

Final Report

● Ungraded

1 Day, 14 Hours Late

Group

Anushka Levaku

Ben Tausner

Samuel Tausner

...and 3 more

 [View or edit group](#)

Total Points

- / 15 pts

Question 1

[Report](#)

15 pts

Question assigned to the following page: [1](#)

MoralMap: Final Report

1. Basic Project Information

Name of your project: MoralMap

Name of your teammates: Anushka Levaku, Ben Tausner, Grant Wells, Marc Vaz, Mantas Viazmitinas, and Sam Tausner

Give a one sentence description of your project. Please use the name of the project in your description.

MoralMap is a project that maps the intricate ethical landscape of the United States, revealing how regional, demographic, and ideological factors influence moral judgments on contemporary issues.

Logo for your project.



What problem does it solve?

MoralMap addresses the lack of detailed, real-time data on ethical variations within the United States, which is important to understand the moral landscape of the country and its implications for policy-making, social cohesion, and conflict resolution.

What similar projects exist?

- MoralMachine by MIT (our project covers a broader range of ethical issues beyond just autonomous vehicles, focuses specifically on the United States, allowing for more detailed regional analysis)
- Pew Research Center's surveys on American values (our project uses continuous crowdsourcing rather than periodic surveys, allowing for real-time tracking of shifts in values)

What type of project is it?

MoralMap is a hybrid AI + crowdsourcing tool.

What was the main focus of your team's effort

Question assigned to the following page: [1](#)

The main focus of our team's effort was to develop a robust, easy-to-use web application that would allow us to cast a wide net in data collection. From there, we shifted our focus into data analysis, specifically determining the best ways to display our data and findings.

How does your project work? Describe each of the steps involved in your project. What parts are done by the crowd, and what parts will be done automatically.

Once we developed the web application, which we will discuss further in a later section, we were ready to begin crowdsourcing. Once the user reaches the website, they are greeted by a set of instructions alongside a brief overview of the project. Then, we ask for some demographic information from the user such as their age, location, religious affiliation, etc.. From there, the user responds to 10 different ethical scenarios, which are randomly selected from our database of questions, in multiple choice format. After collecting all the responses, we performed a series of analyses (detailed further in the Aggregation section below) to visualize any trends from our users' data about ethical perspectives.

Provide a link to your final presentation video. Give the full URL to your YouTube video or your Google Drive video and make sure it is publicly available (OK to keep it unlisted).

<https://drive.google.com/file/d/1rtRMBXoYhIRCXGMcAgpbadhTshJidngu/view?usp=sharing>

Github Link

<https://github.com/grantwells10/moral-map>

Which two sections below did you pick for your in-depth analysis?

Project Analysis and Technical Challenges.

2. The Crowd

Who are the members of your crowd?

Our crowd consisted of our classmates, friends, and family members. We aimed to recruit a representative sample of the US population, considering factors such as age, gender, race/ethnicity, education level, income, political affiliation, and geographic location.

For your final project, did you simulate the crowd or run a real experiment?

We used a real crowd by running a real experiment.

If the crowd was real, how did you recruit participants?

We recruited participants by sending the link to our MoralMap platform to our classmates via Ed and to our friends and family members via text and email.

Question assigned to the following page: [1](#)

How many unique participants did you have?

We received answers from 120 participants.

3. Incentives**What motivation does the crowd have for participating in your project?**

Altruism

How do you incentivize the crowd to participate? Please write 1-3 paragraphs giving the specifics of how you incentivize the crowd. If your crowd is simulated, then what would you need to do to incentivize a real crowd?

To incentivise participation in our project, we used both intrinsic and extrinsic motivators tailored to different groups. Our classmates were extrinsically incentivized to participate for their participation grade in the class. Our friends and family were motivated by the intrinsic satisfaction of doing something good for the people they care about, us, and contributing to a project rooted in moral and social good. By framing participation as an opportunity to help us succeed and create a meaningful impact, we were able to appeal to their personal connections and desire to make a difference.

