Get You Installed a Haskell:
A Peer Supported Laptop Clinic

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Forrest Hill, Drill Hall (1.B30)

1   Introduction

This session is designed to get you up and running with Haskell and Emacs on your personal laptop. Haskell is a functional programming language taught in the 1st year Informatics course Inf1-FP. Emacs is a widely-used text editor, and the School's recommended text-editor for use with Haskell. Although you may find it convenient to do your Haskell homework on your own laptop, bear in mind the benefits of using DICE, which include friends and fellow students around you in the labs, and a reliable back-up system (loss of data due to a DICE problem is a good reason for late coursework, loss of data on your own machine is not).

Before the session, it is assumed that you are familiar with the material of `http://www.inf.ed.ac.uk/teaching/courses/inf1/system/`, which describes the basics of using DICE, Emacs, and the Unix terminal. Many questions may also be answered by next week's 'labweek' tutorial for Inf1-FP, found here `https://www.inf.ed.ac.uk/teaching/courses/inf1/fp/tutorials/Labweek.pdf`, which describes how to use Haskell and Emacs on the DICE system. If however you have questions about any of this, we are here to help, so don't hesitate to ask about any of this material or any more general questions.

The main purpose of the session is to help you troubleshoot problems you are having during the installation process. The instructions for installation are given in this document, and summarised on the course web-page `https://www.inf.ed.ac.uk/teaching/courses/inf1/fp/` - have a go before you come to the session, you may find you don't need any help!

If you come to the session however, you are expected to stay for a little while and help your fellow students - share the problems you are having, and the solutions you find. The demonstrators are here to support you, but don't necessarily know any more about the installation process than you do! As you will discover during your Informatics career, most troubleshooting is done via a search engine or Stack Overflow. We hope this session will give you an opportunity to meet your fellow students, have a bit of fun, and most importantly, by the end of the session you will be able to use Haskell on your laptop!

2   Installing Haskell

You can download the recommended Haskell Platform from `https://www.haskell.org/platform/`. The 'Minimal' version should be sufficient for the purposes of Inf1-FP (and is still rather large) so this is recommended. The download you select will depend on the OS of your laptop, the distribution (in the case of Linux), and whether you are running a 32-bit or 64-bit version of Windows (if you don't know, you can find out by following the instructions here `https://support.microsoft.com/en-gb/kb/827218`).

In the case of OS X, this may be a good opportunity to experiment with using a package manager if you never have before - Homebrew (`http://brew.sh/`) seems slightly easier to install than MacPorts (`https://www.macports.org/install.php`) but both have their pros and cons (a quick search engine search may help you decide). If you go with Homebrew, you will need to install the extension Homebrew Cask (`https://caskroom.github.io/`) before you can run the command to install Haskell.

3   Installing Emacs

While Haskell is downloading/installing, you can start downloading Emacs. Again, the particular download process is different depending on your OS. If you download from a 'nearby GNU mirror' or 'main GNU ftp server', click to sort by 'Last modified', scroll to the bottom and select the latest version (emacs-25.1). You can probably ignore the `.sig` file[1], and just download the `.tar.gz` or `.tar.xz` file for Linux (there is not much difference between `.gz` and `.xz`) or `.zip` file for Windows. For Windows, i686 means 32-bit and x86 means 64-bit. For OS X, you again have the option to use a package manager, or just download the `.dmg` file from the given website.

4   Installing Haskell mode in Emacs

Haskell mode in Emacs is particularly handy, and lets you run the Haskell interpreter, and your Haskell files, all within Emacs. Instructions on how to install Haskell mode in Emacs are given here `https://www.inf.ed.ac.uk/teaching/courses/inf1/fp/emacs.pdf`, with the associated text file given here `https://www.inf.ed.ac.uk/teaching/courses/inf1/fp/haskell-setup.txt`. Note that Haskell mode is already installed in Emacs on DICE but it is not currently installed in Emacs on the open access Windows machines.

