ShotSpotter Political Analysis

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Project Description

[Notion](https://www.notion.so/FA24_DS539_Shotspotter-1059e7d8b62580b19e57ebc62241220b)

Fall 2024 Project Description

### **Client Name and Description:**

The Black Response is an advocacy organization in Cambridge, MA dedicated to defunding and abolishing the Cambridge Police Department. We seek to uplift black and brown communities in Cambridge by investing that money into community-grounded solutions for public safety.

**ShotSpotter Background:**

According to [ShotSpotter](https://www.shotspotter.com/system/content-uploads/SST_FAQ_January_2018.pdf), “ShotSpotter is gunshot detection technology that uses sophisticated acoustic sensors to detect, locate and alert law enforcement agencies and security personnel about illegal gunfire incidents in real-time. The digital alerts include a precise location on a map (latitude/longitude) with corresponding data such as the address, number of rounds fired, type of gunfire, etc. delivered to any browser-enabled smartphone or mobile laptop device as well as police vehicle MDC or desktop.”

[#StopShotSpotter](https://stopshotspotter.com/) is a campaign deeply concerned about its harmful impacts on the Black, brown, and poor people that the company surveys and wants to build community-led responses to address the root causes of gun violence.

### **Description:**

* The goal of this project is to build on the Black Response’s campaign of ending ShotSpotter in Cambridge. Specifically, this semester we will focus on analyzing Cambridge City Council rhetoric surrounding the program while simultaneously continuing research questions (listed below) from previous semesters.

### Ideal Output & Final Deliverables:

* **Data:** Shotspotter would like the clean data in a legible format, preferably as a spreadsheet.
* **Report:** Shotspotter would like a written report to explain what the students have found, what they had challenges with and why.

**Research Parameters**

1. Framework: PIC (Prison Industrial Complex) Abolition
2. Objective: To end the shotspotter contract

* How do we convince the city council and city manager to end the ShotSpotter contract?
* What arguments will convince the city council to end the ShotSpotter contract?

1. Toward developing a popular campaign to end the Shotspotter contract, the population of impacted neighborhoods were most concerned if there was a relationship to gentrification / housing security.

* To what degree is there a **correlation** between ShotSpotter deployments (device activation/SWAT team dispatch) and house prices (rental unit prices/house sale prices) in Cambridge, MA?

