UNIVERSITY OF TEXAS ARLINGTON

Using PyTorch to mimic Shakespeare: creating a recurrent neural network to emulate famous works of literature and other texts

Samrat Baral: Fourth year undergraduate in Computer Science

Jason Bard: Fourth year undergraduate in Mathematics

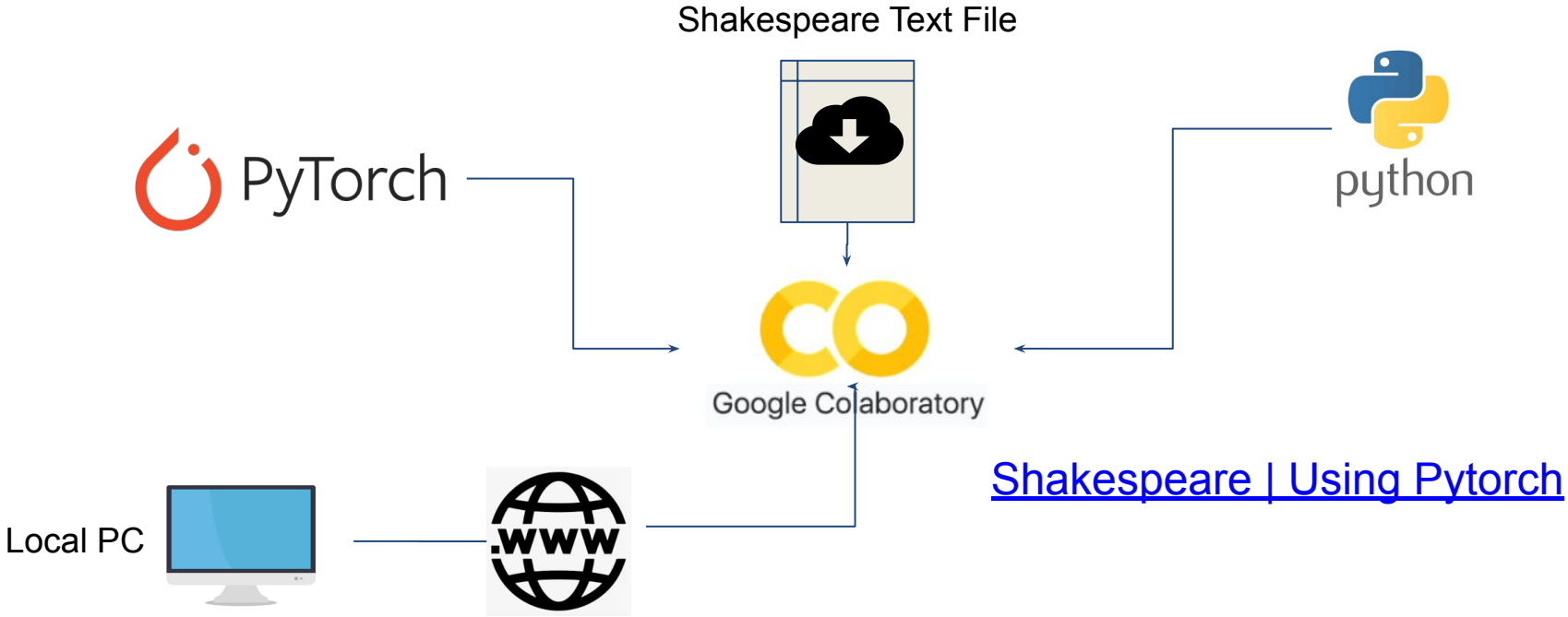
Technology & Poster

Goal: transcribe code that could emulate data from a text file

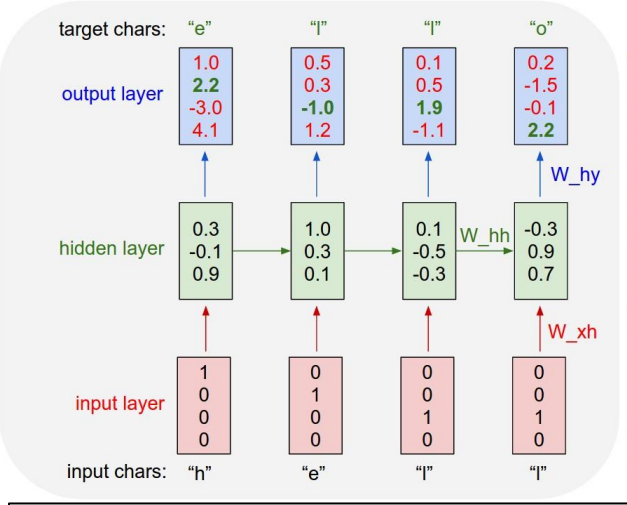
Sending original code to a PyTorch framework using Google Colab.

