CS 321, Assignment 7

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November 27, 2016

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a

1. Adversary picks a number $p \geq 0$
2. I pick a string $s \in A$
3. Adversary breaks s into $s = uvwxy$, such that $|vwx| \leq p$ and $|vx| > 0$
4. I pick a number $i \geq 0$. If $uv^iwx^iy \notin A$, then I win

b

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2

The tape head can move left and right freely along the tape, while being able to read and write freely on a theoretically limitless tape. The tape is our way of showing memory. If the tape head needs to read a value at a specific index, it moves to that index, reads what's on the tape, and updates it as necessary. Using the ability to read, write, and move freely, we can implement algorithms to recognize and "compute" yes or no answers to problems.

Turing Machine for $\{a^nb^mc^{nm}\}$		
If in state:	reading:	do:
look for an a	test testt	
look for a b		
look for a c		