Enhancing Social Media Governance with Policing Bots - Milestone 1 Evaluation

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Client:
- Dr. Khaled Slhoub - kslhoub@fit.edu

Progress of current milestone (Task Matrix):

Task	Completion	Cody	Gabriel	Liam	To Do
Compare and Select Social Media Tools	50%	10%	30%	10%	Find our social media platform, in case Twitter doesn't work.
Small Demos	60%	5%	50%	5%	Finish working on the technical tools, make sure we want to lock in a specific tool
Compare Collaboration Tools	100%	33%	33%	33%	
Learn the basics of the API	60%	20%	20%	20%	Extend our knowledge further for the twitter API.
Requirement Document	100%	40%	20%	40%	
Design Document	100%	10%	25%	65%	
Test Plan	100%	90%	5%	5%	

Discussion for each accomplished task for the milestone:

- Task 1:
  The first task we undertook as a collective group was to conduct research on common ways in which we can implement a bot account on the social media platform Twitter which can complete the tasks we need for our framework. We have researched and done rudimentary testing on two main methods of creating bot accounts on Twitter. These two methods are the Tweepy Python library method and the Flask App Approach method. We have come to prefer the Tweepy method for a few reasons. Firstly, through researching the Twitter API we have learned that Twitter limits the amount of tweets bot accounts can view before the account's ability to do so is temporarily removed for a period of time. The only way around this problem is to pay for a subscription service which increases the number of tweets a bot account can view before the permission is revoked from the account. This feature of the Twitter API makes the Flask Application Approach very costly as one of its main features is stockpiling access tokens in a database which may mean paying for each token. This would mean that our Policing Bot cannot stay online 24/7, but this is okay because we intend for the bot to perform its tasks on a set schedule. Using the Tweepy Python Library Approach, we can fetch one access token every time we want the Policing Bot to begin scanning tweets which will cut down on the cost of this project significantly. For this reason, we believe using Tweepy is the better option for the social media platform Twitter. We are also researching other social media websites that have a public API and a malicious bot issue as well, but for now our focus is with Twitter's API.
- Task 2:
  Creating the "Hello World" demo was done relatively easily. We created a simple Twitter bot that can Tweet or view another account's tweet whenever a Python script is run. This was done using the Tweepy Python Library and the Twitter API's access token generator to connect to an existing Twitter account and perform tasks specified in the Python code.
- Task 3:
  Creating the Requirement document was accomplished by the group members coming together and thoroughly detailing every functionality we intend to add to our project. This involved defining terms that related to our project's requirements, explaining what functionalities were needed in different contexts and explaining what is required for us to implement each functionality and how we intend to do so.
- Task 4:

Creating the Requirement document was accomplished by the group members coming together and thoroughly detailing how we plan to present our project to the client and any other user, as well as the inner workings of the framework we plan on developing. This was done by providing explanations of the key functionalities of our framework and how we will be delivering them to the client, providing a UML diagram of the flow of the framework we will be developing as well as a description of each section of the diagram, providing a high level pseudocode description of the framework, and lastly providing a graphical representation of what our framework's GUI could look like.

- Task 5:
Creating the Requirement document was accomplished by the group members coming together and deciding what methods should be used for testing each functionality of the framework. This was done in order to ensure each function is achieving what it needs to in compliance with the requirements of the project while also minimizing the performance cost.

Discussion of contribution for the current milestone:
- Cody Manning: Cody contributed to each of the required documents for milestone 1. He especially focused on the test plan and the requirements document. Cody's contribution will be dictating how we will be testing the framework once we get it up and running. Cody is also the one who is facilitating communication with the faculty advisor. He has been working with Gabriel on implementing the test demos. Cody also organized research on the various available options of tools to use. Cody also wrote the progress evaluation.
- Gabriel Silva: Gabriel was less involved in drafting the documents required for the project, but spent his time primarily learning the API and programming the demos. Gabriel was responsible for finding the feasibility of the various tools available. He is also the one who discovered what may be one of our biggest roadblocks, the cost of using the Twitter API. Gabriel also drafted the rough outline of what the graphical interface could look like. He also helped decide on our collaboration tools.
- Liam Dumbell: Liam contributed to all documentation, but spent the largest amount of time on the design document, particularly the Conceptual model of the framework and the UML diagram or the flowchart of how we envision the program is going to run. His contribution will be what we use as a general plan to design the framework. Liam also contributed a small amount to the demos. Like the other two members, Liam also helped decide on the choice of collaboration tools. Liam also wrote the milestone one presentation.

