedule handling: Task ensures to run once in a hour job() task
10. Model – Slack has basic interface to show the incoming Tweets in every hour

**Error handling:**

Incorrect Twitter username showed correct handling of the 404 Not Found

```

30 def job():
31     global count
32     client.chat_postMessage(channel='#general', text="#####")
33     client.chat_postMessage(channel='#general', text="Hourly Update from Twitter")
34     jobAnnounce()
35     client.chat_postMessage(channel='#general', text="#####")
36     print("Code Starting")
37     # Get tweets from specified Twitter account
38     try:
39         tweets = tweepy.Cursor(api.user_timeline, screen_name='livelyrahu', count=10).items()
40     except tweepy.error.RateLimitError as e:
41         print(e)
42     finally:
43         print("Code Run " + str(count) + " Completed")
44

```

Run: twitslackapi × twitslackapi ×

C:\Users\Desktop-87161\IdeaProjects\PytGrpc\venv\Scripts\python.exe C:\Users\Desktop-87161\Desktop\S

Code Running Count : 1  
 Code Starting  
 Code Run 2 Completed  
 404 Not Found  
 34 - Sorry, that page does not exist.  
 Code Exiting

Process finished with exit code 0

**Rate Limit:**

```
api = tweepy.API(auth, wait_on_rate_limit=True)
```

The `wait_on_rate_limit` parameter is used when creating an instance of the API class from the tweepy library. This parameter is a boolean that determines if the API client should wait when it hits the rate limit. If set to `True`, the client will wait until the rate limit resets before making further requests. If set to `False`, the client will raise a `RateLimitError` exception when the rate limit is hit. So here we pass `True` to `wait_on_rate_limit` which means the client will wait until the rate limit resets before making further requests.

```
tweets = tweepy.Cursor(api.user_timeline, screen_name='livelyrahul', count=10).items()
```

The `tweepy.Cursor` object is used to paginate through the results of a query made to the Twitter API. The `“.items()”` method is used to retrieve a specified number of tweets from the user's timeline. In this case, it is retrieving the most recent 10 tweets from the user with the screen name "livelyrahul". The `api.user_timeline` method is used to retrieve tweets from a specific user's timeline.

## 11. Pre-requisite, Working and Test

### 1. Install library using pip

```
(venv) C:\Users\Desktop-87161\Desktop\Snap\TubiTest1> pip install slack-sdk
Collecting slack-sdk
  Downloading slack_sdk-3.19.5-py2.py3-none-any.whl (273 kB)
    273.8/273.8 kB 5.6 MB/s eta 0:00:00
Installing collected packages: slack-sdk
Successfully installed slack-sdk-3.19.5
```

### 2. Latest python version can be downloaded from

<https://www.python.org/downloads/>

For maintenance:

### 3. Refresh token <https://api.slack.com/apps>

Note: For test purpose, retrieve last 10 posts (at twitter) in 1 minute instead of usecase 1 hour is chosen to check the ratelimit and other performance

Run count: 1 - Start to end

The screenshot displays two side-by-side windows. The left window shows a Slack channel named '# general' with a search bar and a list of messages. The right window shows a web browser with a stopwatch running at 00:00:02.807. Below the stopwatch is a code editor showing a Python script named 'tutweetibot.py'. The script is designed to post tweets to a designated Slack channel. The script includes a try-except block to handle RateLimitError and a finally block to print the completion status. The script is being run in a terminal window, and the output shows the code running successfully.

Search 2021runners

#general

+ Add a bookmark

RT @henrikwagner73: 663 million... #EMCGivesBack helps @charitywater #FightDirty <https://t.co/W7XcwTaQVg> <https://t.co/ENUz8FrwcU>...

RT @andreanolanusse: UK's most advanced nuclear submarine has a @VMware data center to control missile launch <https://t.co/ENUz8FrwcU>...

Beautiful! n equally Terrifying!! <https://t.co/4RkRn1DbCR>

RT @SP\_Gateway: March 10th, 11am, Brasilia, #webinar: Towards universal social protection: Latin American pathways and policy tools <https://t.co/bvWP2sW4jr> <https://t.co/H...>

RT @SP\_Gateway: Towards #UniSoPro: #LatAm pathways and policy tools webinar, 10 March, 11am (Brasilia). Reg: <https://t.co/bvWP2sW4jr> <https://t.co/H...>

RT @Forbes: Virtual reality will "change the way we live and work and communicate," Zuckerberg said: <https://t.co/qALYvT8pbx> <https://t.co/H...>

RT @SP\_Gateway: Join our Online Community on 'SingleRegistries' and Integrated #MISs. <https://t.co/P4Nns8QPVs> @dfat

RT @spoonen: India overtakes US as world's second-largest smartphone mkt <https://t.co/RDD310uhQE>, Enterprise Mobility is next, @AirWatch is...

