Computer Access

`telnet einstein.ph.utexas.edu`
IP Number 128.83.131.6.
`einstein.ph.utexas.edu` is a Silicon Graphics Workstation running IRIX 5.2. The section that follows will provide simple information on possibly useful software for this course. For problems or questions regarding computer usage on einstein please send email to `mijan@einstein.ph.utexas.edu`.

1 Related Software

- `FORTRAN 77, FORTRAN 90` and `C//C++` compilers are available.

Language	Command
`FORTRAN 77`	f77
`FORTRAN 90`	f90
`C`	cc
`C++`	CC

  To obtain help on any command in `UNIX` type:
  `man <commandname>`
  This will give you the manual pages for that command. For example to get help on the `FORTRAN 77` compiler type:
  `man f77`
  This will give you all the command line options for the `FORTRAN 77` compilers on the SGI.

- Symbolic math software: Maple V Release 3
  To run command line version type `maple` at prompt.
  Using X-windows type `xmaple`.
  Online help is can be accessed by typing ? in maple.

- Linear Solvers: `LINPACK` and `LAPACK`.

- Plotting packages: gnuplot 3.5 and SuperMongo.

  - gnuplot help available in the directory: /usr/local/doc/gnuplot. The file gnuplot.ps.gz contains a detailed manual and gpcard.ps.gz contains a reference card of commands. To view these files in X-windows:
    ```
    einstein% cp /usr/local/gnuplot/gnuplot.ps.gz /tmp/
    einstein% gunzip /tmp/gnuplot.ps.gz
    einstein% ghostview /tmp/gnuplot.ps
    ```
    The gunzip command uncompresses files...

- SuperMongo documentation is available in the directory: /usr/local/doc. The file sm.ps.gz contains a large manual on super mongo. If you need to use sm an example script can be provided.

- Editors: vi and emacs. (jot and zip also available on a SGI terminal)

2 Programming and gnuplot example

program1.f is available from the URL:
`http://wwwrel.ph.utexas.edu/Members/richard/phy387n.html`
To compile the attached example, program1.f, type:
`einstein% f77 program1.f -o program1`
For compiler options type `man f77`. The `-o` option tells the compiler to output the executable to the file `program1`. To run the program type: `einstein% program1`
A debugger is available. To compile for use with the debugger use the `-g` compiler option. Then run `dbx`. For example:
```
einstein% f77 -g program1.f -o program1.f
einstein% dbx program1
```
Type `man dbx` for manual pages on dbx.
The example program reads in an input file `input.dat` which contains:
```
50 50
-3.142 3.142
-3.142 3.142
```
The first line gives the grid size (nx,ny) and the last two lines give the min and max in the x and y directions. The program outputs three columns of numbers to the file output.dat. To make a surface plot of this in gnuplot type gnuplot at the prompt. Online help is available in gnuplot.
```
einstein% gnuplot

G N U P L O T
unix version 3.5
patchlevel 3.50.1.17, 27 Aug 93
last modified Fri Aug 27 05:21:33 GMT 1993

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Send comments and requests for help to info-gnuplot@dartmouth.edu
Send bugs, suggestions and mods to bug-gnuplot@dartmouth.edu

Terminal type set to 'x11'
gnuplot>
gnuplot> set parametric
```

```
gnuplot> set hidden3d
gnuplot> splot "output.dat" with lines
gnuplot> set terminal postscript
gnuplot> set output "output.ps"
gnuplot> replot
gnuplot> quit
```

The first third command outputs the plot to the screen in X. The last three commands set the terminal type to Postscript and outputs the plot to the file output.ps.