Plan for the next milestone (Task Matrix):

Task	Cody	Gabriel	Liam
Research as many social media APIs as possible (with the possibility of switching from twitter if it becomes unfeasible)	40%	30%	30%
Develop a system to collect basic data on social media accounts	30%	40%	30%
Research known bot detection methods	33%	33%	33%
Research and potentially find a way to store the data we collect	30%	30%	40%

Discussion for each task of the next milestone:

- Task 1: We are worried about the possibility of being limited by the restrictions on the Twitter API. We knew from the start that the project should be flexible to work on ANY social media platform. The social media of Twitter was chosen because of the amount of bots, and the fact that we all knew it the best. During this milestone, we plan to research a wider array of social media platforms APIs, just in case Twitter doesn't work out. We also plan to look for work-arounds for the Twitter API problem.
- Task 2: Whichever social media platform we end up on, we need to begin work on interacting and collecting data from users (that may or may not be bots). This will probably begin with extensive research on various tools that are available for each social media platform. We are hoping to have a concrete method of

grabbing the data from at least a limited number of accounts by this point. We will begin by grabbing data from accounts that we own.
- Task 3: We were advised by our advisor to begin getting a feel for the methods that currently exist for detecting bot accounts. We will do research on this so that we don't feel so blind later in the project. Our advisor has told us he will send academic documentation on known methods as study material. All three of us will be working on this concurrently, so all of us are equally educated in the subject.
- Task 4: Once we have the data, we will need to store it. We will be exploring the idea of potentially using a database, like AWS to store this data so it can be learned from later. If this doesn't end up being something we want to do, the data will be stored locally. We are going to stay in compliance with the GDPR (General Data Protection Regulation) to ensure that the data we collect is secured properly, so that we are making sure the data is collected and observed in a moral and legal manner. This data will be useful over the course of the project, as we will be able to observe potential bot behavior, and use this knowledge to help detect bots better.

Dates of meeting with Client:
- September 29, 2023

Client Feedback on Milestone 1:
- See faculty feedback below

Dates of meeting with Faculty Advisor:
- September 29, 2023

Faculty Advisor Feedback on Milestone 1:
- Task 1: Dr. Shloub listened to our concerns on the cost of the Twitter API. He mentioned that our project is made to work for any bots, so if worst comes to worst, we could switch gears and go to another social media site. He advised we stay on Twitter for now, but keep our eyes open for other avenues just in case. He also brought up the possibility of getting funding for the project, so we could at least use the basic plan for Twitter's API.
- Task 2: The client advised us to keep up the work we are doing with the demos, if for nothing else to help us better understand how a social media API works.
- Task 3: Our collaboration tools are pretty standard, and we all are used to working with each other. We were advised to work with what we are comfortable with.
- Task 4: As mentioned above, we were advised to try to learn as many API's as possible.

- Task 5, 6, 7: Dr. Shloub was happy with our documentation, especially the fact that we complied to IEEE standards without being told ahead of time.
- Generic Feedback: One of the end goals of the project is to create a research paper, Dr. Shloub is hoping our project can be used in research later. He believes we are doing well, and wants to meet with us every two weeks; which will become weekly the further we get along in the project.

Faculty Advisor Signature _____ Date: _____

Evaluation by Faculty Advisor:
- Faculty Advisor: detach and return this page to Dr. Chan (HC 214) or email the scores to pkc@cs.fit.edu
- Score (0-10) for each member: circle a score (or circle two adjacent scores for .25 or write down a real number between 0 and 10)

Cody Manning	0	1	2	3	4	5	5.5	6	6.5	7	7.5	8	8.5	9	9.5	10
Gabriel Silva	0	1	2	3	4	5	5.5	6	6.5	7	7.5	8	8.5	9	9.5	10
Liam Dumbell	0	1	2	3	4	5	5.5	6	6.5	7	7.5	8	8.5	9	9.5	10

Faculty Advisor Signature _____ Date: _____