Lab 01: Basics, using DrRacket

The purpose of this lab is to familiarize yourself with the software that will be used throughout this course. For this lab, there are no questions to hand in, but it is important to go through the lab to ensure that you will be ready for Assignment 0.

Once you have finished this lab, feel free to begin working on Assignment 0 and/or work on other optional open-ended questions. Each lab will have questions of this nature to accommodate those who finish the other questions quickly.

1. **Installing DrRacket**

   To install DrRacket click here.

   Once you have installed and opened DrRacket, you will see a two-part window. The bottom part is the Interactions window and the top part is the definitions window.

2. **Email Forwarding**

   Labs and Assignments will be submitted through MarkUs. When you request basic tests on your Racket code for labs or assignments, the resulting email goes to your student.cs account where it is automatically forwarded to whatever you have set as you WatIAM email address. To check or change your WatIAM email address, click here and follow the directions there.

3. **Submitting files**

   Please explore the "How to Submit on MarkUs" section of the course website for detailed instructions on submitting files. The course website can be found here .

4. **Using the Interactions window**

   Make sure that the window indicates that the language is Intermediate Student in the bottom left corner of the window. If not, look at Choosing a Language under Helpful Tips below.

   For each step, type into the Interactions window and then press the return key. Be sure to start writing after the space following the last ">" in the window.

   - Press the Run button.
   - Type -5 (no spaces). Now try again but with a space between - and 5. Notice the error message that appears.
   - Type 10/6 (no spaces). Now control-click on the answer you get (not after the answer, but on the answer) to bring up a dialog box that allows you to change the format. View the different formats.
   - Type (+ (* 3 2) 4 6). Notice what happens when you type each).

- [Adapted from HtDP exercise 2.4.1] Type (+ (10) 20) and read the error message. Type (10 + 20) and read the error message. Type (+ +) and read the error message. If you don't understand any of the error messages, ask your lab instructor for help.

- [Adapted from HtDP exercise 2.4.3] Guess what will happen when you type (+ 5 (/1 0)) and then find out. Do the same for (sin 10 20) and for (somef 10).

- What happens if you type (Sin 10) instead of (sin 10)?

- Using the Help Desk (see Helpful tips) to find the function, find the least common multiple of 3425 and 3482.

5. **Using the Definitions window.**

For these exercises, type into the Definitions window (the top part of the window). After you have typed and pressed the return key, click on the Run button to see the result.

If you are using the Stepper and it warns you that the program has changed, close the Stepper window by clicking on the red button at the top left corner. Then use Run and Step to get to the Stepper again.

- Type (+ (/ 1 (* 3 2)) (- 4 2) (- 2)) and click in the Stepper window (use the button with the label "Step" and a picture of a foot). Keep pressing on Step until the answer is found. Notice that you can step forward and back. Now click Run to see the answer in the Interactions window. You might wish to change the format so that the numbers match.

- Replace (- 2) by (2) and then click Run. Read the error message that is obtained.

6. **Optional open-ended questions**

Now that you have gone through the basics of DrRacket, you might consider getting started on Assignment 0; it is available on the "Assignments" page of the course website. After (or instead of) that, choose among the following suggestions. Using the manual for "Intermediate Student Language" (see "Help Desk" under **Helpful tips** below), look up and try out various functions on numbers. Read the information on strings linked off the "Resources" page on the course website, and try using some string functions in the Interactions window, and some in the Definitions window. You can also read the information about potatoheads and try out those functions. It may also be helpful to learn more about using the Mac; follow the link off the "Helpful tips" page on the course website.

Helpful Tips

Choosing a language Under "Language" on the menu bar, select "Choose Language…". In the dialog box that pops up, click on the triangle next to "How to Design Programs" (in the category "Teaching Languages") to see the choices of teaching languages. Click on "Intermediate Student" and then on the "OK" button. Then click on the "Run" button.

Help Desk Under "Help" on the menu bar, select "Help Desk". In the browser window that opens up, click on "How to Design Programs Languages" in the category "Languages". You can click on "1.4 (or 1.3) Pre-defined Functions" for functions in the Beginning Student Language.

Unhelpful help Avoid using the search box in the Help menu, as it does not confine the search to the documentation for DrRacket.