[Poster]

Project Overview



[Shakespeare | Using Pytorch]



Cell sensitive to position in line:

The sole importance of the crossing of the Berezina lies in the fact that it plainly and indubitably proved the fallacy of all the plans for cutting off the enemy's retreat and the soundness of the only possible line of action--the one Kutuzov and the general mass of the army demanded--namely, simply to follow the enemy up. The French crowd fled at a continually increasing speed and all its energy was directed to reaching its goal. It fled like a wounded animal and it was impossible to block its path. This was shown not so much by the arrangements it made for crossing as by what took place at the bridges. When the bridges broke down, unarmed soldiers, people from Moscow and women with children who were with the French transport, all--carried on by vis inertiae--pressed forward into boats and into the ice-covered water and did not, surrender.

Cell that turns on inside quotes:

"You mean to imply that I have nothing to eat out of.... On the contrary, I can supply you with everything even if you want to give dinner parties," warmly replied Chichagov, who tried by every word he spoke to prove his own rectitude and therefore imagined Kutuzov to be animated by the same desire.

Kutuzov, shrugging his shoulders, replied with his subtle penetrating smile: "I meant merely to say what I said."

tyntd-iafhatawiaoihrdemot lytdws e ,tfti, astai f ogoh eoase rrranbyne 'nhthnee e plia tklrgd t o idoe ns,smtt   h ne etie h,hregtrs nigtike,aoaenns lng

Karpathy 100 Iteration

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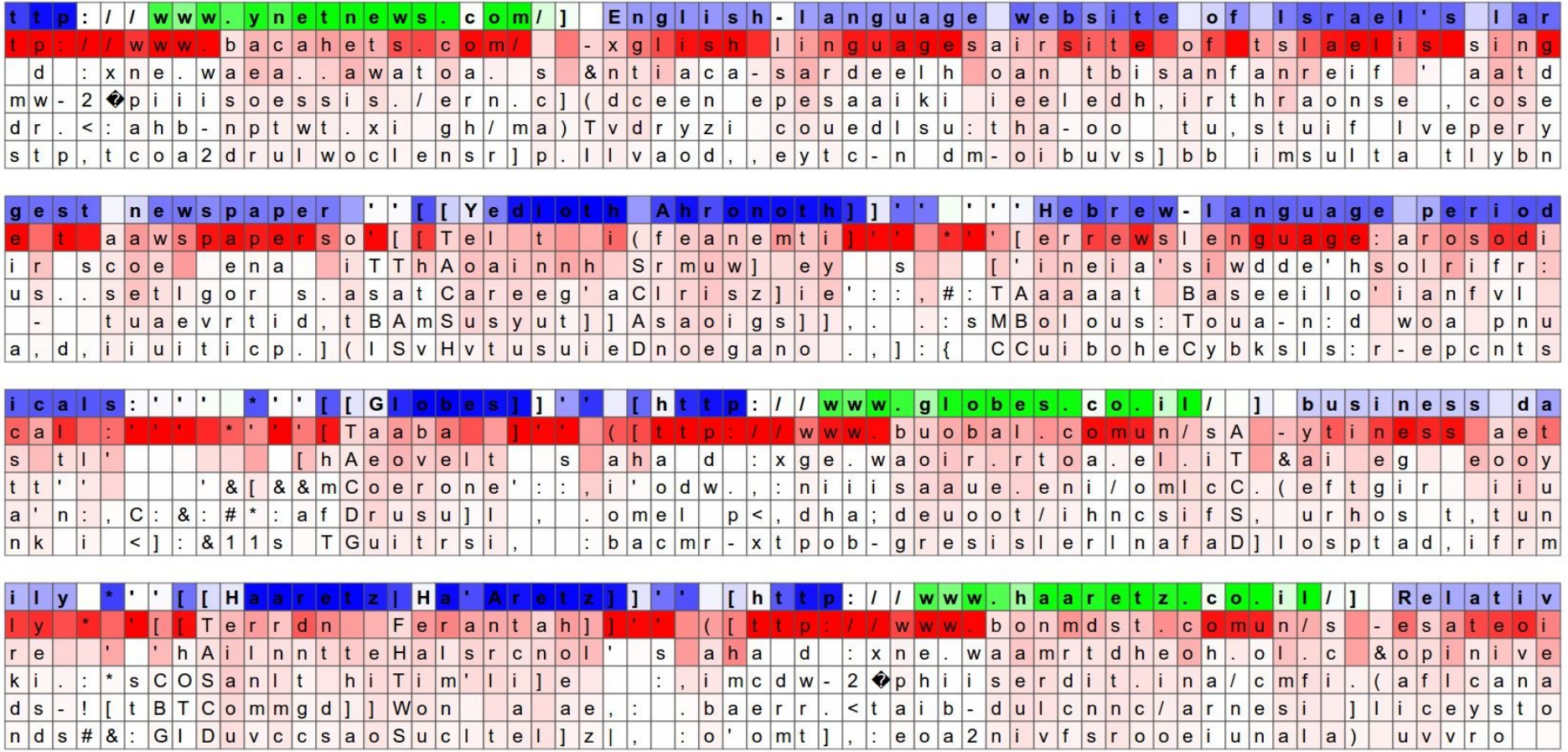
Karpathy 700 Iteration

