OUTREACHY 2024 PROJECT PROPOSAL

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INTRODUCTION

My name is Navya Verma, and I am currently pursuing a Bachelor of Technology degree in Artificial Intelligence and Machine Learning from Indira Gandhi Delhi Technical University for Women in Delhi, India. I have a profound interest in data science, which stems from its ability to facilitate research, exploration across various fields, and engagement in practical applications. Over the past two years, I have immersed myself in subjects related to data science as part of my degree program. My educational journey has equipped me with a solid foundation in topics such as Linear Algebra, Abstract Algebra, Probability and Statistics, Optimization Techniques, Python, Java, Data Structures and Algorithms, as well as Artificial Intelligence.

I am passionate about delving into new information, staying updated with the latest advancements in the field through technical podcasts, and continually expanding my understanding of the world around me. This passion has fueled my commitment to excel in the realm of data science, driving me to seek opportunities where I can leverage my skills and knowledge to make meaningful contributions.

PREVIOUS PROJECTS

ML Based Air Quality and Health Risk Prediction in Delhi | GitHub

- Duration: August 2023
- Tools & Technologies Used: Python, Machine Learning, NumPy, Pandas
- Description: Developed a machine learning model focused on Delhi to predict air quality and associated health risks. The model incorporated data on particulate levels, weather conditions, and historical health data to provide accurate predictions. By leveraging Python and various machine learning techniques, this project aimed to address the pressing issue of air pollution in Delhi, providing valuable insights for public health initiatives and policy making.

Centsible | Project

- Duration: October 2023
- Tools & Technologies Used: Figma, User Research, User Interface
- Description: Led the design process for an innovative financial management app called Centsible. Utilizing tools like Figma and conducting thorough user research, I crafted a user-friendly prototype empowering individuals with features for income management, debt navigation, investment exploration, and crypto education. This project aimed to enhance financial literacy and promote responsible financial practices among users.

HealthHub Connect | Project

- Duration: April 2023
- Tools & Technologies Used: Figma, User Research, User Interface
- Description: Developed prototypes for two healthcare-focused apps after conducting extensive user research. These prototypes were designed to address various healthcare economics challenges faced by different user groups in India. By employing Figma and incorporating user-centric design principles, these prototypes aimed to offer practical solutions and improve access to healthcare services for diverse demographics.

Earthlytica | GitHub

- Duration: November 2023 - Present
- Tools & Technologies Used: HTML, CSS, JavaScript, Git
- Description: Contributed to the creation of an impactful environmental website, Earthlytica, dedicated to educating and engaging users in environmental conservation efforts. The website offers features like a carbon tracker and fosters a community committed to sustainable living. By leveraging HTML, CSS, JavaScript, and Git, this project aims to raise awareness about environmental issues and encourage individuals to take meaningful actions towards preserving the planet.

Why do I wish to take part in Outreachy 2024?

I am deeply passionate about my journey in data science, machine learning, and artificial intelligence, which I have pursued with great enthusiasm and curiosity over the past two years. The prospect of machines learning and making decisions autonomously by analyzing vast amounts of data has always fascinated me. To satiate my thirst for knowledge, I have actively sought out various online courses, workshops, and hands-on projects to build a robust foundation in this field.

Through these endeavors, I have honed my skills in Python, data visualization, data science, and other essential technologies. However, my quest for deeper understanding and growth drives me to continually seek new challenges and opportunities. Participating in Outreachy presents an exciting prospect for me to delve deeper into the realm of open source.

Open source platforms offer invaluable opportunities for learning and collaboration. Contributing to projects within the Outreachy community not only allows me to apply my skills and knowledge but also provides a platform for me to share my expertise and learn from the experiences of others. As someone who comes from an underrepresented group in many aspects, particularly in the context of India, I am keen to contribute to initiatives that promote diversity and inclusivity.

Moreover, Outreachy's focus on providing representation to underrepresented groups resonates deeply with me. I see this as an opportunity not only to make a positive impact on the world but also to gain exposure to the world of open source, something that I have long been deprived of. By participating in Outreachy, I hope to bridge this gap and leverage my skills and knowledge to create innovative solutions that address societal challenges.

Ultimately, my goal is to use my expertise in data science and artificial intelligence to contribute meaningfully to projects that have a tangible, positive impact on society. Outreachy represents a stepping stone towards achieving this goal, and I am eager to seize this opportunity to grow, learn, and make a difference.

Why moja global?

I am drawn to Moja Global due to its mission of supporting ambitious climate actions through the development of pioneering open-source software, including the groundbreaking Flint software. Moja Global's commitment to providing accurate and affordable estimates of greenhouse gas emissions and removals from forestry, agriculture, and other land uses strongly aligns with my personal beliefs, aspirations, and future goals.

Having focused my projects on greenhouse gas emissions and pollution in India and globally, I deeply resonate with Moja Global's dedication to addressing environmental challenges. As an engineering student with a keen interest in environmental issues, I am impressed by the impact Moja Global's work has on society. Their emphasis on providing affordable solutions for estimating greenhouse gas emissions is particularly noteworthy, as it can significantly aid organizations and policymakers in making informed decisions to mitigate climate change.

