Submit a brief, **1-paragraph written summary** of your submission (1,800 characters maximum). This file must be named summary.pdf. Your summary should include:

* A brief description of what your visual shows (1-2 sentences)
* A list of all the datasets you used
* Which Sustainable Development Goal(s) you hope to advance ([zero hunger](https://www.un.org/sustainabledevelopment/hunger/), [clean water and sanitation](https://www.un.org/sustainabledevelopment/water-and-sanitation/), [climate action](https://www.un.org/sustainabledevelopment/climate-change/))
* A list of all the tools you used to build your visualization (e.g., Python, Planetary Computer, etc.)

**ONE**

Given the escalating reduction of vegetation exacerbated by heightened human activities in and around Kampala, our team, the "Data Nerds," is focused on addressing the profound impact on natural water treatment channels, directly affecting access to clean water and sanitation in the region. The diminishing vegetation cover disrupts the intricate balance of these ecosystems, necessitating enhanced water treatment processes. Consequently, governments face the challenge of allocating additional resources to cope with rising water treatment costs for a stressed population. To tackle this issue, the Data Nerds recognize the importance of leveraging NDVI data, a crucial tool for quantifying and monitoring vegetation health over time. By integrating Python and NDVI into our approach, we aim to develop innovative solutions that not only assess environmental degradation but also inform targeted interventions. The overarching goal is to mitigate the effects of human-induced changes on water resources, optimize water treatment strategies, and ensure equitable access to clean water. This initiative aligns with the Sustainable Development Goal for Clean Water and Sanitation.

**TWO**

Amidst the escalating reduction of vegetation intensified by heightened human activities in and around Kampala, our dedicated team, the "Data Nerds," zeroes in on addressing the profound impact on natural water treatment channels. This issue directly jeopardizes access to clean water and sanitation in the region as the diminishing vegetation cover disrupts the intricate balance of these vital ecosystems, necessitating enhanced water treatment processes. The resultant challenge faced by governments involves the allocation of additional resources to cope with escalating water treatment costs for a stressed population.

*The list of datasets will be included here.*

To effectively address this challenge, the Data Nerds recognize the pivotal role of leveraging NDVI data—a crucial tool for quantifying and monitoring vegetation health over time. Our innovative approach integrates Python and NDVI, aiming not only to assess environmental degradation but also to inform targeted interventions. This integration facilitates the development of strategic proposals, emphasizing the need for Protection and Regulation. This involves the establishment and enforcement of regulations to safeguard swamps and wetlands by designating them as protected areas to prevent degradation.

Further proposals include Restoration Efforts, advocating for the replanting of native vegetation and control of invasive species to ensure the return of natural water flows. Sustainable Practices are encouraged, promoting land use planning and agriculture that minimizes chemical use and prevents runoff into wetlands. Community Involvement is paramount, with the engagement of local communities proposed to foster a sense of ownership and responsibility for conservation efforts.

Simultaneously, our initiative emphasizes Research and Monitoring, facilitated by Python and NDVI, to better understand swamp ecosystems. The Data Nerds also propose Policy Advocacy, pushing for strong policies prioritizing swamp and wetland conservation at the governmental level. These strategic proposals aim to mitigate the effects of human-induced changes on water resources, optimize water treatment strategies, and ultimately ensure equitable access to clean water. In alignment with the Sustainable Development Goal for Clean Water and Sanitation, the Data Nerds aspire to catalyze positive change, advocating for sustainable practices and generating awareness to secure a cleaner, healthier future for the region.