Did you perform any analysis comparing different incentives?

No, we did not perform an analysis comparing these different incentives used.

4. What the crowd gives you**What does the crowd provide for you?**

Participants will provide demographic information (age, gender, education, location, political affiliation, etc.) and responses to ethical dilemmas.

Is this something that could be automated?

This would not be able to be automated.

If it could be automated, say how. If it is difficult or impossible to automate, say why.

This would be impossible to automate because the whole premise of the project is to receive data from real people of diverse backgrounds in order to map the ethical landscape of people in the US and other countries.

Did you create a user interface for the crowd workers? Answer yes even if it's something simple like a HTML form on MTurk.

Question assigned to the following page: [1](#)

Yes, we did create a user interface for crowd workers in the form of a MoralMap website. We used React for the frontend to make a simplistic, frictionless platform that would be easy to share and easy to use to ensure the data collection process went as smoothly as possibl

If yes, please include a screenshot of the crowd-facing user interface in your report. You can include multiple screenshots if you want.

Question assigned to the following page: [1](#)



Welcome to Moral Map

Moral Map is a crowdsourcing project exploring how people's backgrounds and experiences influence their ethical decision-making. You'll be presented with a series of ethical dilemmas/debates and asked to make choices based on your personal judgment. Please note that your responses are anonymous so answer as honestly as possible. Additionally, your responses will not be sent to our database until you complete the entire survey, so make sure to go through all ten dilemmas and press "Complete" when you are done.

First, we'll ask for some demographic information, and then you'll respond to 10 different scenarios. Your responses will help us understand how various factors affect moral decision-making across different populations. Thank you for your contribution!

[Begin Study](#)

Question assigned to the following page: [1](#)

Demographic Information

Age

Gender

 Select Gender

Country

 Select Country of Current Residence

Location Type

 Select Location Type

Education Level

 Select Education Level

Employment Status

 Select Employment Status

Religion

 Select Religion

Continue to Survey

Dilemma 3 of 10

Freedom of Speech

Should social media platforms be held responsible for content posted by users?

Yes

No

Unsure

Previous

3 / 10

Next

Describe your crowd-facing user interface. This can be a short caption for the screenshot. Alternately, if you put a lot of effort into the interface design, you can give a longer explanation of what you did.

Question assigned to the following page: [1](#)

We used simple React to create the UI for the instructions, demographic user form, and then for each of the dilemmas. The first screenshot is the landing page that the user sees when they use the website. The second screenshot is then a form with various fields. After inputting their information, the application prompts the user with ten dilemmas randomly pulled from the database, giving each their own screen. React allowed us to easily recycle the layout for each dilemma, enabling us to reuse the same UI for each dilemma after sampling ten from the database.

5. Ethics

Your report should include a discussion of ethics. One method of address this requirement is to nominate one of your teammates to ask ethics question of the whole group.

Should my application exist at all?

MoralMap serves a significant purpose in collecting and analyzing data on ethical decision-making variations across diverse demographics. This kind of project can be a powerful tool for understanding the complexities of moral judgment and their implications for policy-making, social cohesion, and conflict resolution. By filling a gap in real-time, detailed data on ethical differences, the project has the potential to positively impact various domains, including sociology, public policy, and even education.

Does this task potentially expose workers to harm (for example, content moderation)? What effect can it have on them?

In general, our project doesn't seem to involve content that would expose participants to direct harm, such as graphic or traumatic material. However, ethical dilemmas can sometimes touch on sensitive or controversial topics (e.g., life-and-death decisions, political or cultural conflicts). This exposure might lead to emotional discomfort or cognitive stress, especially if participants feel conflicted about their responses or if their own values are challenged.

Are you fairly compensating the workers for their time?

Yes, we are fairly compensating our workers for the time. Specifically for our classmates, one complete response to our form takes roughly 5-10 minutes. And in return for this brief time, our classmates receive participation credit for their grade in the course, as well as our team reciprocating the act of participating in their projects, which is a fair trade off. For our friends and family, while there was no tangible compensation, we found after discussion that many individuals were glad to have their personal beliefs contribute to a larger-scale project.

