


Hackathon: InnovateTech for Climate

Are you concerned about the future of our planet? Do you want to learn how you can contribute? We invite you to our Workshop!

 **Date:** October 11, 2024

 **Time:** 09:00 - 12:00

 **Location:** Amphitheatre – Casa Universitarilor

 **Reserve your spot now:** <https://forms.office.com/e/b7aerRsnUv> until 07.10.2024

The **Climate-Neutral and Smart Cities: Planning, Piloting, Inspiring** project is looking for students passionate about computer science, climate change, climate neutrality, and smart cities to join a multidisciplinary team and tackle one of two challenges:

Challenge 1: AI-Driven Carbon Footprint Tracker in Cluj-Napoca



Challenge 2: Walk Safe in Cluj-Napoca



The work will be done in teams, both online and on-site, throughout the first semester.

The deadline for project completion is January 15, 2025, and the presentation (Demo Day) will take place on January 16, 2025.

For each challenge, **3 working teams** will be formed. Each team will consist of 3 Computer Science students, 2 students from study field related project and 1 student from the Urban Planning Institute (*if applicable*).

For each team, the language of communication/work will be English.

If you are: **a 2nd-year Bachelor's student in Computer Science** or a 3rd-year Bachelor's or Master's student in the fields Hydrology and Meteorology, Territorial Planning, Regional Planning and Development, Climate Change and Sustainable Development, Environmental Science, Environmental Management and Auditing, Environmental Engineering, Environmental Management and Protection or Sustainable Development and Environmental Management – **and would like to join us, please register here:** <https://forms.office.com/e/b7aerRsnUv>

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Challenge 1: AI-Driven Carbon Footprint Tracker in Cluj-Napoca



In the context of the European Green Deal, an ambitious framework aimed at positioning the European Union as a leader in climate-neutral policies, this hackathon challenge focuses on the development of a sophisticated carbon footprint calculator for urban environments. As stated by Frans Timmermans, Executive Vice-President for the European Green Deal, "Our goal is to reconcile the economy with our planet, to reconcile the way we produce, the way we consume with our planet, and to make it work for our people."

This system should be designed to capture the complex interplay of urban activities including energy consumption, waste management, and transportation, aligning with the EU's target of achieving a climate-neutral continent by 2050. The calculator will serve not only as a metric of current carbon outputs but also as a strategic asset in planning and implementing effective carbon reduction policies at the city level.

Participants are expected to leverage cutting-edge technologies and data integration techniques to construct a dynamic, intuitive application that aids city planners, policymakers, and the general public in making informed decisions that align with sustainability goals. This initiative is integral to fostering economic growth while significantly reducing environmental impact, ensuring a sustainable future for all European citizens.

Participants are encouraged to integrate advanced technologies such as Artificial Intelligence (AI) and mobile applications into the development of the carbon footprint calculator. AI can be pivotal in analyzing large datasets, predicting trends, and optimizing scenarios for carbon reduction, thereby enhancing the accuracy and effectiveness of the tool. Mobile applications will play a crucial role in engaging the public, facilitating user-friendly interfaces that allow citizens to input data, track their personal emissions, and receive personalized advice on reducing their carbon footprint. Furthermore, incorporating elements of citizen science can significantly enrich the data pool, providing real-time, location-specific insights that are crucial for tailoring the tool to specific urban environments. This blend of technology and community engagement is essential for creating a scalable and impactful solution.

Embark on this transformative project, employing your skills to aid cities in navigating the complex journey towards comprehensive sustainability and resilience, as mandated by the European Green Deal.

Challenge 2: Walk Safe in Cluj-Napoca



This hackathon invites participants to create "Walk Safe," an innovative application designed to enhance pedestrian safety and environmental quality in urban areas. The core objective is to develop an interactive map that guides users through the safest and healthiest walking routes within a city. By leveraging AI and local data, this tool will analyze and recommend pathways that minimize exposure to traffic, optimize walkability, and reduce pollution levels, considering the urban heat island (UHI) effect and prevailing weather conditions.

The app should integrate various safety metrics, including traffic density, historical accident data, public security reports, pedestrian infrastructure quality, landmarks and landscaping. Additionally, it should assess environmental factors such as air quality and proximity to green spaces, enhancing the overall well-being of users. To further tailor the user experience, the application could incorporate predictive analytics to forecast changes in environmental conditions and safety metrics, offering real-time route adjustments.

Participants are encouraged to explore innovative features such as social sharing capabilities, allowing users to report and share data on new hazards or safe routes, thereby fostering a collaborative community approach to urban safety. Through this challenge, "Walk Safe" aims to empower citizens to make informed decisions about their walking routes, significantly improving their urban experience and promoting a culture of safety and sustainability.

For the development of the "Walk Safe" application, participants should utilize Artificial Intelligence (AI) to process and analyze vast amounts of urban data to deliver real-time, personalized walking routes. AI algorithms can be employed to dynamically adjust pathways based on changing conditions such as traffic, weather, air quality, and urban heat island effects. The integration of mobile technology is crucial, enabling users to access interactive maps and navigation tools directly from their devices, ensuring that safety and environmental data are always at pedestrians' fingertips.

Additionally, the application should incorporate elements of citizen science, encouraging users to contribute data on pedestrian traffic, perceived safety, and environmental observations. This user-generated content can enhance the app's database, providing a more comprehensive and community-driven dataset. Incorporating features such as gamification or rewards for contributions can further engage users, making the data collection process interactive and beneficial for all participants. This combination of AI, mobile technology, and citizen science will create a robust tool that not only promotes safer, healthier urban walking but also fosters a connected and proactive community.