1. How effective is shotspotter at reducing / addressing gun violence in Cambridge?

| Project Details | |
| --- | --- |
| Data Sets + Data Dictionary | Link to data dictionary including tables, fields, & field definitions  [Bridgestats Data Set](https://www.cambridgema.gov/Departments/cambridgepolice/Publications?page=18&ResultsPerPage=10&sortBy=releasedate&sortOrder=desc&keyword=bridgestat): range is from 2013 to 2024. |
| Key Project Links and Relevant Documentation | [Spring 2024 Project Folder (containing data & deliverables)](https://drive.google.com/drive/folders/1_BAyTwp-gm1O_hB-q9jXhPkGieoCJxWu?usp=sharing) |
| Key Explorations / Questions | * What is the relationship between Shotspotter/ SoundThinking (various) and Gentrification (locations: The Port, The Coast, Cambridgeport, Riverside, public housing, etc. / types of people: homeless, low income, youth, etc. / Types of activities: loitering, etc.)? * How (increase, support, expansion, etc.) has public / city council rhetoric about ShotSpotter in Cambridge changed/shifted during the research period (2013-2024)? * What do the city councilors / public officials/police/experts/ community members say is needed in order to end the shotspotter contract? * What is the rationale for the use of Shotspotter? * When, where, by whom, and how does demographic and geographic-specific language figure in the discussions among public officials (at city council hearings) relevant to Shotspotter? * How does the Shotspotter call response data figure in discussions? How do legal considerations figure in the discourse? |
| Project Milestones (Major Deliverables for client noted with an asterisk, major preparation deliverables also included) | * **Milestone 1 - Data preparation:**   + Data review + questions + join slack channel   + Initial data cleaning of the [Bridgestats Data Set](https://www.cambridgema.gov/Departments/cambridgepolice/Publications?page=18&ResultsPerPage=10&sortBy=releasedate&sortOrder=desc&keyword=bridgestat). You will be web scraping all the data from the Bridgestats data set and output it into a spreadsheet such as google sheets or excel. * **Milestone 2 - Preliminary Analysis:**   + Once you have scraped the data and it is clean you may begin to analysis the following questions:     - What is the relationship between Shotspotter/ SoundThinking (various) and Gentrification (locations: The Port, The Coast, Cambridgeport, Riverside, public housing, etc. / types of people: homeless, low income, youth, etc. / Types of activities: loitering, etc.)?     - How (increase, support, expansion, etc.) has public / city council rhetoric about ShotSpotter in Cambridge changed/shifted during the research period (2013-2024)? * **Milestone 3** **- Preliminary Draft Base Questions**:   + Clients should review, sign off and give feedback including any additional/ extension questions the client wants answered by the end of semester.     - By now students will have answered all key questions.     - Think about what other questions could be answered by the data to help the clients end the shotspotter contract   + Please provide a document with any challenges/limitations encountered, assumptions made   + Data Visualization Checklist     - Draft data visualization models to show the client and have them approve your plan * **Milestone 4 - Draft Final Deliverable:**    + Majority of base questions to be answered for analysis     - this should include additional questions requested by the client and draft final output     - Begin additional analysis   + Data Visualization Model     - Display data visualization to client before finalizing for report * **Milestone 5 - Final Deliverable:**    + this is the near final version but client will have a chance for requests for small edits   + Final Report     - Cover pages, Intros (goal/overview/ethics/misconceptions/ big picture), answer key questions     - Visualizations are properly created, and described   + Final Report + Presentation     - **Data:** Shotspotter would like the clean data in a legible format, preferably as a spreadsheet.     - **Report:** Shotspotter would like a written report to explain what the students have found, what they had challenges with and why.       * Documentation for data cleaning should be created.         + Please include the following documentation:   Steps you took when data cleaning  What methodology you learned  Blockers you might have faced  List any limitations you had from the data provided  Future Steps for the project generally |
| **Additional Details** | |
| Preferred Tech Stack | * Tableau for data visualization (client has a subscription) * ArcGIS for data mapping |
| Background Readings | * [No to ShotSpotter: Portland OR Mayor Wheeler announces city won't pursue gunshot detection contract](https://www.koin.com/news/portland/wheeler-wont-pursue-gunshot-detection-tech-contract-shotspotter-eagl-gun-violence-summer-plans-ceasefire/) * [ShotSpotter Generates Thousands Of Alerts In Dayton, But Officers Find Few Crimes | WYSO](https://www.wyso.org/local-and-statewide-news/2021-10-04/shotspotter-generates-thousands-of-alerts-in-dayton-but-officers-find-few-crimes) * Please explore the news section in [STOP ShotSpotter](https://stopshotspotter.com/) * https://www.theblackresponsecambridge.com/shotspottersoundthinking |
| Hopful Deliverable | * <https://southsideweekly.com/shotspotter-routinely-missed-reported-shootings-city-data-shows/> |
| Data key/ glossary | * As needed |
| Common misconceptions, and solutions roadblocks (If relevant) | * *Roadblocks/ common blockers in this project.* * *Common data cleaning challenges or tips* * *Common contextual misunderstandings* * *Tips from previous groups on this project.* |

### Contact Information:

| **Role** | **First Name** | **Last Name** | **Email** |
| --- | --- | --- | --- |
| Instructor |  |  |  |
| Spark Advisor |  |  |  |
| Program Lead / Spark! Support | Abby | Gualda | agualda@bu.edu |
| PM | Tony | Wu | ziwu@bu.edu |
| TPM | Honglin | Jiang | [honglinj@bu.edu](mailto:honglinj@bu.edu) |
| **Client** | **Stephanie** | **Guirand** | **stephanie.guirand@gmail.com** |
| **Client** | **Andy B.** | **Suarez** | **asuarez@karayallc.com** |
| Teammate |  |  |  |
| Teammate |  |  |  |
| Teammate |  |  |  |
| Teammate |  |  |  |

Fall 2024 Semester Wrap Up

1. Tasks Completed This Semester

* Cleaned 2013 - 2024 BridgeStats Data
* Conducted Correlation Analysis between BridgeStats & Housing Price Data
* Produced Housing Map Visualizations & Analysis