I am eager to further expand my knowledge of new technologies and environmental concepts through collaboration with Moja Global. The opportunity to work with a team dedicated to advancing environmental sustainability excites me. I am enthusiastic about contributing to Moja Global's mission and playing a part in shaping a better future for our planet.

Contributions I made for Outreachy 2024

During the Outreachy 2024 contribution period, I made significant contributions to the Moja Global project. Here is a summary of my contributions:

1)Project Proposal: I took the initiative to propose packaging Flint for cross-platform usage. This involved drafting the objectives, expected deliverables, and a timeline for the project. By outlining a structured plan, I aimed to ensure the smooth execution of the project and achieve its goals efficiently.

2)Roadmap for High Throughput Visualization on Google Earth Engine: I developed a roadmap outlining the pipeline for high throughput visualization on Google Earth Engine. This involved designing an algorithm to facilitate efficient visualization of data, enabling users to gain valuable insights from large datasets.

3)Documentation Review and Improvement: I conducted a comprehensive review of the existing Flint documentation. Carefully analyzing the Flint installation process, I documented the steps in Markdown format, highlighting areas for improvement. This endeavor aimed to enhance the clarity and accessibility of the documentation for users.

4)Pull Request for Dockerfile Enhancement: I submitted a pull request that focused on enhancing the Dockerfile used in the project. Specifically, I modified the Dockerfile to utilize a JFrog-based URL for downloading Boost libraries, which resolved issues encountered during the building of the base Ubuntu 18.04 container in Docker. This optimization contributed to a smoother development process and improved container stability.

5)Analysis and Improvement Plans for Flint Handbook: I thoroughly analyzed the entire Flint handbook and drafted improvement plans chapter-wise. By identifying areas for enhancement and proposing specific improvements, I aimed to enhance the usability and effectiveness of the handbook, empowering users to maximize their utilization of Flint.

These contributions reflect my dedication to advancing the Moja Global project and my commitment to improving the accessibility, functionality, and usability of the Flint software. Through my efforts, I aimed to contribute to the project's success and further its mission of supporting climate actions through innovative software solutions.

MY CONTRIBUTIONS TIMELINE

March 8 - March 12:

- Visited various organizations participating in the Outreachy program.
- Engaged in discussions with representatives, reviewed their projects, and established connections to understand ongoing activities.
- Explored project scopes and objectives to identify alignment with personal interests and skills.

March 13 - March 22:

- After careful consideration, I decided to focus efforts on Moja Global due to alignment with personal interests and goals.
- Spent the next 10 days analyzing Moja Global's project and familiarizing myself with its objectives and requirements.
- Installed Flint locally on my system and experimented with its functionalities.
- Conducted extensive research on Moja Global, including reading relevant documentation, exploring datasets, and understanding the project's context.
- Invested time in studying the Moja Global handbook and other provided resources to gain a comprehensive understanding of the project's scope and requirements.

March 23 - March 31:

- Commenced active contributions to Moja Global's project.
- Utilized acquired knowledge and insights to draft a detailed plan outlining proposed contributions and milestones.
- Collaborated with the project team to discuss and refine the proposed plan, ensuring alignment with project objectives and expectations.
- Initiated specific tasks outlined in the contribution plan, such as documentation review and improvement, Dockerfile enhancement, and roadmap development.
- Communicated progress updates with the project mentors and sought feedback to ensure the quality and effectiveness of contributions.
- Continued to engage with the Moja Global community, actively participating in discussions and seeking guidance when needed.
- My contributions: https://github.com/Navya-Verma11/Outreachy_MG_M24

POST OUTREACHY

Post-Outreachy, I am eager to continue my journey of contributing to Moja Global, particularly given my deep interest in deep learning, machine learning, and environmental issues. Working with Moja Global aligns perfectly with my interests and skills, and I am committed to making meaningful contributions to their projects in the future.

As someone passionate about both technology and the environment, Moja Global provides an ideal platform for me to merge these interests and drive positive change. I am excited about the opportunity to collaborate with the organization's dedicated team and contribute towards their mission of supporting climate actions through innovative software solutions.

Furthermore, I am enthusiastic about the prospect of assisting new contributors to Moja Global's projects. Sharing my knowledge and experiences with others will not only help them navigate the project more effectively but also foster a sense of community and collaboration within the organization.

Being a part of such a dynamic and innovative community will be a source of pride for me. I look forward to actively participating in discussions, brainstorming sessions, and collaborative efforts to further advance Moja Global's objectives.

In addition to my contributions, I plan to conduct research on new and more robust techniques that could be implemented for the tasks assigned during the contribution period. By staying updated with the latest developments in deep learning, machine learning, and environmental science, I aim to enhance the effectiveness and efficiency of my contributions to Moja Global's projects.

Overall, I am excited about the opportunities that lie ahead and am committed to continuing my journey of contributing to Moja Global and making a positive impact on the world through technology and environmental conservation.

ENDING NOTE

In closing, I am immensely grateful for the opportunity to share my journey, aspirations, and contributions with you. Participating in Outreachy 2024 and collaborating with Moja Global has been a transformative experience, igniting my passion for technology and environmental conservation. As I continue on this path, I am committed to making a positive impact, both within the Moja Global community and beyond. Thank you for your support and encouragement. Together, let us strive towards a brighter, greener future for all.