

Lab 1: Basics, using DrRacket

The first few questions on this lab can be either very slow or very fast to complete, so don't worry if you don't complete the rest of the questions in your scheduled lab time. Do make sure that you work on them either on your own computer or on a lab computer at a free time. Instructions on how to download a free copy of DrRacket can be found on the "Resources" page on the course Web site. That page also has a collection of the tips included in labs.

If you complete this lab way before the end of the lab period, please make use of the time to complete 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. **Logging in.** The computers in the lab access the DMC wireless network. Use the login id: dmc-uw-student and the password for printing on the wireless network. *Note that the computers in the lab do not have private workspace available. Anything you save to the hard drive will be erased overnight. When you are working in the lab, you should bring a flash drive to save your work, or email your solutions to yourself.*
2. **Email forwarding.** When you request public tests on your scheme 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, go to
<http://www.quest.uwaterloo.ca/help/howdoi/students/email.html>
and follow the directions there.
3. **Starting DrRacket.** The program should appear in the Start menu under Programs – Racket – DrRacket. The bottom part is the *Interactions* window and the top part is the *Definitions* window.
4. **Submitting files.** Your lab instructor will demonstrate how to submit assignments.
5. **Using the *Interactions* window.** Make sure that the window indicates that the language is Beginning 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.

6. 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.

7. **Logging out from your account.** Make sure you do this before you leave the lab. Go through the Start button and choose “Shut down”. There should be a drop down menu where you can choose the option to “Log off uw-student”.
8. *Optional open-ended questions* Since you have a lab instructor in the room to provide assistance, you might consider getting started on Assignment 0; it is available on the “Assignments” page of the course Web site. After (or instead of) that, choose among the following suggestions. Using the manual for “Beginning 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 Web site, and try using some string functions in the *Interactions* window, and some in the *Definitions* window.

Helpful tips These are all tips on using DrRacket.

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 “Beginning 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 “1.15 Primitive Operations” 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.