1. Recommended Next Steps

* Try to obtain additional crime data, specifically on gunshots in Cambridge pre-2016
* Work on overlaying crime data unto housing data in ArcGIS

1. Comments & Insights

* Student team needs to be more familiar with the topic, additional teach-in sessions would be helpful at the beginning of the semester
* Clients are great to work with, but prefer visual learning when it comes to slides and demos

[Client Notes Document](https://docs.google.com/document/d/15YVNmr4DVYUZ_1M-Aq3rYTqkXc59b_OyhZjmzVxJM7Y/edit?usp=sharing)

**Client Notes Section (organized newest to oldest)**

\*Internal Team Notes should be taken in Notion

**12/9/24 Client Meeting**

**Attendance: Tony, Abby, Andy, Suraj**

**Relevant Links:** [**DS539 Client meeting final**](https://docs.google.com/presentation/d/1TP7-xRzu9lXDxtiSq1wJS-ndtwlLMfK3bmuGOsVmpmU/edit#slide=id.g27aed6778fa_0_2)

**Team Updates:**

* **Suraj presented the initial roadmap (data collection, PDF to CSV conversion process, property database analysis, overall data cleaning)**
* **Demonstrated preliminary visualizations on correlations of gunshot incidents, ShotSpotter deployments, and housing prices**
* **Went over blockers regarding not having access to certain softwares and the lack of gunshot incident data from 2013 - 2016 in the Bridgestat dataset**

**Client Comments**

* **What do we mean there is no gunshot incident data from 2013 - 2016? (Stephanie)**
* **Only reported murder/homicide data (Suraj)**
* **Question for Andy from Stephanie: Do we know when or if we started collecting data on gunshot incidents pre 2016? (Stephanie)**
* **The report of murder by gunshot is determined in a different ramification compared to knife attacks or other forms of violence**
* **Sounds like perfect place in time when ShotSpotter was introduced (2013/2014) to start collecting gunshot incident data (Andy)**
* **Stephanie’s assumption is that Cambridge hasn’t collected this data pre-2016 until SoundThink started implementing ShotSpotter**
* **If there are only murder incidents, it could mean that murders weren’t from gunshots or the city did not mandate gunshot reporting (Stephanie)**
* **2017 gunshot incident data would be useful (Stephanie)**
* **May need to start looking into alternate sources, having conversations with city councilors to see if it is possible to obtain additional datasets (Stephanie)**
* **Something that has been coming from this research in Cambridge is that they may not have had the infrastructure to measure gunshot incidents**
* **Information gathered is very important, it’s good to have additional questions (Andy)**

**Action Items:**

**11/26/24 Client Meeting**

**Attendance:** Tony, Abby, Stephanie, Andy

**Relevant Links:**

* [DS539 Client meeting #4](https://docs.google.com/presentation/d/1bc5EUdG8kfXMne6CkIX2gtro2vOGklmFLR3DexH3HMw/edit#slide=id.g27aed6778fa_0_2)

**Team Updates**

* Tony to give updates on the project and is presenting the presentation
* Team was not present during this meeting

Feedback:

* Team needs to include what the input data is for any data visualizations that are on the slide along with a takeaway point
* Team to produce a methodology documentation

**Client Comments**

* Slide 2: Stephanie wanted to check to see if this analysis was done based off of when a house has been bought
* Slide 5: Stephanie a bit confused on what additional data we would be looking into for
* Slide 6: would like some background reading on how are neighborhoods
* Slide 8: Andy: if the data is ALL that we have no more data – what would you do?
  + He is concerned about not getting additional data because he is concerned that their questions will not get answered
  + Abby: we should look into more data to see if possible
  + Stephenie: can we write a methodology becasuse Stephanie wants to do a presentation on shotspotter
* Client is building collition and wanted to see if Sommerville can also do the same time of work in terms of collecting and analyzing data

**Action Items**

* Written metholouical report to be produced for the city councilors – this is where city councilor can poke holes and see what additional information is available and we can get access too
* Tony/Abby to review the methodology component of the final report
* Send over the form for new clients Sommerville project

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**11/14/24 Client Meeting**

**Attendance:** Honglin, Melody, Sungwoo, Tony, Abby, Stephanie, Andy (absent), John, Julie

**Relevant Links:**

* [Client meeting 3 ShotSpotter Presentation](https://docs.google.com/presentation/d/1m7zWU_nfuBbdd5XHo4g1qNkUk0nAZHpF3C770eT0U_Y/edit?usp=sharing)

**Team Updates**

* Finished collecting and cleaning all the data
* Sungwoo: Each row in process dataset indicates gunshot incidents, and columns of shotspotter alerts (true/false) indicates whether or not shotspotter picked up the incident
* We have 2018 - 2024 data
* Sungwoo: You asked for extracted data, but we are still working on 2013 - 2017, would you like for us to send you the 2018 - 2024 dataset first or do you want everything in whole?

