Setting up a working environment in Emacs for CS 357

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Using an installer

- For Windows: Visit
  https://ftp.gnu.org/gnu/emacs/windows/. We
  recommend using emacs-27 since the website blocks the latest
  version for some reason
- For MacOs: Direct link emacs-28

Using a package manager

- For MacOs:
    - Using Homebrew: `brew install --cask emacs`
    - Using MacPorts: `sudo port install emacs-app`
- For Linux:
    - Debian/Ubuntu: `sudo apt-get install emacs`
    - Arch Linux: `sudo pacman -S emacs`
    - Fedora: `sudo dnf install emacs`
    - openSUSE: `sudo zypper install emacs`

Note: MacOs doesn't come with homebrew nor macports preinstalled.

- To install Homebrew visit https://brew.sh
- To install MacPorts visit https://guide.macports.org/chunked/installing.macports.html

More options

For more details visit:

https://www.gnu.org/software/emacs/download.html

Using an installer

Visit `https://download.racket-lang.org`. Choose your appropriate platform/os and click on the blue download button:

Figure: Racket Official Website

For Linux operating system, the latter provides a shell script which will install the necessary files in your system.

(Optional) Using the script for Linux

- Execute the command
  sh racket-8.7-x86_64-linux-cs.sh
- (Suggested) Indicate 'no' if asked 'Do you want a Unix-style distribution?' This allows us to specify a location to install the files.
- (Suggested) Indicate option 4 to install racket.
- Press enter to accept defaults.

Using a package manager

- For MacOs: `brew install --cask racket`
- For Linux:
    - Debian/Ubuntu:
      `sudo add-apt-repository ppa:plt/racket`
      `sudo apt-get install racket`
    - Arch Linux: `sudo pacman -S racket`
    - Fedora: `sudo dnf install racket`
    - openSUSE: `sudo zypper install racket`

Using binaries

- For Windows: Download and extract this tarball.
- For MacOs: Available binaries are in https://www.haskell.org/ghc/download_ghc_9_4_4.html. Not recommended as libraries are not automatically linked and default Apple privacy settings will make hard their interaction.
- For Linux: Download and extract this tarball. Inside the extracted directory execute the configure script and then sudo make install.

Note: This approach is not recommended since the installation scripts do not provide an easy way to uninstall the installed files.

Using a package manager

- For MacOs:
  - Using Homebrew: `brew install ghc`
  - Using MacPorts: `sudo port install ghc`
- For Linux:
  - Debian/Ubuntu: `sudo apt-get install ghc`
  - Arch Linux: `sudo pacman -S ghc`
  - Fedora: `sudo dnf install ghc`
  - openSUSE: `sudo zypper install ghc`

Location of init.el

- Emacs is a highly customizable editor. Emacs users can specify additional functionality using the "init.el".
- "init.el" is usually located in the following path:
    - Windows: `C:\Users\<USER>\AppData\Roaming\.emacs.d`
    - MacOs: `$HOME/.emacs.d`
    - Linux: `$HOME/.emacs.d`

Suggested init.el (1/4)

- We recommend the following changes to your "init.el" file to allow us work with the software installed so far:

```
(require 'package)
(custom-set-variables
  '(package-archives
      (quote
        (("gnu" . "https://elpa.gnu.org/packages/")
         ("melpa" . "https://melpa.org/packages/")))))
(package-initialize)
```

Suggested init.el (2/4)

```
(setq package-list '(haskell-mode))

; fetch the list of packages available
(unless package-archive-contents
  (package-refresh-contents))

; install the missing packages
(dolist (package package-list)
  (unless (package-installed-p package)
    (package-install package)))
```

Suggested init.el (3/4)

```
;; Basic UI setup
(require 'font-lock)
(global-font-lock-mode t)
(show-paren-mode 1)
(put 'upcase-region 'disabled nil)
(put 'eval-expression 'disabled nil)

;; Basic Racket setup
(setq scheme-program-name "<PATH-TO-RACKET>")
(setq auto-mode-alist
      (cons '("\\.rkt\\'" . scheme-mode)
            auto-mode-alist))
```

Suggested init.el (4/4)

```
;; Basic Haskell setup
(require 'haskell-mode)
(setq haskell-program-name "<PATH-TO-GHCI>")
(setq auto-mode-alist
      (cons '("\\.hs\\'" . haskell-mode)
            auto-mode-alist))
(add-hook 'haskell-mode-hook 'turn-on-haskell-doc-mode)
(add-hook 'haskell-mode-hook 'turn-on-haskell-indent)
```

Locations - Racket

- Using installers:
    - Windows: C:\Program Files\Racket
    - MacOs: /Applications/Racket v8.7/bin
    - Linux: <CHOOSEN LOCATION>/racket/bin
- Using package managers: The output of the command
  which racket is the path where racket is located in your
  system.

Locations - Haskell

- Using binary packages:
  - Windows: `<CHOSEN-LOCATION>\`
    `ghc-9.4.4-x86_64-unknown-mingw32-int_native.tar\`
    `ghc-9.4.4-x86_64-unknown-mingw32\bin`
  - MacOs:
    `<CHOSEN-LOCATION>/ghc-9.4.4-<ARCH>-apple-darwin/bin`
  - Linux:
    `<CHOSEN LOCATION>/ghc-9.4.4-x86_64-unknown-linux/bin`
- Using package managers: The output of the command
  `which ghc` is the path where `ghc` is located in your system.