Engin 103
Fall '06
Meeting #7: Sept. 26, 2006

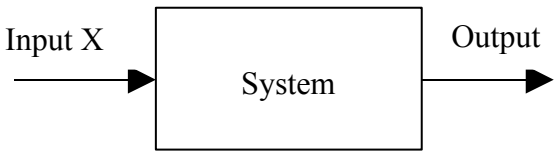
The teams were assigned user names and passwords to access the University servers for uploading team web pages. Instructions for creating, uploading, and maintaining the team web pages can be found at
http://www.faculty.umb.edu/tomas_materdey/103f06/files/webinstruct.html
Every student should send the TA a message containing the paragraph as shown in section 1 of these instructions, at praveen.nittala@umb.edu with the subject "requesting password". If you haven't done so, please do it ASAP.

We went over sections 2 on creating the index.html file and section 3 on creating the projectY.html file and linking it from the index.html file. We also explained how to upload these files onto the server. If you have a pictures, then section 4 contains instructions about the additional folder you would need to upload. Many teams have successfully created and uploaded their basic web pages. Team webpages can be seen at
http://www.faculty.umb.edu/tomas_materdey/103f06/files/teams.html

Every student should learn how to create and upload a webpage. A web page for project 0 is not required but all team leaders for Project 0 are encouraged to upload their PowerPoint presentations saved in html format as the project0.html file. Webpages for projects 1, 2, 3 are required. The leader will also be the webmaster. A picture of the team is required somewhere within the team's front page.

We introduced Project 1 on Data Modeling as applied to data smoothening. We started to learn how to do data modeling using polynomials and exponentials, and hybrid exponential/polynomials as with data for Ultrasonic response versus Metal distance from the NIST.

Project 1 requires the use of data modeling with Excel (© Microsoft), this is learned by doing CW3, a quadratic curve-fitting or data modeling. **What is data modeling?** When certain input data X is applied to a system, certain output data Y is produced by that system. A mathematical model of the system can be obtained by relating Y to X: e.g. Y'=f(X). We have used a Y' to indicate that it may not be possible to obtain an equation that relates Y to X for every pair of data, but just a best model.

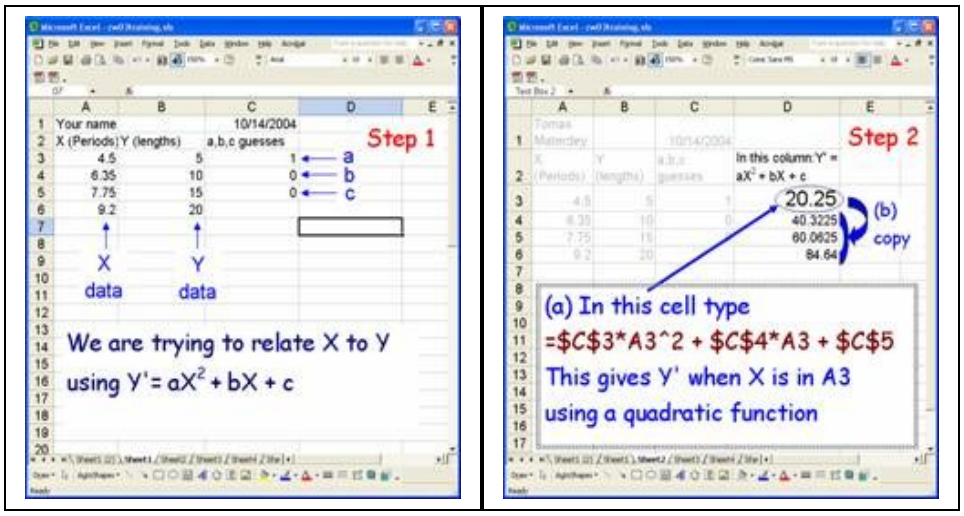


Y'= f(X)

Examples of the system could be a catapult (X=initial height of a weight; Y=range for a clay ball), a pendulum (X=period; Y=length needed to produce that period), or a car on an inclined ramp (X=ramp angle; Y=distance traveled in 2s). To simplify the introduction, we discuss just simple polynomial models, e.g.

$Y'=aX^2+bX+c$
$Y'=\quad bX+c$
$Y'=dX^3+aX^2+bX+c$

How to obtain a model? CW3 can be done by following these 7 steps. The process consists of using Solver (get it through Tools/Add-ins if needed) to minimize a "standard deviation" parameter s by allowing the polynomial coefficient to vary. After using Solver, the final values for a, b, c determines our quadratic model that represents our pendulum.



Suggested items to write in the Engin 103 logbook:

1) **Abbreviate the instructions for the Webmaster in 8 entries (using one line per entry)**
2) **Write in your own words what is a process of data modeling from start to finish, what are possible applications of data modeling**