RT @PopMech: Judge Denies Monkey the Copyright on Its Famous Selfie <https://t.co/02fwgewmDm> <https://t.co/rk1EZsvjqz>

RT @opsimath6: On a day of the token 'lip service' by many .....an old painting named so... <https://t.co/F1VcGwnFO>

MBA created half-a-decade back! redundant now ~ Interesting article <http://t.co/0VaqjZC1dG> via @qz

#SupportElectricCar "Electric Vehicles for Everyone, Not Just the Elite" on @LinkedIn <https://t.co/nALARJNjU>

### Hourly Update from Twitter over ###

Message #general

timeanddate

Home World Clock Time Zones Calendar Weather Sun & Moon Timers Calculators Apps & API Free Fun

00:01:08.990

Pause Split Reset Settings and sounds Show shortcuts

File Edit View Navigate Code Refactor Build Run Tools Git Window Help

Tab1 tutweetbot-0.0.1 tutweetbot.py

```

77 time.sleep(1)
78 except Exception as e:
79     print(e)
80 finally:
81     print("Code Exiting")
82

```

job0 finally

Run tutweetbot

Code Starting

Code Running Count : 1

Code Starting

Code Run 1 Completed

Run count: 3 – end complete in 3 minute 12 seconds.

Search 2021runners

#general

+ Add a bookmark

### Hourly Update from Twitter over ###

#####

Hourly Update from Twitter

3

#####

@elonmusk Pls can you revive the first bitcoin exchange in the world, Formerly known as BTC-e and WEX. It would be... <https://t.co/3bt2MfwyF>

All that I need to know of my job <https://t.co/8dynpNmTGs>

2019 Time's Person of Year is worthy of recognition. The recognition represents non-celebrity people fighting for global cause. #GoGretaGo

RT @henrikwagner73: 663 million people don't have clean water. #EMCGivesBack helps @charitywater #FightDirty <https://t.co/W7XcwTaQVg> <https://t.co/ENUz8FrwcU>...

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Message #general

timeanddate

Home World Clock Time Zones Calendar Weather Sun & Moon Timers Calculators Apps & API Free Fun

00:03:17.088

Pause Split Reset Settings and sounds Show shortcuts

File Edit View Navigate Code Refactor Build Run Tools Git Window Help

Tab1 tutweetbot-0.0.1 tutweetbot.py

```

77 time.sleep(1)
78 except Exception as e:
79     print(e)
80 finally:
81     print("Code Exiting")
82

```

job0 finally

Run tutweetbot

Code Starting

Code Running Count : 1

Code Starting

Code Run 1 Completed

Code Starting

Code Run 2 Completed

Code Starting

Code Run 3 Completed

KeyboardInterrupt to stop the program show proper error message



The collage consists of three screenshots. The leftmost screenshot is a Slack interface showing a channel named '#general' with a search bar and a list of tweets. The middle screenshot is a web browser displaying a large digital stopwatch at 00:04:09.579. The rightmost screenshot is a code editor showing a Python script for 'tutweetbibot.py' and its execution output in a terminal window.

## 6. Analytics

Hypothesis: We believe web application will achieve to provide output in 1 minute 5 seconds for version tutweetbibot-0.0.1 and not limited to amount of TuTweetBiBot API Call

Note: For test purpose, retrieve last 10 posts (at twitter) in 1 minute instead of usecase 1 hour is chosen to check the ratelimit and other performance

Key performance indicator	Baseline	Target	Timeframe
Retrieval, and display Slack	1 minutes 10 seconds	1 minute 5 seconds	-

## 7. Future work

Future features	Purpose	Priority	Timeframe
Separate API call interface for each retrieval, provide better MVC model and library extension	Better management for future implementation to separate functionality	P3	1 week
Frontend angular.js solution	End-user comfort, lesser dependency on CLI functionality, one click interface	P1	3 weeks