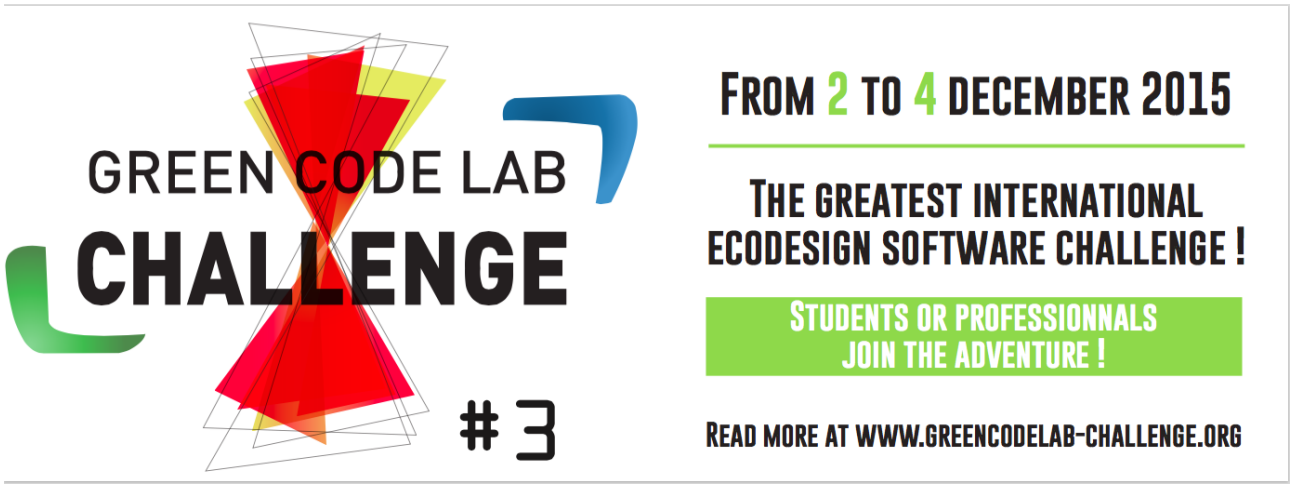

Green Code Lab Challenge : First step for the challenge

Introduction

You have just subscribed to the Green Code Lab Challenge. Welcome to this really great adventure.

As the first Eco Design software in the world, the Green Code Lab Challenge aims to raise computer engineering students, professionals and researchers awareness on software Eco Design meanings. Throughout 48H, student teams from France and all over the Europe will challenge each other to provide an resources and energy consumption optimized applications.

The Green Code Lab challenge is, powered and organized by ESAIP, Green Lab Center and Open Odyssey. It will be live broadcasted through a videoconferencing solution and the official website.

The complete subject will be presented on December 2th, but this document's goal is to help you preparing the challenge :

- The subject is vast enough to allow any of you to participate (2 years ago it was a web application, last year it was a Web component … this year is about IoT.
- Each team will have the hardware and OS, and you're free to choose your software technologies and languages.

This challenge is not just a competition with final ranking, we expect it to be a great moment of sharing and learning about Eco Design : we encourage teams to help each other, and teams which will provide best practices to others will get bonus points.

Requirements

As explained above, the only constraints are hardware sizing and OS (Linux). You can use any programming technologies you want. You'll have root access to your OS, if you need to tweak it. The only goal is to make the solution as green as possible.

Sandbox during Challenge

We provide each team with a virtual machine on our premises with the following characteristics

- ✓ host Hypervisor: VMWare ESXi
- ✓ RAM : 256 MB
- ✓ DISK : 1,5 GB
- ✓ OS : GNU/Linux 8.0 64-bit, minimal NetInst
- ✓ SSH server

We provide each team with a raspberry machine on our premises with the following characteristics

- ✓ Raspberry PI B+
- ✓ OS : Raspian

We also provide:

- ✓ A user / password with standard rights
- ✓ Your root password
- ✓ An URL where your page should be accessible. This URL is unique for each team, to prevent eavesdropping between teams.

Steps

- ✓ Preparation: during the month before the challenge, you can prepare your work environment as well as that of your server: you can optimize your OS, applications or tools. Think of useful libraries. You can also prepare the tools to work on the Raspberry. No need to buy a Raspberry, you can work on a classical VM with the target OS

- ✓ The challenge itself (48 hours) during which you will write an application which consumes less on server side and Raspberry side. The specific subject will be revealed in the early 48 h.

Preparatory work

During the challenge, you will develop on your local machine. That is to say, you have the responsibility to install tools, servers ... all you need to develop and optimize the code.

We provide a virtual machine for each team on a remote physical machine and a Raspberry accessible remotely. This environment will be used to evaluate you in terms of resource consumption. This is a production environment, so you just have to make a minimum of operations. Slots into production will be defined for your team. It will be relevant to respect them (losing points is the risk !).
We will provide you a web dashboard to see your results and measures.

