Project 2 Teamwork djohan-djohan

1	Team Name:djohan
2	Individual name: Daniel Johan
3	Individual netid: djohan
4	Other team members names and netids: N/A
5	Link to github repository: https://github.com/djohan12/TOC_project02_djohan
6	Overall project attempted, with sub-projects: Tracing NTM Behavior
7	List of included files (if you have many files of a certain type, such as test files of different sizes, list just the folder): (Add more rows as necessary)

File/folder Name	File Contents and Use
Code Files	
traceTM_djohan.py	Python script that reads in a turing machine csv file, a maximum depth, and a series of strings and determine whether the string can reach the accept state within the maximum depth and all possible transitions that it can tape for a given machine. Once the tree of configurations has been computed, the result is written to an output file as well as vital information such as all transitions, depth, nonleaves, and nondeterminism
Test Files	
CSV format: check the readme for turing machine csv formatting	
a+TM.csv	Turing machine csv for language a+
a^nb^bTM.csv	Turing machine csv for language a^nb^n
abc_starTM.csv	Turing machine csv for language a*b*c*
Output Files	
a+TM_output.txt	Output of turing machine configurations path for input strings for the a+ language
a^nb^bTM_output.txt	Output of turing machine configurations path for input strings for the a^nb^n language

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<tr><td>abc_starTM_output.txt</td><td>Output of turing machine configurations path for input strings for the a*b*c* language</td></tr>
<tr><td colspan="2">Plots (as needed)</td></tr>
<tr><td>Same as output files</td><td>The output files provide a txt file that contains the name of the machine, the strings, whether the string is accepted, rejected, or times out. It also shows transitions at each configuration level, The total number of transitions, non leaves, and the average nondeterminism.</td></tr>
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<tr><td>8</td><td>Individual Student time (in hours) to complete: 20 hours</td></tr>
<tr><td>9</td><td>Your specific activities and responsibilities:

I was in charge of the entire project, so organization, formatting, and coding were all my responsibility. I wrote the turing machines config csv’s, the code that would read these csv’s and the internal logic that would read in standard input for tape strings and decide whether those strings would be accepted by the given turing machines. Finally, I had to write the code to format the output of turing machine trace and calculate the overall nondeterminism of the entire machine.</td></tr>
<tr><td>10</td><td>What was personally learned (topic, programming, algorithms):

The main technical skills that I learned from this project was the use of BFS to keep track of how many transitions each configuration would have in the next level. Additionally, this project gave me a better understanding of the underlying logic of turing machines</td></tr>
<tr><td>11</td><td>How team was organized, and what might be improved:

All work was self–organized, but the main things I would’ve improved would be optimizing my code so that it could handle more complex turing machines and longer inputs faster. Additionally, I would also change some of the formatting choices I had set up so that the outputs would look cleaner/more organized</td></tr>
<tr><td>12</td><td>Any additional material: N/A</td></tr>
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