"Why do what that day," replied Natasha, and wishing to himself the fact the princess, Princess Mary was easier, fed in had oftened him.
Pierre aking his soul came to the packs and drove up his father-in-law women.

Karpathy 2000 Iteration



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Outputs and Results

iter 1212200, loss: 42.82566255293282

Output: [1, 56, 39, 28, 32, 39, 12, 56, 1, 39, 36, 50, 8, 24, 1, 17, 39, 56, 50, 54, 1, 39, 4, 8, 20, 39, 56, 1, 39, 17, 8, 26, 44, 44, 23, 55, 27, 43, 41, 19, 21, 22, 44, 11, 4, 39, 60, 20, 25, 25, 25, 4, 53, 44, 6, 34, 25, 8, 20, 34, 25, 1, 7, 12, 39, 8, 32, 1, 39, 5, 25, 1, 50, 12, 56, 39, 56, 1, 24, 12, 46, 39, 58, 8, 12, 24, 1, 58, 39, 12, 56, 1, 39, 12, 8, 24, 3, 1, 58, 39, 1, 12, 56, 50, 12, 39, 48, 8, 24, 58, 39, 50, 39, 5, 24, 1, 8, 25, 17, 12, 39, 32, 8, 39, 3, 28, 17, 9, 50, 28, 58, 39, 57, 1, 50, 25, 17, 39, 17, 8, 32, 1, 39, 50, 9, 8, 20, 12, 39, 50, 5, 8, 8, 25, 58, 26, 44, 44, 40, 52, 38, 43, 52, 2, 0, 22, 44, 30, 50, 25, 12, 56, 1, 24, 46, 39, 4, 8, 20, 46, 39, 48, 50, 17, 12, 1, 24, 39, 12, 56, 28, 17, 39, 17, 1, 34, 50, 32, 36, 1]

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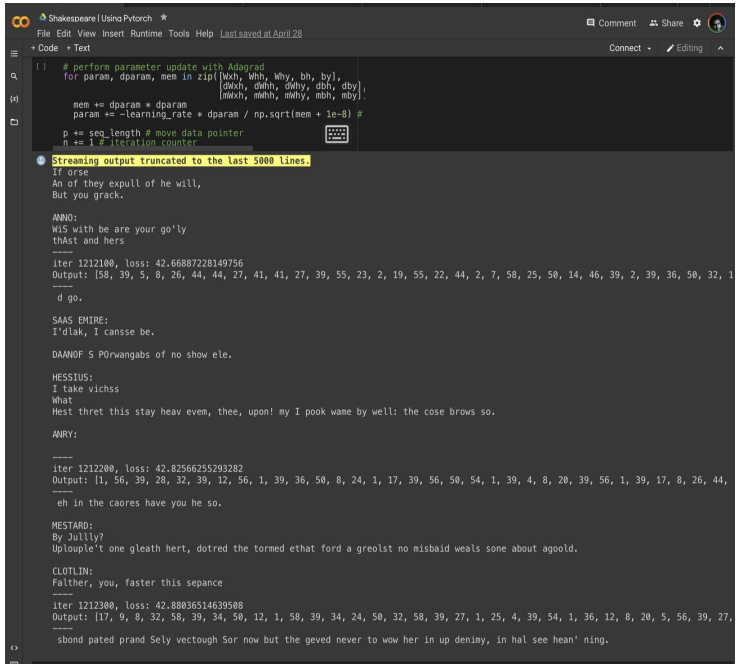

Challenges and Problems Faced

- Understanding Python syntax and PyTorch functions
  - Build multiple simple projects, use projects to learn
- Understanding concepts
  - Cross-entropy, loss function, backpropagation
- Debugging Code
  - Mimicking the mathematical operations and algorithms.