If you are creating a dataset for machine learning:

Question assigned to the following page: [1](#)

We did not implement any machine learning analysis on the data we collected, but we did perform statistical analysis that mapped our responses to locations in the US. This statistical analysis is further detailed in the Aggregation section.

Is your evaluation sound? Do the conclusions you reach stand up to scientific scrutiny?

Yes, our evaluation of participants' responses is sound. Our quality control with the attention check questions ensured our data accurately represented participants' moral perspectives, and in our data analysis further described in the Aggregation section later on, we highlight how our analysis closely resembles scientifically-sound results from larger polling methods currently practiced in the US to collect political and ethical opinions from the public.

6. Skills

Do your crowd workers need specialized skills?

No, crowd workers don't require any specialized skills.

What sort of skills do they need?

They only need to know information about themselves like their age, location, or religious affiliation, and some basic critical thinking skills to understand and respond to the ethical dilemmas.

Do the skills of individual workers vary widely?

Yes, skills of individual workers likely vary (due to varying levels of education detailed by the participants' demographic information), but we don't necessarily measure skill as a metric for our analysis.

If skills vary widely, what factors cause one person to be better than another?

No skill factors caused one participant to be better than another.

Did you analyze the skills of the crowd?

We indirectly analyze the skills of the crowd by recording their educational level in the demographic information data. However, we don't necessarily conduct any analysis that compares our participants' education/skill level to their answers.

If you analyzed skills, what analysis did you perform? How did you analyze their skills? What questions did you investigate? Did you look at the quality of their results? Did you analyze the time it took individuals to complete the task? What conclusions did you reach?

Question assigned to the following page: [1](#)

As mentioned in the previous question, participant's answers to the ethical dilemmas are a reflection of their personal beliefs and moral stances, not their education/skill level. As such, we do not explicitly analyze the skills of our participants.

Do you have a graph analyzing skills? If you have a graph analyzing skills, include the graph here.

Not applicable to our project.

7. Quality Control

Is the quality of what the crowd gives you a concern?

Yes, the quality of responses from the crowd was a concern of ours, since we wanted to ensure that participants were not just putting arbitrary answers in order to finish the survey as quickly as possible, but rather to collect accurate information about their moral perspectives.

How do you ensure the quality of the crowd?

To ensure the quality of responses the crowd provides, we included one question randomly placed in the survey for each participant that told them to put a particular answer to the ethical dilemma. This allowed us to easily filter out participants who were randomly selecting answers. Since there is no other skill involved in our survey, this was sufficient for quality control.

If quality is a concern, then what did you do for quality control? If it is not a concern, then what about the design of your system obviates the need for explicit QC? This answer should be substantial (several paragraphs long).

As mentioned above, we utilized an attention check method for quality control of our responses by giving each participant one question that directed them to put a particular answer to prove they were carefully reading and thinking about their answers. One example of this would be the

Question assigned to the following page: [1](#)

following:

Dilemma 7 of 10

Food Safety

Food safety is very important. To ensure you are actually paying attention, choose Abolish the FDA.

FDA is important

Abolish the FDA

Unsure

Previous

7 / 10

Next

In the above image, we included a question on food safety that directed participants to choose “Abolish the FDA” to demonstrate their attentiveness. This approach acted as a safeguard against rushed or inattentive answers and provided a straightforward mechanism to verify the integrity of the data collected. Participants who failed the attention checks were flagged, which helped us maintain a high standard of data quality. The attention check was effective because it was integrated into our survey, appearing as just another dilemma while acting as an important part of maintaining the validity of our results.

In addition to the attention checks, we focused on designing the survey with clear and unambiguous language to minimize misunderstandings. By carefully constructing questions that were easy to interpret, we reduced the likelihood of careless mistakes.

Did you analyze the quality of what you got back? For instance, did you compare the quality of results against a gold standard? Did you compare different QC strategies?

