Computing and Statistical Data Analysis Some random slides about ROOT

Interactive data analysis program and class library.

Commands based on C++ (CINT interpreter).

Home page: root.cern.ch

Many tutorials, e.g. google for the BaBar interactive ROOT tutorial

See course web page for stand-alone C++ programs that use ROOT classes, e.g., for histograms.

Run the program

```
Rint
                                                                   - 0 ×
  WELCOME to ROOT
  ×
                                       ×
  ×
                                       ×
  ×
     Version
              3.05/05
                          3 July 2003
                                       ×
  ×
    You are welcome to visit our Web site
  ×
           http://root.cern.ch
  ×
  ×
  Compiled for win32.
CINT/ROOT C/C++ Interpreter version 5.15.86, Apr 29 2003
Type ? for help. Commands must be C++ statements.
Enclose multiple statements between { }.
Welcome to the ROOT tutorials
Type ".x demos.C" to get a toolbar from which to execute the demos
Type ".x demoshelp.C" to see the help window
Type ".x xform.CC" to see the combined Qt/Root demo
Type ".x RootShower.CC" to see the RootShower complex exmaplen root [0] _
```

Installation and set up non-trivial. See your local expert. To run, type root

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Run the demo program

Try typing this stuff in yourself. File Edit View Options Inspector Classes Help

My first ROOT interactive session

ROOT is based on CINT, a powerful C/C++ interpreter.

Blocks of lines can be entered within {...}.

Previous typed lines can be recalled.

Root > float x=5; float y=7;

 $Root > x^* sqrt(y)$

(double)1.322875655532e+01

Root > for (int i=2;i<7;i++) printf("sqrt(%d) = %f",i,sqrt(i));

sqrt(2) = 1.414214sqrt(3) = 1.732051sqrt(4) = 2.000000sqrt(5) = 2.236068sqrt(6) = 2.449490

Root > TF1 f1("f1", "sin(x)/x", 0, 10)

Root > f1.Draw()



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Book, fill, display a histogram



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Fancy stuff with histograms



Plot a graph with error bars



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Function minimization for fitting



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? ?? ???????

We won't have time in this course to have a very detailed discussion about ROOT.

Those of you who will need to use it should take the time to work through a ROOT tutorial (see web).

I prefer to do analysis in a stand-alone C++ program which can be debugged, linked with other libraries, etc. Use ROOT classes as needed for histograms, minimization, etc.

This program can produce a set of histograms that you can then analyze further with a program such as ROOT. (See the example file rootTest.cc on the course web site.)