Your local development environment

- ✓ Must be a web browser
- ✓ Any development tool that seems useful (IDE, ...)
- ✓ 1 VM for the server, 1 for the Raspberry (or a Raspberry if you want)
- ✓ Any measurement tool that you find it useful :
    - Profile the web on client side :
        - Speed Tracer in chrome https://chrome.google.com/webstore/detail/speed-tracer-by-google/ognampngfcbddbfemdapefohjiobgbdl
        - Inspect element in Firefox http://www.wikihow.com/Use-the-Inspect-Element-in-Mozilla-Firefox
    - Profile performance of system level
        - http://en.wikipedia.org/wiki/List_of_performance_analysis_tools
    - Measure energy consumption of client and server
        - Hardware measure with Plugwise http://www.greencodelab.fr/content/green-plugwise-mesure-temps-r%C3%A9el-la-consommation
        - Software measure with Power API from INRIA https://github.com/abourdon/powerapi-akka
    - Workload generator
        - Jmeter

What can you read before ?

- ✓ We have prepared media to train you. There are appended to this document
- ✓ Book in French : http://greencodelab.fr/Livre
- ✓ Web performance : http://www.stevesouders.com/
- ✓ Google Best practices : https://developers.google.com/speed/pagespeed/?hl=fr
- ✓ Green Code Lab Blog http://greencodelab.fr/en
- ✓ Web Energy Archive scientific publication : http://www.greenlabcenter.com/wp-content/uploads/2014/10/213.pdf
- ✓ Follow https://twitter.com/Green_spector and read archives, lot of best practices
- ✓ During challenge, conferences will be broadcast. Be connected … to have some advices!

Communication

It is not enough to “Green” encode win this challenge and become the best “Green” developers. Indeed, we must also be proactive to spread knowledge of this quite new and important for the future of digital topic.
It is therefore essential to successfully communicate the challenge and the participation of your team. This communication and development are an integral part of the criteria taken into account in the final evaluation of the challenge. the evaluation committee look carefully how you communicate before and during the challenge to assign points to each team. The relevance of content will also be studied carefully.

In this regard, some tips for communicating content:
- ✓ before challenge : objective awareness ecodesign, Green IT , etc.
- ✓ during the challenge , highlighting new or major Green patterns.

As soon as your team is made, we ask you to find a team name and logo. Then we invite you to create a Facebook page and a Twitter account to both disseminate information about your team, but also to obtain information on the challenge by participating in the Facebook events and following the hashtag #GCLChallenge on Twitter . We leave you free to use what you want to highlight software Eco-design and the GCL challenge.

Rules to respect :

Communication can be done in the language of your choice. The logo of your team must include the name of your team.

You are free to use other means of communication (blogs, Instagram, Youtube, Vine, stick-ers, etc.) insofar as they do not go against the principles of Green IT, or the organization of the Code Green Lab Challenge.

Any team that will flood the web with non-interesting publications will be sanctioned in the final evaluation.

Do not forget that the quality over quantity. Be creative to arouse the curiosity of your readers and make the green software a major theme in the computer world.

Point calculation will be based on the number of subscribers and followers on your pages.

Challenge

The subject (like the description of the application you will develop) will be revealed on 2nd of December .

A forum will be available to ask questions or raise problem.

Performance metrics (energy consumption on the server, on a raspberry client) , will be run periodically and made available to all participants. You will have visibility into your ranking every hours.

The jury will evaluate the performance of your work and you will be rank in function of the following criteria:

- ✓ Respect of the subject (if the application doesn't respect the specification, your team will not be rank !)
- ✓ Energy consumption
  - Server side
  - IOt side
- ✓ Share and open innovation on best practices

Who will participate?

At this time, more than 500 students are registered, 90 teams, 12 towns, 8 countries …

- ✓ Angers (France) : 59 students
- ✓ Boulogne Sur Mer (France) : 20 students
- ✓ Nantes (France) : 52 students
- ✓ Nancy (France) : 15 students
- ✓ Lulea (Sweden) : 20 students
- ✓ Paris (France) : 97 students
- ✓ Québec (Canada) : 5 students
- ✓ Oued Ellil (Tunisie) : 3 students
- ✓ Budapest (Hungary) : 11 students
- ✓ Valladolid (Spain) : 24 students
- ✓ Aalborg (Denmark) : 4 students
- ✓ Dijon (France) : 5 students
- ✓ Poitiers (France) : 8 students

Professional teams and teaching teams will participate but not for the price! Just for the competition and the open innovation !

Practical information

If it is not already done, move closer to your head teacher or site responsible. It will tell you all the information (location, constraints about night on the school...) . The challenge is a non stop challenge from Wednesday 2 until Friday 4th. You can code continuously. If your site is closed at night, you can continue to code at home, or you organize better and you sleep ;-) We ask a minimum presence of the teams the day for video communications. Regular video conference will be held to interact with you.

Sur une idée de :

Partenaire historique :

Partenaire principal :

Partenaires officiels et techniques :