Unfortunately, most problems in the installation process happen during this step. Give it a try, and our demonstrators are here to help with any problems. If you absolutely can't get it working, the simplest alternative is to use Emacs (or another text editor of your choice) to edit your Haskell files, and the Unix/Windows terminal to execute them. An example setup on OS X is given in Figure 1. This involves using the interactive interpreter `ghci` to experiment with code, and load/execute `.hs` files. Be aware of the directory from which you run `ghci`, as this will affect the path to your `.hs` files. More info on `ghci` can be found here `https://downloads.haskell.org/~ghc/latest/docs/html/users_guide/ghci.html`.

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[1]sig files are made available in order to verify the integrity of the download for security purposes
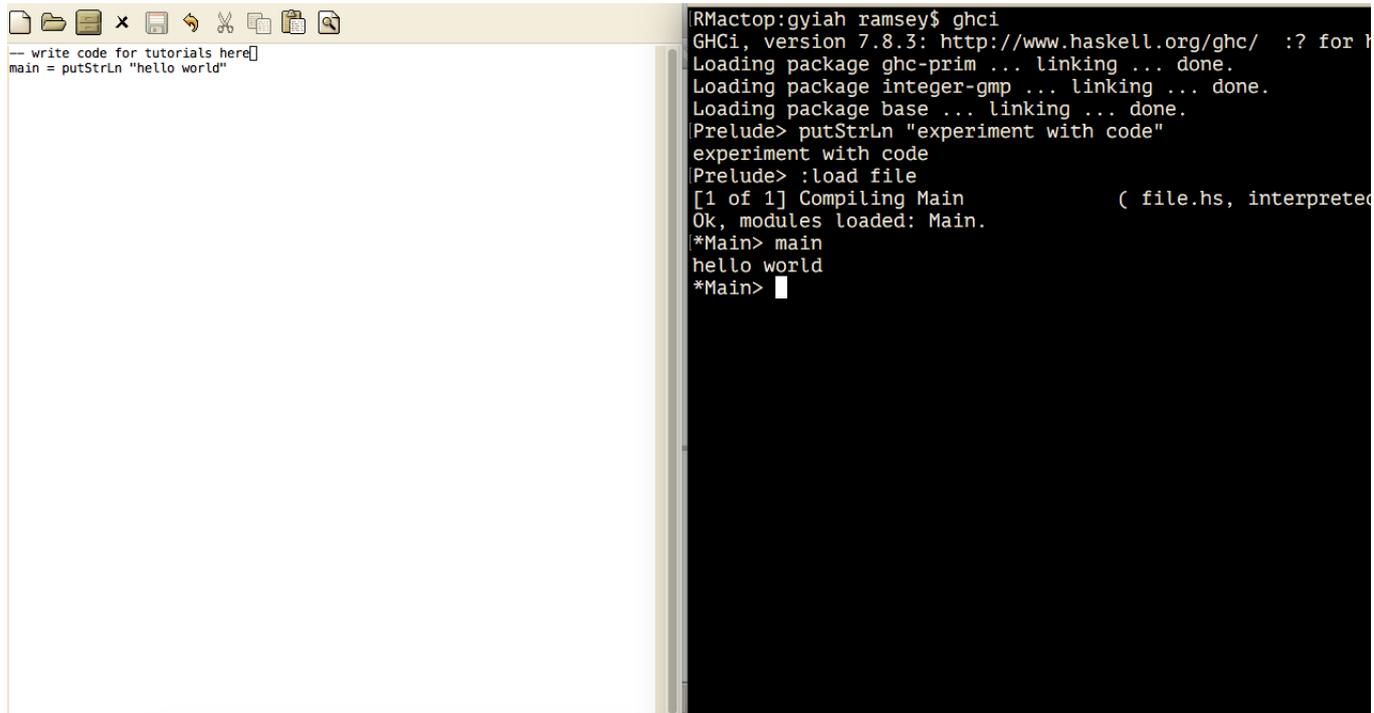
Figure 1: Emacs/Terminal setup on OS X

This setup can be done similarly for Windows or Linux. For Windows, you can use the Windows terminal, but if you want to practise using the Unix terminal on your Windows laptop, consider using Cygwin (`https://www.cygwin.com/`) or another Unix terminal for Windows.