**Project Report**

**Problem Statement**

The task was to create an AI-driven system that tackles the core facets of environmental conservation.

The system is designed with the advanced capability to continuously monitor and comprehensively

analyze a wide range of environmental data, and propagate sustainable behaviours. You're

encouraged to craft a new application or enhance existing platforms, aiming to achieve atleast one of

the following objectives:

**Environmental Data Insights:**

Develop an AI ecosystem that captures, processes, and analyzes diverse environmental data –

encompassing air quality, water pollution, deforestation rates, and climate patterns. The system

should furnish real-time insights and visualizations for a comprehensive grasp of the

environment's present state.

**Sustainable Practices:**

Make AI tools that encourage people, groups, and businesses to do things that are good for the

environment. These tools could give personalized ideas, helpful lessons, and fun challenges to

make it more interesting and easy to be eco-friendly. Let's team up to help our planet by

making smart, Earth-friendly choices!

By confronting these challenges head-on, your AI system will be at the forefront of environmental

preservation, and the propagation of sustainable practices. Join us in this hackathon to pave the way

for a more sustainable and resilient future, where AI becomes a driving force for global good.

**Existing System**

In this project we have aspired to enhance certain existing platforms displaying diverse environmental data. We have taken our temperature and air pressure data from [www.ventusky.com](http://www.ventusky.com) and our deforestation data from [www.globalforestwatch.org](http://www.globalforestwatch.org). ‘Ventusky’ had a system of showing current air pressure, temperature and the weather for the next 24 hours. The site ‘globalforestwatch’ took our input of country, state and city to display deforestation information of a particular state. Deforestation info on just the country or just a state is also available.

**Objective of Proposed System**

Taking live data from ‘Ventusky’, we have improvised so that we can compare temperature and air pressure data of up to 10 cities all around the world. The compared data is displayed in a bar graph where we have the option to zoom in for more precise data comparison.

Taking live data from ‘globalforestwatch’, we have improved the experience as in India you only need to select a state from a drop down list and compete deforestation info will be displayed for that particular state, including data on the exact amount of tree cover depleted.

**Description of Modules**

We have used VS Code as a platform to make our project. (We created a virtual environment for the development of our software using the virtualenv module in Python.)

1. Front end- We have used html and CSS to give our project the web app look. The homepage is on a local IP server and then we can navigate to ‘Temperature’, ‘Air Pressure’ and ‘Deforestation’ pages. These pages have been linked to homepage buttons of the same by .
2. Middle Tier- We have used Python as our middle tier programming language
3. Linking- JavaScript has been used to link the html and css files to the original main code in Python
4. Live Data Capturing Process- We have used .bat files for bashing and running a script before we open the website. The entered data is taken on a .csv file and downloaded. The bashing is made such that it links the python code as soon as it finds a downloaded file containing the required data values. We have separate windows to display bar graph comparisons and then another separate window to display deforestation information.

**Project Development Approach**

The project was executed in a classical waterfall model moving through phases of requirement gathering, Design, Execution and QA.

**Software Requirement**

The requirements for this application is listed in the requirements.txt file. Simply install the required modules using the pip install -r requirements.txt command. The homepage.html webpage is the main webpage for the project. Navigating through the interface should then be very easy.

**Submission**

The codes for this project have been submitted. The URL for the demo video for this project is:

<https://youtu.be/_YaEfVNuCjw>

**High Level Design (Architecture Diagram)**

Data

Data

Data

Data

Data and Event Triggers

Data and Event Triggers

Storing entered data in temporary.csv files that gets deleted after output is displayed

HTML & CSS

PYTHON (Middle Layer)

HTML & CSS