**Client Comments**

* Is there a difference between gunshots incidents between 2018 - 2024 and the ShotSpotter data in Bridgestats? (Stephanie)
  + Yes, the formatting and phrasing is different. Team to follow up in Actions Items.
* Are we also looking at gunshot incidents from 2018 - 2024? I want to see if there is a difference between gunshot incidents and shotspotter alerts during that period
  + Yes, we have pulled gunshot incidents during those periods in cleaned csv. Team to send the csv to BlackResponse.
* Can we create another slide with observations on individual differences within bridgestat?
  + Yes, in Action Items
* Stephanie: Send me all the data you have so far (even if it is just 2018 - 2024)
  + Yes, in Action Items
* Laurence Vale – MIT
* Regarding public housing (from Stephanie): the location of public housing is useful because our hypothesis is that they (public housing) dictates the neighborhood demographics such as race, wealth, etc around them. The closer and denser to public housing projects are, the more likely they are low-income and members of a BIPOC community. The further away from public housing projects, we’ll see more white and wealthier neighborhoods with more expensive housing.

**Action Items**

* Still need to clean 2017 - 2022 Bridgesta data
* Julie to talk about open-source package for street geo-coding to find longitude and latitude
* Add another slide next time for the difference between 2017 forward and 2018 afterward how the gunshot incidents are formulated.
* Tony to send slides and 2018 forward cleaned data (in GitHub) to Black Response.
* Tony to email Laurence Vale

**10/18/24**

**Team Updates**

* Team presented project overview (between now till end of Oct, planning on cleaning and collecting data from Bridgestate reports)
* Key tasks to complete
* Data cleaning and web scraping
* Converting the PDF to CSV format
* Exploring relationship between deployments & gentrification
* Analyzing trends in City Council Rhetoric on ShotSpotter over time
* Sungwoo walked the clients through the PDF to CSV process
* Julie: Gentrification not just a result of ShotSpotter, but also the technology from it

**Questions**

* TBR is trying to support data that already exists about ShotSpotter
* There is tons of information about how inaccurate SS is, what it is doing is not good for the neighborhood
* TBR is trying to add to the fact that SS is not only not needed, but also over the years has been shifting the neighborhoods and gentrifying the neighborhoods
* Trying to gather data to support the hypothesis presented – SS gentrifies
* Housing portion of project has been a main issue
* Usable data: Tax data from state office
* <https://www.cambridgema.gov/propertydatabase> /<https://www.cambridgema.gov/gis/mapgallery/assessingandtaxmaps> /[https://gis.cambridgema.gov/map/Viewer.aspx\](https://gis.cambridgema.gov/map/Viewer.aspx%5C)
* Housing data over rhetoric analysis
* Relationship between gentrification and deployment data (initial correlations)
* Gentrification: demo shift, and house price (changes in city census on race, ethnicity, and income, )

**Status Update per last Semester:**

* Last year the team did NOT correlation between shotspotter and housing price along with census data and housing price (did not have Bridgestat data last semester)
  + [Client Meeting Slidedeck (#3: 04/01)](https://docs.google.com/presentation/d/1k0wCP6GdLM7Iehdl5KhcgT_UM5Jsfd94LwWM8xDv-v8/edit#slide=id.g2bf74cf2e6f_0_0)
  + The link between these two things and the relationship between shotspotter and deployment locations, housing prices and demographic shift of the neighborhood.

