Project 2: $R(i, j, k)$ **Morally Due Oct 14**
(Usual rules - if your cat dies you can hand it in Oct 16.)

1. (0 points) What is your name? Write it clearly. Staple your HW. When is the midterm? Where is the midterm? IMPORTANT- I WANT TO MAKE SURE I HAVE YOUR CORRECT EMAIL ADDRESSES. I HAVE EMAILED ALL OF YOU USING WHAT I CURRENTLY THINK IS YOUR EMAIL ADDRESS BUT IF YOU DIDN'T GET IT THEN EMAIL ME ASAP TO GIVE ME YOUR REAL EMAIL ADDRESS.

2. (10 points) Write a DFA for the language

$$L = \{w \mid bb \text{ is a suffix of w }\}$$

It should have three states. Label the start state 1, the final state 3, and the other state 2.

3. We are going to use the $R(i, j, k)$ construction from class to create a Regular Expression from the DFA (There is an easy Reg Expression for the language- we do not care. That is not the point. The point is to see that know the construction.)

   (a) (10 points) To do the $R(i, j, k)$ construction it *seems* that we need $R(i, j, k)$ for $1 \leq i, j \leq 3$ and $0 \leq k \leq 3$. This would be 36 states! Carefully write down exactly which $R(i, j, k)$ we need (it should be LESS THAN 36.) We call this THE LIST.

   (b) (20 points) For every $(i, j, 0)$ on THE LIST Write down a regular expressions for $R(i, j, 0)$. (Using the construction in class.)

   (c) (20 points) For every $(i, j, 1)$ on THE LIST Write down a regular expressions for $R(i, j, 1)$. (Using the construction in class.)

   (d) (20 points) For every $(i, j, 2)$ on THE LIST Write down a regular expressions for $R(i, j, 2)$. (Using the construction in class.)

   (e) (20 points) For every $(i, j, 3)$ on THE LIST Write down a regular expressions for $R(i, j, 3)$. (Using the construction in class.)

   (f) (0 points but you must do it) Write down the regular expression you get for the language L using the construction.