**Coding Overview**

These sessions use a programming language called Haskell. The file named Haskell\_Intro tells all you need to know about Haskell in order to follow the sessions. If you want to know more about the language, you may look at the tutorials in <http://www.haskell.org/>

**Software Tools for Coding**

**Editor:** An editor is a program that lets you write your code and save it to a file. It usually has features such as syntax highlighting, which marks keywords and other syntax markers in different colors. You can choose among many different editors which one to use, and in these sessions we chose the following:

In Windows, we use Notepad++

In MACs, we use Atom

**Terminal:** A terminal is a window where you can give instructions to the computer directly without going through menus or intermediate apps. Terminals are commonly used by programmers, system administrators and other computing professionals because they allow them to interact with inner parts of the computer that are usually hidden to the end users. Some systems, like MACs, come with a terminal pre-installed. In other systems, such as Windows, you need to install a third party terminal program such as Git Bash.

**Compiler and Libraries:** The Haskell Platform package contains the Haskell compiler and common system libraries. A compiler is a program that translates the code you write into executable machine instructions. The compiler included in the Haskell Platform is called GHC. A library is a collection of pre-defined functions that makes it easier to write programs without having to reinvent the wheel each time.

A complete Haskell program must always have a function named main, which is the first function that will be executed when the program starts.

**Interpreter:** A program that is not yet finished can still be tested in an interpreter. Unlike a compiler, an interpreter executes only small pieces of your code at a time, and you can run your code even if your program does not have a function named main. You load your code into the interpreter and then use any function in it by giving it appropriate arguments. While an interpreter is more flexible than a compiler, it is slower and requires more work on your part to run a finished program. Also, some graphical programs cannot be run within an interpreter.

The interpreter included in the Haskell Platform is the following:

In Windows, we use WinGHCi

In MACs, we use ghci inside a terminal

**Geometry Coding Lab: Introduction**

**What?**

The Geometry Coding Lab is a method of illustrating the use of coding in the context of high school geometry. You will manipulate programs by following step by step instructions throughout the sessions. These sessions start with basic skills such as drawing points and calculating areas and perimeters and will then proceed to more advanced functionality. These sessions encompass the goal of incorporating computer science skills into the high school mathematics classroom.

**How to access the Haskell Code Files:**

1. You will work in this folder:

Students$ \ Alegre \ Geometry \ <your-teacher-and-period> \ <your-name>

1. Please do not move the files to a different folder.
2. Please save your files as instructed in that same folder.
3. That folder is your **working area**.

As you manipulate and create your own files (exercises), you should save them in your working area as mentioned above. At the end of the session, if you want to work on your files at home and have an USB drive with you, you can copy the files from your working area to your USB drive.

When you come back to manipulate and create files again in another session, just copy the folder from your USB to your working area on the computer. Repeat this process when you switch from using a school computer to someone else’s computer and back.

**Running code:**

Open the terminal and type the following command:

cd /s/Alegre/Geometry/<your-teacher-and-period>/<your-name>

Press ENTER after you type this line. This command will make all programs run inside your working folder.

To see which files and folders are installed in your working area, type:

ls<ENTER>

Note that <ENTER> is not to be typed. It just means that you should press ENTER.

To see the files installed in the folder named 01\_Tools under your working area, type:

ls 01\_Tools<ENTER>

To run the program named example1a.hs in the folder 01\_Tools, type:

run 01\_Tools/example1a.hs<ENTER>

You can use the TAB key to save keystrokes. The command above is equivalent to this:

run 01<TAB>ex<TAB>a<TAB><ENTER>