

Quarterly Projections, September 15, 2006

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1 1st Quarter Projection

The first version of my program will consist of a calculator module that can be added into the student Intranet like the other modules (8th period activities, filecenter, etc.). My main goal is to program the HTML, PHP, and other necessary code needed to put up the module. The program will consist of a GUI consisting of buttons and a label for output, with the various expressions being stored in binary expression trees in infix notation. The binary expression trees required for expressions using algebraic functions such as $\sin(x)$, $\cos(x)$, etc., will only have 1 "leaf."

2 2nd Quarter Projection

The second version of my program will include a graphing module that can be added to the calculator. This module will consist of the same buttons but it will have a panel instead of a label so that the user can input equations. After graphing the 1-variable equation, the user will have the option of performing graphical operations such as finding the minimum, the maximum, the derivative at a certain point, the roots, and the numeric integral. This will be accomplished using numerical algorithms such as Newton's method for zeroes and the symmetric difference algorithm for computing the derivative. Although the program was not designed to be a computer algebra system, it could find the derivatives of functions by using a recursive algorithm on the binary expression trees.

3 3rd Quarter Projection

The third and final version of my program will include a module for editing matrices and lists, which will use 1-dimensional and 2-dimensional arrays. The user will then be able to perform such operations as finding models to fit the data, finding various statistical measures such as mean and median, matrix multiplication, and row-reducing matrices. The user will also be able to plot the data points in the graphing module.