We analyzed the quality of responses by automatically rejecting any responses from a participant if they incorrectly answered the attention check question, like the one detailed above. This ensured that we only collected and further analyzed responses from participants who were carefully responding to the ethical dilemmas they were presented with.

8. Aggregation

How do you aggregate the results from the crowd?

Question assigned to the following page: [1](#)

We used a hierarchical clustering approach to aggregate responses by demographics (such as ideology, age, region). Data is grouped based on patterns identified from participant answers to ethical dilemmas, creating clusters that represent demographic and regional trends. Obviously, the regional trends are limited, yet they still show some information on state differences.

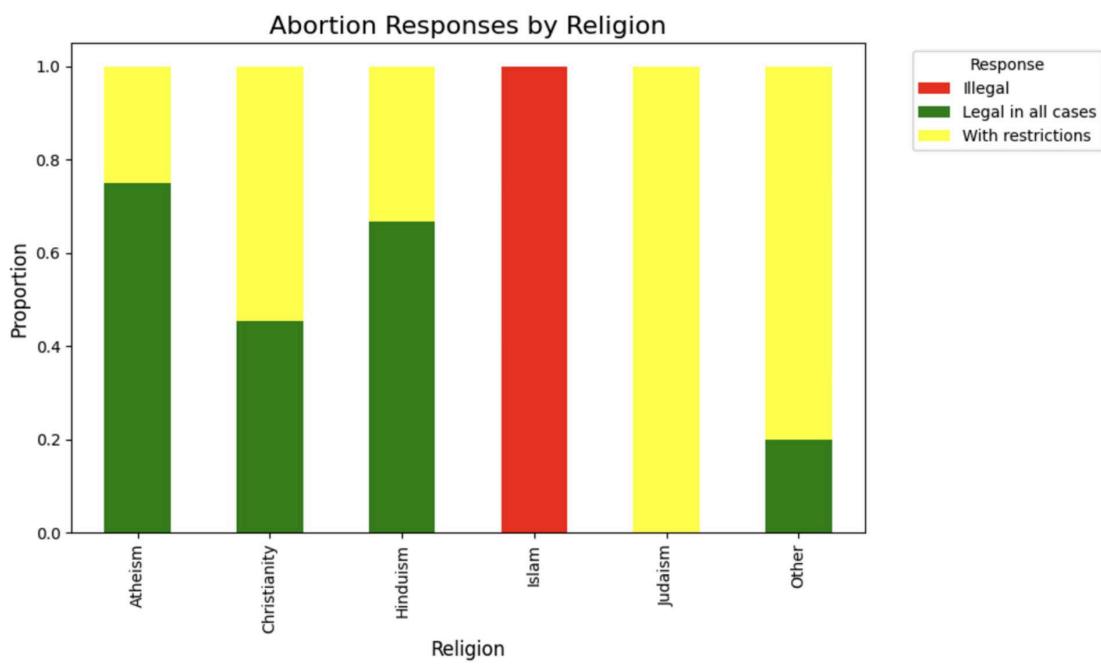
Did you analyze the aggregated results?

Yes, we conducted analysis to identify correlations between demographic factors and ethical perspectives. As an example, we investigated whether responses varied significantly based on political affiliation or geographical location.