**Weekly Meeting**

* Mondays for Stephanie
* Fri 9:30a or mornings is good for Andy

9/26

In Andy’s own words:

* TBR has been doing a lot regarding shotspotter, at this point of the project, the goal is to get a little bit more info/research on preparing campaign to bring it to the city
* Cambridge is one of the cities that has a contract with ShotSpotter (SoundThink) – audio surveillance that identifies gunshots to alert police
* TBR is fighting against increased surveillance, need to provide info on how SS isn’t an accurate device
* A lot of things are wrong with SS, and probable implications of violating civil rights
* TBR believes SS listens and records 24/7
* Beginning of research was looking to connect use of SS in Cambridge to be a tool of gentrification
* If you research SS, you see other cities (e.g Chicago), they behind the amount the $$ that the city utilizes
* In Cambridge, SS is being funded by a grant through the government
* The way Spark can help in F24 is through a different position, TBR is now building sentiment for the campaign
* TBR would like to hear a bit more info on how the discussion analysis
* Believes that those questions are very important
* Believes that in 10 years, there has been a shift in how the people that live in Cambridgeport have been pushed out

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##### ***1st Client Meeting Template***

Date:

Attendance:

Relevant Links: *Link to docs relevant to the conversation including most recent client PPT, etc.*

Agenda / Notes:

* Welcome & Introductions - *Use this time to get to know the project management team and client*
* Summary of X-Lab
  + This project is a part of our XLab practicum course [insert course here]. The students working on this project are registered for the course and earning credit for their work and participation. Providing the client with meaningful deliverables is a central output of the class.
* Client Summary of Project
  + In your own words, what is the project? What are you hoping to get out of this semester? Why is this project important for your organization?
* Review of Project Description
  + Confirmation of priorities and deliverables
    - Commenting on PD where adjustments need to be made, if any
    - Goal is to be able to reiterate these priorities to the student team next week
  + Questions from PM / TPM
    - For the rhetoric analysis, could the client provide some pointers for where students should look into besides Bridgestats data?
    - Confirming on the data visualization model and use of Tableau
    - What are some specific requirement for data visualization
* Logistics & Timeline
  + Communication
    - Contact information - is the above contact information correct?
    - What’s the best way to contact you with project questions? Email or would you like to be added to a project slack channel?
    - Any other preference re: communication?
  + Semester Schedule
    - Students are diving into the work now, getting to know the project through the PD and meetings with the PM and TPM
    - Mid October (10/18): about ½ way through the semester
    - Thanksgiving Recess: November 27-December 1
    - Last Day of classes for students: December 10
      * Final presentations to clients will be done before December 10th
    - Spark! Demo Day: December 11th (Clients will be invited to see final posters from teams)
  + Client Meetings
    - We’ll meet for client meetings (with the student team joining after this point) about every other week. Client schedules and holidays may impact this, but every other week is the goal.
    - At client meetings the teams will present their progress updates, ask questions, and ensure alignment to your goals
      * Our goal is to have client meetings towards the end of the week so that the team can meet internally at the start of each week to ensure a high quality presentation for clients.
    - **Looking ahead to the rest of the client meetings, does this day of the week/time of day typically work for you? If not, any preferences for days/times moving forward?** 
      * I will be looping the team into the scheduling of future meetings, so knowing your general availability on a given day/time is helpful.
* Questions / Notes
  + [honglinj@bu.edu](mailto:honglinj@bu.edu) to add any additional details on what the dashboard will consist of once Andy checks in with Stephanie

##### ***Client Meeting Template***

Date:

Attendance:

Relevant Links: *Link to docs relevant to the conversation including most recent client PPT, etc.*

Agenda / Notes:

Use this template for Client meetings [[TEMPLATE] Client Meeting Presentation](https://docs.google.com/presentation/d/1hfrk0F7PQD1uRJwUZDGWFUf1wV0jtYFZSmKnIJMCqws/edit?usp=sharing)

* Welcome
* Project Overview (*what stage of the project is the team in?)*
* Demo
  + Updates since last meeting
    - Blockers that were overcome
  + Walk through of findings and process
  + What’s next
* Blockers / Questions for client
* Client feedback and questions
* Logistics
  + Confirmation of next meeting
  + Confirmation of action items ahead of next meeting

