Erlang Project
401-Programming Languages

1 Erlang Installation

- Linux/Unix, OS X, Windows: `http://www.erlang.org/download.html`
- Windows: download and install the installer
- OS X: use brew or ports
- Linux: use a package manager
  e.g., sudo apt-get install erlang-base
- CIS: Erlang is also installed on the vulcans.

2 Assignment

- (20 points) Write a function that computes π using the Monte Carlo method and N iterations spread over X actors. You can use `random:uniform` to generate a random number. A sequential Erlang version can be found on `https://programmingpraxis.com/2009/10/09/calculating-pi/`.

  ```
  pi:montecarlo(N, X).
  ```

- (80 points) Implement a two client version of a text based tic-tac-toe program that can be played in a distributed environment. To this end develop a module `t3` that contains the following functions:

  - `newgame()` starts a new game node and waits for an opponent.
  - `playwith(Opponent)` connects to another Erlang node identified by `Opponent` and starts a new game. If the `Opponent` does not exist, a call to `playwith` results in an error. When the game starts the two clients randomly decide who starts the game.
  - `placetoken(Coordinate)` validates that `Coordinate` is a valid move and places a new token at field `Coordinate`. The move is also communicated to the opponent's client. `Coordinate` is coordinate in the form of $a1$, ..., $c3$. When a winning position is reached or no more move is possible, the program announces the result on both clients and the game terminates. If it is not a client's turn, a call to `placetoken` prints an error message. If there is no ongoing game, a call to `placetoken` may result in an error.
  - `tell(Message)` sends a message to the opponent. The message will be printed on the console.

  Hint: This site may give you some ideas: `http://ninenines.eu/articles/tictactoe/`
  Note: If the problem description is unclear, please use the Canvas forum to seek clarification.

- *Assignment report:* Turn in the source code of your project together with an assignment report. The assignment report should contain: (1) names of two team members including a short statement of work, (2) a description of your designs, (3) what was difficult, (4) what did you like about Erlang, (5) what did you dislike about Erlang.