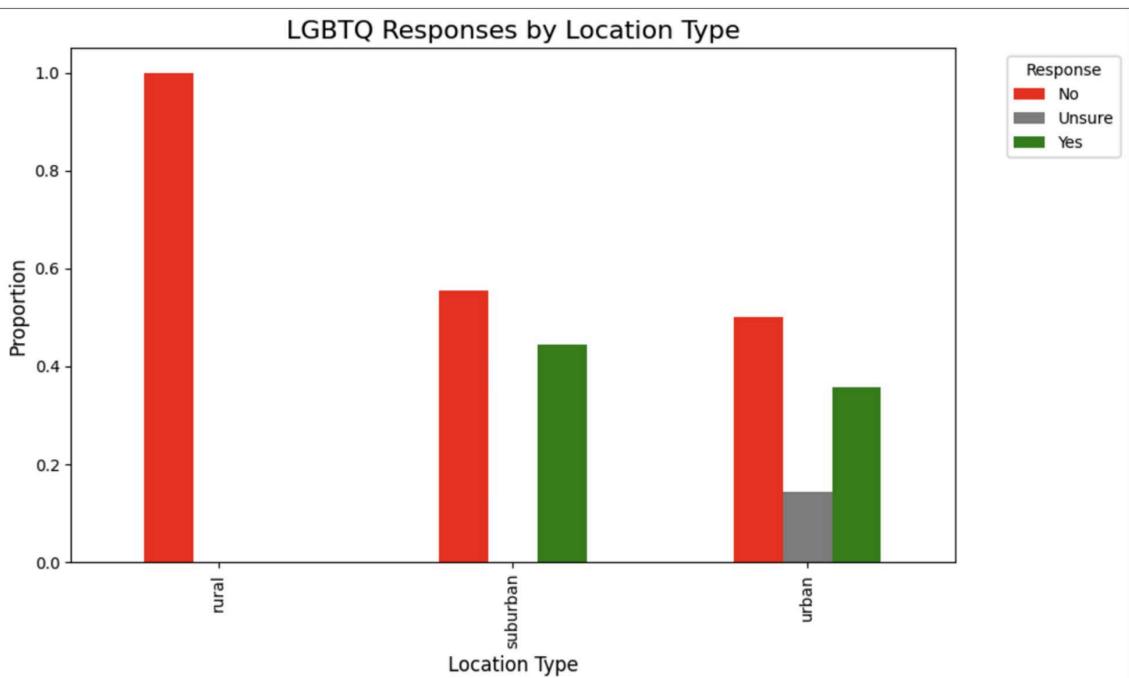
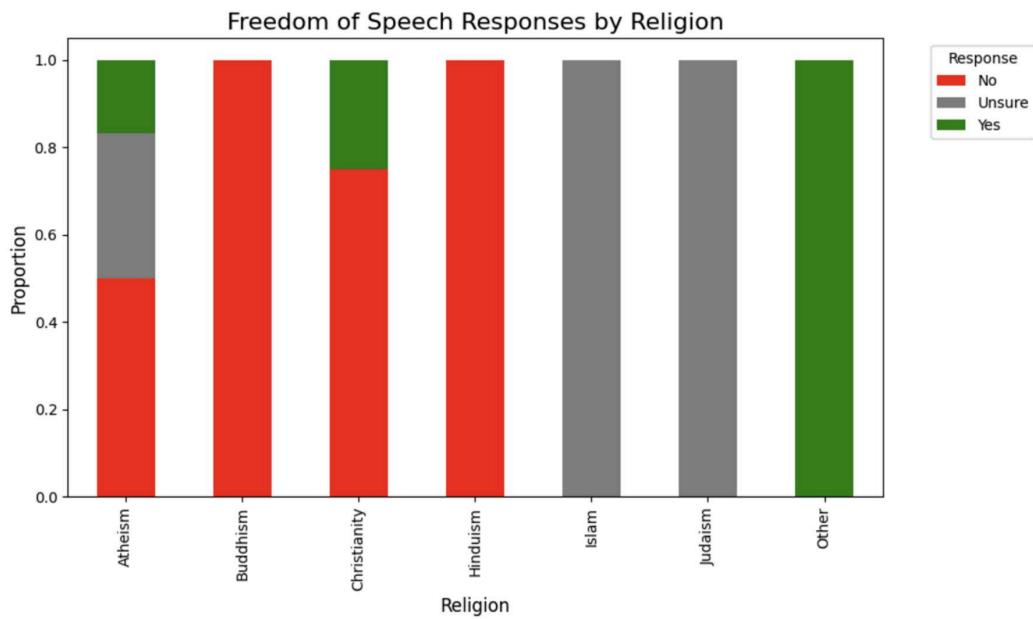
What analysis did you perform on the aggregated results? What questions did you investigate? Did you compare aggregated responses against individual responses? What conclusions did you reach?