Wrap-Up Checklist

**Project Managers:**

* ~~All client and team meetings must be set to end by 12/10 (last day of classes)~~ 
  + ~~Meetings should only be scheduled after this date if no other option~~
  + ~~Confirm the client’s interests and preferences in continuing - ask~~ ***~~“Are you interested in continuing to partner with Spark! Next semester either with this or another project, if there is capacity in the class?”~~***
  + ~~Invite clients to Demo Day and send them a calendar invite with the specific timeslot of their team (use these suggestions~~ [~~here~~](https://docs.google.com/document/d/1CS4cdn_5prAI3Af59NZWT1DWHq1npqxcp7zMkSwojGk/edit?tab=t.0)~~). All information about Demo Day for clients (including when teams are postering) can be found on the~~ [~~Demo Day landing page~~](https://tinyurl.com/demodayFA24)~~.~~
* ~~Review all final deliverables to ensure that all visualizations and conclusions are properly labeled and titled. Pay close attention to labels of demographic descriptors (e.g. race, etc.) to make sure this follows census standards. Also include references to data sources. Final deliverable grades should not be finalized until this step is complete.~~
  + *~~Update the project description’s Final Client meeting note section with a Easy-to-Understand summary of what and where to find and the final deliverable~~*
* ~~Upload project work to Spark! Google Drive project folder. Make sure the folder is organized - meaning that the client could easily navigate the files within it.~~

i. Deliverables, Presentations, Reports, Visualizations, Articles, Story Writing, Interviews, Research, Transcripts, Demos, etc.

ii. Documents should be clearly titled for what information they contain.

* ~~Refer to~~ [~~Template A~~](https://docs.google.com/document/d/1Dsczh0Dx0zdWhXUIQ0Q4c1vfm9nqayuU6a5a0MzIuhc/edit?pli=1#heading=h.rmkjq0xjw5b4)~~: Send wrap-up email to client(s) by December 13th (after the last client meeting) with all project deliverables/relevant work shared~~ **~~AND~~** ~~cc ALL project staff listed in the~~ [~~project management tracker~~](https://docs.google.com/spreadsheets/d/1qQ4qKE-bTPugLcN51kXK5D0sMXA33jbxqFnJvcQW9Vo/edit?gid=1674795768#gid=1674795768) ~~for this project in addition to~~ [~~buspark@bu.edu~~](mailto:buspark@bu.edu)*~~.~~*
* ~~If your team has any new additions or updates to the google drive folder AFTER December 13th, send a follow up email by December 20th, in the same email chain alerting the client the folder has been updated with more information. Refer to~~ [~~Template B~~](https://docs.google.com/document/d/1Dsczh0Dx0zdWhXUIQ0Q4c1vfm9nqayuU6a5a0MzIuhc/edit?pli=1#heading=h.m3k6e2jilt67)

i. All links should still be the same (i.e. accessing the google drive folder and documents inside)

ii. The same people need to be cc’d - if you press do reply all this should automatically include everyone in the original email.

* ~~Verify that any and all project files are in the Spark! Google Drive and shared with~~ [~~buspark@bu.edu~~](mailto:buspark@bu.edu)~~.~~

I. Students will need to move any documents/work created outside of the Spark! Drive into the drive, specifically in their Spark! Project folder.

* ~~Review the Project Description and include any additional data sources or relevant materials the team may have accessed/used during the project. If there’s a designer on the team, please make sure all design links are accurate and updated.~~

i. If any sources were incorrect or inaccessible, add a comment explaining why they were incorrect and how the team engaged them or what the team tried to do to access it

* ~~At the bottom of the Project Description under the ‘Contact Information’ chart, please include a section with the following information. Refer to~~ [~~Template C~~](https://docs.google.com/document/d/1Dsczh0Dx0zdWhXUIQ0Q4c1vfm9nqayuU6a5a0MzIuhc/edit?pli=1#heading=h.ccwpgkovyhsg)

“Semester Wrap-Up” - Make this title a heading

* + Where to pick up and begin working for next semester– this should include guided documentation of where as a team you would start your next set of tasks in order start quickly and efficiently on the remainder of the project
  + Tasks that were completed this semester
  + Recommended Next Steps
  + Comments / Insights (Best Practices: Tips for next person to be successful, methodology and approached that were taken)
  + (If applicable) Update Client Contacts - if there’s any new contact information for the client or any additional contacts than the ones listed in the chart on the project description.

