PLEDGE TO PROGRESS
Sustainability Hackathon

Sponsored By

Microsoft

Your Team Name :

Your team bio :

Date :

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Problem Statement?

Why did you decide to solve this Problem statement?
Solving the problem of reducing the carbon footprint in software development through intelligent carbon calculators and software tools aligns with environmental sustainability goals, demonstrates social responsibility, presents a business opportunity in a growing market for green software, and showcases innovation and differentiation in the tech industry.
addressing this problem provides an opportunity to contribute to global sustainability efforts, demonstrate leadership in promoting environmentally responsible practices in the technology field, and showcase skills and expertise in developing innovative solutions that address real-world challenges. It is a chance to make a positive impact on the environment and society as young professionals entering the tech industry.

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User Segment & Pain Points

Which user /advertiser segment would be early adopter of your product & why?
,the early adopter segment for our product would likely be software development teams or individual developers who are environmentally conscious and actively seek ways to reduce the carbon footprint of their software. This may include developers working in organizations with a focus on sustainability, eco-friendly startups, or individual developers who are passionate about environmental issues.

The pain points that this user segment may face include the lack of easily accessible tools or frameworks to measure and reduce the carbon footprint of their software, the need for actionable insights and recommendations on how to design and build green code, and the desire to contribute to global sustainability efforts through their software development practices.

These early adopters would be motivated to adopt our product as it aligns with their values and goals of reducing their environmental impact, and provides them with the tools and guidance they need to create sustainable software. They may also see it as an opportunity to showcase their commitment to sustainability to their clients, customers, and other stakeholders. Overall, this user segment would be early adopters of our product because they are already motivated by their passion for nature and sustainability, and our product would provide them with the means to further integrate these values into their software development processes.

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Pre-Requisite

What are the alternatives/competitive products for the problem you are solving?
Some alternatives/competitive products in the market include carbon footprint calculators, sustainability frameworks, environmental certifications, and in-house solutions. However, our proposed solution stands out by providing a comprehensive and intelligent approach specifically tailored for software development, with real-time insights and actionable recommendations to reduce carbon emissions. This makes it an attractive choice for early adopters, including nature-loving developers who are passionate about building sustainable software.
eg.
1. Carbon footprint calculators: These are tools that calculate the carbon emissions associated with software development activities, but they may lack the intelligent and actionable insights provided by our proposed solution.

2. Sustainability frameworks: These are frameworks that provide guidelines for developing sustainable software, but they may not have the real-time monitoring and recommendation features of our solution.

3. Environmental certifications: These are certifications that verify the sustainability of software products, but they may not provide the comprehensive guidance and tools for developers to actively reduce carbon emissions during the software development process.

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Pre-Requisite

What are the alternatives/competitive products for the problem you are solving?

4. In-house solutions: Some organizations may have their own in-house tools or processes for measuring and reducing carbon footprint in software development, but these may not be as accessible, intuitive, or comprehensive as our proposed solution.

Overall, our proposed solution offers a unique and intelligent approach to measure and reduce carbon emissions in software development, with real-time insights and actionable recommendations, making it an attractive choice for early adopters who are passionate about sustainability and nature-loving developers.

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Tools or resources

Azure tools or resources which are likely to be used by you for the prototype, if your idea gets selected
If your idea is selected as a great and innovative one, you can use the following Azure tools or resources to build y prototype:
1. Azure IoT Hub: It can be used to connect and manage the devices that are collecting data on carbon emissions.
2. Azure Functions: It can be used to create serverless functions to process data from IoT devices and perform calculations on carbon emissions
3. Azure Stream Analytics: It can be used to analyze real-time data streams from IoT devices and generate insights on carbon emissions.
4. Azure Machine Learning: It can be used to build machine learning models to predict carbon emissions and provide recommendations for reducing carbon footprint.
5. Azure DevOps: It can be used to manage the software development life cycle of your application and deploy your prototype to the cloud.
6. Azure App Service: It can be used to host your application and make it available to users.

Using these Azure tools and resources, you can build a scalable and reliable prototype that can help reduce the carbon footprint of software development.

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Any Supporting Functional Documents

P**resent your solution, talk about methodology, architecture & scalability**
Our solution is an intelligent carbon calculator that measures the carbon footprint of software during the development process. It provides actionable insights and recommendations to reduce carbon emissions, promoting sustainable software development.
Methodology: Our solution leverages machine learning algorithms to analyze data on software development activities, such as code commits, builds, and deployments. It calculates the carbon emissions associated with each activity based on energy consumption and other environmental factors. The solution then provides real-time feedback and recommendations to developers to optimize their code for reducing carbon footprint.
Architecture: Our solution is built on the Microsoft Azure cloud platform, utilizing Azure IoT Hub for data collection from software development activities, Azure Stream Analytics for real-time data processing, and Azure Machine Learning for developing and deploying machine learning models. The solution also utilizes Azure Functions for serverless computing and Azure DevOps for managing the software development life cycle.
S**calability:** Our solution is designed to be scalable and capable of handling large volumes of data from various software development activities. It can be easily scaled up or down based on the needs of the project. The architecture is designed to be modular, allowing for future enhancements and integrations with other Azure services as needed.
In summary, our solution uses a data-driven approach with machine learning capabilities, leveraging Microsoft Azure tools and resources, to provide an intelligent carbon calculator for software development that is scalable and promotes sustainable software development practices.

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Key Differentiators & Adoption Plan

How is your solution better than alternatives and how do you plan to build adoption?
Our solution stands out from alternatives as it offers a seamless integration with popular development tools like Azure DevOps, making it convenient for developers to incorporate green coding practices into their workflow. Additionally, our solution provides actionable insights and recommendations that are specifically tailored to the software development process, helping developers make informed decisions to reduce carbon emissions. We plan to build adoption by offering a user-friendly interface, providing comprehensive documentation and tutorials, and engaging with the developer community through outreach programs, hackathons, and events. We also plan to collaborate with relevant stakeholders, such as environmental organizations and sustainability-focused companies, to raise awareness and promote the adoption of our solution among the target user segment.

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GitHub Repository Link & supporting diagrams, screenshots, if any

How far it can go?

The potential impact of a green software solution is significant, as it has the potential to reduce the carbon footprint of software development and contribute to a more sustainable tech industry. If widely adopted, it could lead to a significant reduction in carbon emissions and make a positive impact on the environment. However, the success and scalability of the solution will depend on various factors, including the adoption by developers and the larger tech community, the effectiveness of the tool in reducing carbon footprint, and the overall support and resources available for the project.

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Thank You MICROSOFT

Team member names

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