Programming Languages Course Note
— Running Standard ML at Your PC

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- We will be using the "Standard ML of New Jersey" compiler. Download the 110.69 distribution files at
  http://www.smlnj.org/dist/working/110.69/index.html
  where you will find pre-built systems for Mac OS X and Microsoft Windows that can be readily installed on your PC. There are also source files and instructions on how to build the system on Unix machines.

- The system is installed at directory /usr/local/smlnj-110.67/ by default. To run Standard ML of New Jersey, you need to make sure that the following directory is in your system's search path for commands: /usr/local/smlnj-110.67/bin/

- After you have installed the system, and correctly set the PATH environment variable, type sml. Now, you should be in the interactive Standard ML environment. To leave sml, simply type *control–D*. To interrupt computation in sml, type *control–C*.

- As an example, type the following program after the prompt sign - :

  ```
  fun fac 0 = 1
    | fac n = n * fac (n - 1);
  ```

  You have just defined the factorial function in sml.

- Try fac 10; .

- The above shows how to run ML program interactively. You can also execute ML programs that are already in a file. As an example, edit a file called power.sml that contains the following program:

  ```
  fun power 0 = 1
    | power n = 2 * power (n - 1);
  ```

- Under the sml environment, type use "power.sml"; . You have just loaded the function defined in file power.sml .

- Try power 10; .

- You can make a transcript of the execution by using the Unix script command. Under Unix prompt, type the following:

  ```
  script
  sml
  fun power 0 = 1
    | power n = n * power (n - 1);
  power 10;
  ```

  Then type *control–D* to leave sml. Type *control–D* again to leave the script program. See what is in file typescript.

- For a short tutorial on Standard ML, you may want to read Chapter 2, The Core Language, of *Notes on Programming Standard ML of New Jersey*, by Riccardo Pucella. The tutorial is available at
  http://www.cs.cornell.edu/riccardo/prog-smlnj/notes-011001.pdf