**Technical Project Managers:**

* Review the quality of the code - does it run, is it appropriate to project longevity, etc.?
* Verify that all teams upload clean code to the Github repository
  + Make sure all pull requests are closed and merged to dev branch.
  + Make one final PR from the dev branch to main.
  + Delete old branches.
* Verify that all project datasets have been uploaded to Spark! Google Drive project folder
* Have the team fill out the dataset documentation file [(example of best practice)](https://github.com/BU-Spark/dataset-documentation/blob/main/dataset-documentation/DATASETDOC-fa23.md) fill out [this](https://docs.google.com/forms/d/e/1FAIpQLSdxtdqHAFooEdwl02zQD9vuDhXH6GXNP9VoDf2PduZZKR6vWw/viewform?usp=sharing) form regarding the datasets used in the project (only one submission per project is necessary).
  + Each repo will have a folder named dataset-documentation. The folder will have a separate README with instructions on how to name the new documentation file.
    - If the repo does not contain a folder named dataset-documentation make a new branch, create a new folder named dataset-documentation and add the contents found here: <https://github.com/BU-Spark/dataset-documentation/tree/main/dataset-documentation>
* Read and review the github repo readmes ([example of best practice](https://github.com/BU-Spark/ml-herbarium/blob/main/README.md)) to ensure there is a clear and understandable direction on how future teams could easily navigate the project.

1. If relevant, please make sure teams include the following:
   * + Raw Data is being kept [here](Repo folder containing raw data) within this repo or [here] (Provide link Google Drive folder or if the raw data is stored on the SCC provide the path to the raw data)
     + Data processing/transformation scripts are being kept [here](Repo folder containing data processing scripts/notebooks)
     + Cleaned Data is being kept [here](Repo folder containing cleaned data) within this repo or [here] (Provide link Google Drive folder or if the raw data is stored on the SCC provide the path to the raw data)

* At the bottom of the Project Description under the ‘Contact Information’ chart, please add to the section the following information. Refer to [Template B](https://docs.google.com/document/d/1Dsczh0Dx0zdWhXUIQ0Q4c1vfm9nqayuU6a5a0MzIuhc/edit?pli=1#heading=h.ccwpgkovyhsg)

“Semester Wrap-Up Overview”

* Tasks that were completed this semester
  + Recommended Next Steps
  + Comments / Insights (Best Practices: Tips for next person to be successful, methodology and approached that were taken)
  + (If applicable) Client Contacts (any additional contacts than the ones listed above in the chart?)\* Only include this if there are additional contacts

**Responsibility of Student Teams:**

* Ensuring the all code is uploaded and updated to sparks github
  + All dev branch should be merged into single dev branch, and Final PR should be made and get approved by PM or TPM
  + This should included a ReadMe documenting what the team has created and how you can get their code up and running
    - It should also include what the next tasks should be for the next student team that is working on the project
    - Blockers that were faced and their solutions
* Ensuring all documentation created at in the project google folder
* Ensuring the [buspark@bu.edu](mailto:buspark@bu.edu) has access to all documents, files, stories, and code
* Ensure any project related files uploaded to Google Drive (presentation, datafiles, and etc.) are in the Spark! Google Drive project folder.
  + Transfer ownership of the file to [buspark@bu.edu](mailto:buspark@bu.edu) (Share -> Select buspark “Editor”-> “Transfer Owner”)
* Create wrap up documentation
  + Where to pick up and begin working for next semester– this should include guided documentation of where as a team you would start your next set of tasks in order start quickly and efficiently on the remainder of the project
* Have the team fill out the dataset documentation file [(example of best practice)](https://github.com/BU-Spark/dataset-documentation/blob/main/dataset-documentation/DATASETDOC-fa23.md) fill out [this](https://docs.google.com/forms/d/e/1FAIpQLSdxtdqHAFooEdwl02zQD9vuDhXH6GXNP9VoDf2PduZZKR6vWw/viewform?usp=sharing) form regarding the datasets used in the project (only one submission per project is necessary).
  + Each repo will have a folder named dataset-documentation. The folder will have a separate README with instructions on how to name the new documentation file.
    - If the repo does not contain a folder named dataset-documentation make a new branch, create a new folder named dataset-documentation and add the contents found here: <https://github.com/BU-Spark/dataset-documentation/tree/main/dataset-documentation>