



January 27 - 29, 2022 Hackathon

Introduction

The goal of this initiative is to define the necessary content to bring young programmers and others to take an interest in Haskell. At the end of this Hackathon session, participants should be able to understand and apply (in a practical way) the various concepts introduced. Overall, it is about preparing participants to learn how to implement solutions to concrete life problems using the functional programming paradigm.

Participants Profile

This program is intended for anyone interested in programming using the functional paradigm. There are no specific prerequisites to participate in this program, however it is strongly recommended to have at least some programming experience.

Participants Readiness

To be more productive during this Hackathon, it is strongly advised to prepare yourself by doing the following:

1. Do some preliminary research on Haskell & Functional Programming
2. Set up your working environment (Install Haskell and a text editor of your choice):
<https://www.haskell.org/downloads/>,
3. Familiarize yourself with **repl it**, which can be found here: <https://replit.com>

Schedule

The hackathon will take place over the course of three days. The first two day will be reserved for theoretical lectures and practical exercises. The courses will be held live on Zoom with breakout rooms in English and French. The sessions will also be available immediately after on Wada's YouTube channel for those who cannot participate live. The third day will be devoted to a challenge session. The challenge consists of two parts: individual and group challenges. The individual challenge will be a MCQ (Multiple Choice Question) type test and the group challenge will be working in teams to implement a solution to a problem using Haskell (focusing on the concepts acquired on the first two days).



Prize distribution Total 1,000 USD in Ada in prizes

Each candidate will receive a prize for participation (based on days attended and the number of participants).

For the individual and group challenge, prizes will be awarded in proportion to the scores obtained.

*The bonuses will be in Ada (CryptoCurrency) and will be transferred to candidates' electronic wallets after the event

Course Content

Given that our main goal is to spark interest in the use of Haskell, we have outlined the following content: (We are assuming that participants already have a working development environment)

1. Types
 - a. Basics types
 - i. Bool
 - ii. Char
 - iii. ASCII Table
 - iv. Numbers
 - b. Constants and polymorphism
 - c. Some Operations on numbers
 - d. Comparison operators
 - e. Inference
 - f. List
 - i. String
 - ii. Generalization
 - iii. Some functions on list
 - iv. Texas range
 - v. List comprehension
 - vi. Tuples
 - g. Types variable
2. Functions
 - a. Function declaration and definition
 - b. Creating à single Function
 - c. Specifying the Function's Type



- d. Conditional Expression
 - e. Pattern matching
 - f. Guards
 - g. Where
 - h. Let and In
 - i. Case expressions
 - j. Lambda expressions
 - k. Overview on recursion function
- 3. Higher order function
 - a. Curried functions
 - b. Some higher-orderism is in order
 - c. Advanced function on List
 - i. Map
 - ii. Filter
 - iii. Folder
 - d. Function application with \$
 - e. Function composition
- 4. Custom type
- 5. Typeclasses