We performed statistical analysis on the clustered data, examining the frequency of specific ethical choices within a state. We also compared aggregated results against individual responses to validate trends.

Do you have a graph analyzing the aggregated results? If you have a graph analyzing the aggregated results, include the graph here.



Question assigned to the following page: [1](#)



Did you create a user interface for the end users to see the aggregated results? If yes, please include a screenshot of the user interface for the end user in your final report. You can include multiple screenshots, if you want.

No, there is no UI for the end users to see the aggregated results

Question assigned to the following page: [1](#)

Describe what your end user sees in this interface. This can be a short caption for the screenshot. Alternately, if you put a lot of effort into the interface design, you can give a longer explanation of what you did.

N/A

9. Scaling Up

What is the scale of the problem that you are trying to solve?

The scale of MoralMap could in theory be worldwide, as we are trying to map the moral landscape of participants from as many diverse backgrounds as possible, ranging from different states in the US all the way to different countries around the globe.

Would your project benefit if you could get contributions from thousands of people?

Our project would certainly benefit from contributions of thousands of people.

If it would benefit from a huge crowd, how would it benefit?

It would benefit from a huge crowd for a number of reasons. One being that a large participant pool would ensure that the data collected reflects the diversity of backgrounds, cultures, values, and experiences within the United States (or globally if applicable). A larger sample size enhances the reliability of the results by reducing the margin of error and increasing the confidence in observed trends or correlations, leading to more robust and generalizable insights.

What challenges would scaling to a large crowd introduce?

While a large crowd is beneficial, there are challenges. Data quality control would become even more important, further necessitating mechanisms like our current attention-check questions in place to weed out disingenuine responses. If we scale up, we might also expect challenges with incentivizing more people to participate in our MoralMap project, meaning we may have to resort to financial compensation of participants on platforms like MechanicalTurk for improved participation.

Did you perform an analysis about how to scale up your project? For instance, a cost analysis?

We did not do this.

What analysis did you perform on the scaling up?

We didn't do any.

What questions did you investigate? What conclusions did you reach?

Question assigned to the following page: [1](#)

N/A

Do you have a graph analyzing scaling? If you have a graph analyzing scaling, include the graph here.

N/A

10. Project Analysis

Did your project work? How do you know? Analyze some results, discuss some positive outcomes of your project.

Yes, our project did work as intended. We successfully were able to collect ethical dilemma responses from 120 participants, analyze the data, and identify trends based on information gathered from the user. We saw several patterns such as urban respondents leaning more liberal and rural respondents showcasing conservative trends on certain dilemmas. We were also able to see how religious affiliation influences perspectives on controversial topics like abortion and freedom of speech. The abortion data demonstrates diverse opinions across groups, which reflected the complexity of moral reasoning we were attempting to highlight in our project. A key positive outcome of our project was its ability to foster a great understanding of contemporary issues by visualizing diverse perspectives, encouraging reflection through participation, and supporting discussions on these ethical issues.

What were the biggest challenges that you had to deal with?

The first challenge that we inevitably faced was participant recruitment and sheer data volume. Naturally, relying on family members and friends to fill out our surveys resulted in the majority of our data coming from the same few demographics. However, we still opted to use a web application in lieu of MTurk for a few reasons. The primary of which being the sensitivity of our subject matter—ethical dilemmas. After learning about the MTurk ecosystem throughout the year, we opted to create our own platform to facilitate our crowdsourcing instead of relying on MTurkers in an effort to enhance the quality of responses. Our vision was to eliminate monetary compensation for motivation to complete the tasks to hopefully garner input from individuals who cared about the goal of the project, analyzing ethical responses based on personal background. While our outreach was limited, we believe our responses were more genuine as the main motivation to complete the survey was to contribute to our research.

Were there major changes between what you originally proposed and your final product?

