

Prakhar Saxena

Professor Doctor Brian Stuart

CS 164

November 20, 2016

Difference Engine Simulation

❖ Approach

- I first approached it using direct two dimensional arrays, then later realized that JavaScript doesn't support multidimensional arrays. Then I approached using single dimension array and tables.
- The latter worked fine. I used 3 arrays but only 2 of them were of the operational use. I reserved one for the user input, so that I could extract the user input if needed later for some further calculations. (if one checks the source code, he/she might find helpful/useful comments.)

❖ How to Use

- The first screen shows the textboxes/input fields and their labels.
- The user is expected to put in values corresponding to the encircled places in the table below to get the desired result.
- Below is the example of Difference Engine, one can expect this program to work the same way.

x	y	Δy	$\Delta^2 y$	$\Delta^3 y$
0	-29375	5231	-284	6
1	-24144	4947	-278	6
2	-19197	4669	-272	6
3	-14528	4397	-266	6
4	-10131	4131	-260	
5	-6000	3871		
6	-2129			

❖ Testing

- I've tested the above values on this simulation.
- In addition to that I also tested $y = x^4$
- Also I asked a few students in my Learning Community.