Exercise 19.1: Building and installing from source, using git

stress-ng is a very useful utility for both system administrators and developers. It exercises (stresses) most computer and operating system software and hardware facilities. It has an almost infinite number of options, including over 105 stress tests.

The home page for **stress-ng** is http://kernel.ubuntu.com/~cking/stress-ng.

In this exercise we are going to obtain the source using **git**, the distributed source control system originally developed for use with the **Linux** kernel, but now used by literally millions of projects. We will then compile and install.

1. Obtain the source by **cloning** the **git** repository:

   ```
   $ git clone -v git://kernel.ubuntu.com/cking/stress-ng.git
   ```

   If you do not have **git** installed, do so with your packaging system; modern distributions generally come with it by default.

2. Compile it with:

   ```
   $ cd stress-ng
   $ make
   ```

   You may find the compile fails due to some missing headers, due to a missing development package. For example on a **RHEL 7** system one might get:

   ```
   .........
   cc -O2 -Wall -Wall -Wextra -DVERSION="0.05.00" -O2 -c -o stress-key.o stress-key.c
   stress-key.c:36:22: fatal error: keyutils.h: No such file or directory
    #include <keyutils.h>
                         ^
   compilation terminated.
   make: *** [stress-key.o] Error 1
   ```

   This (and another missing header problem) should be fixed with:

   ```
   $ sudo yum install keyutils-libs-devel libattr-devel
   ```

   On a **Debian**-based system, such as **Ubuntu** you might need:

   ```
   $ sudo apt-get install libkeyutils-dev libattr1-dev
   ```

   On other distributions or versions package names may differ, so happy hunting! This kind of snag is one advantage to using pre-packaged software from distributions.

3. Test with

   ```
   $ ./stress-ng  -c 3 -t 10s -m 4
   ```

   which ties up the system with 3 CPU hogs for 10 seconds while using 1 GB of memory.

4. Install with:

   ```
   $ sudo make install
   ```

5. Change directories and test again and also see if the documentation was also installed properly.

   ```
   $ cd /tmp
   $ stress-ng  -c 3 -t 10s -m 4
   $ man stress-ng
   ```

Note that uninstalling can be a pain, which is one reason we have packaging systems.