Yes, our approach to analysis changed drastically after initial viewing of our data.

If so, what changed between your original plan and your final product?

Question assigned to the following page: [1](#)

The original plan included implementing machine learning for deeper analysis. However, in efforts to avoid effectively “swatting a fly with a bazooka,” we decided to use statistical clustering instead of natural language processing. This approach was more logical given our responses since each of the users were limited to primarily binary answers for each question. Additionally, due to an asymmetric geographical distribution of our data, we weren’t able to perform as much geospatial analysis as we would’ve liked since the majority of the responses came from a minority of the states in the US.

What are some limitations of your product? If yours is an engineering-heavy project, what would you need to overcome in order to scale (cost/incentives/QC...)? If yours was a scientific study, what are some sources of error that may have been introduced by your method.

We have two main limitations of our project. The first was with data bias - overrepresentation of student demographics and underrepresentation of older or non-urban populations. The second was our scalability of the project - QC mechanisms and data storage would need to be upgraded for larger participant pools.

Did your results deviate from what you would expect from previous work or what you learned in the class?

Our results did not deviate from any preconceived notions, but the analysis definitely took a different turn than from what was expected as we had a plethora of different data points without a clear way to uniformly examine everything all together, leading us to zoom in on specific topics and demographic attributes.

If your results deviated, why might that be?

Our results deviated due to the lack of diversity in geographic locations from the users that responded to our survey. We were intending on creating several visualizations using a map of the US, but due to limited state representation we shifted to using other types of visualization methods such as bar graphs to derive insights on non-geographical factors such as religion.

11. Technical Challenges

- Did your project require a substantial technical component? Did it require substantial software engineering? Did you need to learn a new language or API?
- If project required a substantial technical component, describe the largest technical challenge you faced.
- How did you overcome this challenge? What new tools or skills were required? Feel free to nerd out a bit, to help us understand the amount of work that was required.

Question assigned to the following page: [1](#)

- Do you have any screen shots or flow diagrams to illustrate the technical component you described? If so, include the graph here.

The core of our project was the web application that we built to gather data from the users in a very approachable, simple manner. We built a MERN full-stack website to conduct the survey. First, we uploaded all of our dilemma data to a MongoDB Atlas Cluster under a “dilemmas” collection. We then proceeded to build the backend for the web application using Node.JS and Express to allow us to include both data models for users and dilemmas as well as endpoints for the CRUD operations such as retrieving dilemmas and posting user data to the “users” collection, which would contain all of the demographic information about each user as well as their responses to each of the ten dilemmas.

For the specific dilemma sampling, we randomly presented ten different scenarios to each user from a pooling of the 30 we initially uploaded to MongoDB. Technically, only nine of these dilemmas were random as there was one hard coded attention check question that was guaranteed to be included in every user survey. After building the endpoints, the frontend followed swiftly through React. The user form created a user document in our database, and then after all of the responses were filled out, this array of answers was sent to the database for storage. After the website was fully functional locally, we decided to use Render as a free-to-use hosting option for our website. Once we deployed the website and finished collecting data after about a week, we used the MongoDB CLI tools to download the data as a JSON file which we uploaded to Google Colab for analysis.

The biggest technical challenge was connecting all of the components of the application to ensure that we would be able to correctly collect and store data from many users operating on the platform at the same time, while also balancing the simplicity and ease of usage of the application. One specific challenge that we faced was handling the database POST requests. Our initial implementation sent an update to the backend every time the user made a selection, which slowed down the application significantly and made for a less enjoyable user experience. As a solution, we decided to locally cache the responses from each user and then send one POST request at the end of the survey to eliminate waiting time between each question as well as limit the overall amount of requests sent to the backend server. This simple change made for a quicker, more accessible application. Lastly, exporting the data itself proved to be trickier than we planned. We needed to install MongoDB’s CLI Tools which was a new experience for us, and figuring out the exact URI to connect to in order to download the data from the right cluster and collection took unexpectedly long.