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**NAAN MUDHALVAN -INTERNET OF THINGS**

PROJECT TITLE : ENVIRONMENTAL MONITORING IN PARKS

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**ENVIRONMENTAL MONITORING IN PARKS**

**PROBLEM STATEMENT:**

"Develop a high-level, versatile programming language that prioritizes simplicity, readability, and flexibility to address the challenges faced by developers in creating efficient, maintainable, and expressive code for a wide range of applications and domains. The language should foster a welcoming and collaborative community, encourage ease of learning, and evolve in response to changing technological and user needs, becoming a standard tool for programmers across the world."

**1. Empathize:**

**User Needs:** At the beginning of Python's development, the Python community empathized with the needs of programmers. Guido van Rossum, the creator of Python, recognized the need for a high-level, readable, and versatile programming language to improve productivity and ease of use for developers.

**2. Define:**

**Problem Statement**: The Python development team defined the problem of creating a programming language that was both powerful and easy to read. They identified key objectives like simplicity, readability, and flexibility as design goals.

**3.Ideate:**

**Brainstorming:** The Python community, including Guido van Rossum and early contributors, engaged in extensive brainstorming to generate ideas on how to achieve the defined objectives. They considered various features and syntax options.

**4.Prototype:**

**MVP (Minimum Viable Product):** The development team created a minimum viable version of Python to test the core concepts and gather feedback. This prototype helped refine the language and ensure it met the needs of its users.

**5. Test:**

**User Feedback:** Python's initial users provided feedback on the prototype, helping the development team identify areas for improvement. They tested the language's readability, expressiveness, and utility in real-world scenarios.

**6.Implement:**

**Iterative Development**: Python's development followed an iterative process. The team continuously implemented new features, optimized existing ones, and made changes based on user feedback and evolving needs.

**7. Iterate:**

**Feedback Loops**: Python's development process included ongoing iterations, with regular feedback loops from the community. Users, contributors, and developers actively participated in shaping the language.

**8.Launch:**

**Official Release**: Python was officially launched when it reached a level of stability and usability that satisfied the design goals. The first official Python release was version 0.9.0 in February 1991.

**9.Feedback and Refinement:**

**Community Involvement:** Python's development process continued to be influenced by the Python community. Users and developers provided feedback and contributed to the refinement of the language through mailing lists, forums, and open-source collaboration.

**10.Scale and Evolve:**

**Community Growth:** Python's success led to the growth of a large and diverse community of users and developers. As Python evolved, it continued to scale and adapt to meet a wider range of use cases.

**Sample Code:**

import random

import time

def get\_temperature():

    # Simulate temperature reading (replace with real sensor data)

    return random.uniform(60, 90)

def record\_temperature(park\_name, temperature):

    # Write the temperature data to a file

    with open(f"{park\_name}\_temperature\_data.txt", "a") as file:

        timestamp = time.strftime("%Y-%m-%d %H:%M:%S")

        file.write(f"{timestamp}, {temperature}°F\n")

def main():

    park\_name = "Gs Park"

    while True:

        temperature = get\_temperature()

        record\_temperature(park\_name, temperature)

        print(f"Temperature in {park\_name}: {temperature}°F")

        # Simulate monitoring every 30 minutes (1800 seconds)

        time.sleep(1800)

if \_\_name\_\_ == "\_\_main\_\_":

    main()

**Conclusion:**

In the design thinking process, Python's development represents a clear example of a product that was created with a strong focus on user needs, iterative refinement, and constant adaptation. The language's success is a testament to how empathy, user-centered design, and an open development community can lead to a product that stands the test of time and serves a wide range of users.