Artificial Geoanalysis

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Overview

Our project is an exciting endeavor that combines cutting-edge technology, data science, and user interaction. The project's primary objective is to process satellite and aerial images to extract valuable insights about terrain characteristics. It will be offered as a web service that empowers users to select their areas of interest and the specific statistics they wish to gather. In addition to satellite imagery, our infrastructure will incorporate data from a variety of sources, including social media platforms like Twitter and government organizations.

Project Structure

1. Data Science Team

- **Advanced Insights, Custom Models:** The Data Science Team plays a central role in preprocessing and analyzing the incoming data. They will generate informative charts, clean and filter vast quantities of images, text, and hierarchical data, and prepare them for custom-developed machine learning models.
- **Computer Vision Expertise:** Leveraging the latest advancements in computer vision, including deep learning models, the team will identify and classify objects of interest within the images. They will use a combination of unsupervised and supervised learning techniques to provide the most meaningful features to end-users.
- **Collaborative Workflow:** Team members will work in an agile environment, fostering cooperation and knowledge sharing. The project will also include informative lectures on computer vision concepts.
- **Eligibility:** This project is not entry-level. To join the team, candidates are required to demonstrate a solid understanding of machine learning. If you have completed an end-to-end machine learning project, including exploratory data analysis, model training, and performance evaluation, you are encouraged to share it with the team leaders. Otherwise, you can demonstrate your skills by working on a dataset provided by us. Application process is described in the entry task on project's discord channel.

2. Programmer-Scraper Team

- **Data Acquisition Experts:** The Programmer-Scraper Team is tasked with collecting data from diverse satellite sources, organizing it in a database, and making it readily available to the Data Science Team. They'll also be responsible for storing the data in efficient formats and creating basic queries on them, like combining images or preparing on-demand datasets of certain areas.
- **Data Enthusiasts Welcome:** If you have a passion for data acquisition and enjoy working with databases, this team offers an excellent opportunity to put your skills to use.

3. **DevOps-MLOps Team**

   - **Infrastructure Management:** The DevOps-MLOps Team oversees the project's infrastructure, ensuring the availability of data and models.
   - **Key to Smooth Operations:** This team plays a critical role in maintaining the reliability and efficiency of the project.
   - **Learning Availability:** Here you'll get a perfect chance to learn how to create CI/CD pipelines, work with git, Docker and Kubernetes, and cloud computing to provide a stable, scalable platform for demanding applications.

4. **(Bonus) Frontend**

   - **Design and Development:** If you're a graphic designer or a frontend developer, you're welcome to join our bonus Frontend team. Your creative touch can help us craft an appealing user interface for our project.
   - **Independent Learning Opportunity:** While the project does not include direct supervision from an experienced frontend developer, it provides an opportunity for self-driven learning and the chance to create an interactive and engaging frontend.