Angry Madness

Today we are playing the Angry Negotiation Game in class. As an *optional follow-up*, you may enter our Computerized Angry Negotiation Tournament. To do this, respond to Professor McAdams' email later today.

Description of Computerized Angry Negotiation Tournament

You will play a *slight variation* of the game played in class. **After Rounds 1-9, people get angry with probability 25%** (rather than 10% after Round 1, 20% after Round 2, etc..) After Round 10, however, we still assume that people get Angry for certain.

Furthermore, half of the **overall** population of remaining players will survive each round. **(You and your opponent might both survive or both perish.)**

Gold Medal: **bonus = 15% of total course grade**
Silver Medal: **bonus = 10% of total course grade**
Bronze Medal: **bonus = 5% of total course grade**

How do you want your computer agent to play?

There are at most ten rounds. For each possible payoff you may get from yielding (M = 100, 200, or 400)[1] specify **how likely you will be to Yield in each round, if that round is reached**. (See Example on next pages.)

	When M = 100	When M = 200	When M = 400
Round 1			
Round 2			
Round 3			
Round 4			
Round 5			
Round 6			
Round 7			
Round 8			
Round 9			
Round 10			

[1] To keep things simple, I'll use refer to you as Management. (This is business school, after all.) Half of you will play as "Labor", however, and half as "Management", but you don't know which.

Unlike February Madness, luck will not at all be a factor in this tournament. In each match, I will compute each player's *exact* expected payoff to determine the survivor.

Example: Ann vs Bart

Note: If you will be yielding 100% of the time if ever round R is reached, there is no way that round R+1 will be reached. That's why those boxes are empty.

Ann's Strategy

	When M = $100	When M = $200	When M = $400
Round 1	50%	0%	100%
Round 2	100%	0%	
Round 3		0%	
Round 4		0%	
Round 5		0%	
Round 6		100%	
Round 7			
Round 8			
Round 9			
Round 10			

Bart's Strategy

	When U = $100	When U = $200	When U = $400
Round 1	0%	50%	0%
Round 2	0%	25%	0%
Round 3	0%	75%	0%
Round 4	100%	100%	0%
Round 5			0%
Round 6			0%
Round 7			0%
Round 8			0%
Round 9			0%
Round 10			0%

What Will Happen If M = U = $200

In Round 1, Ann never yields and Bart yields 50% of the time
- 50% of the time, Ann gets $300 and Bart gets $200
- 50%*10% = 5% of the time, Ann and Bart get angry (and $0 payoff each)
- So, Round 2 is reached only 45% of the time

If Round 2 is reached, Ann never yields and Bart yields 25% of the time
- 25% of the time, Ann gets $300 and Bart gets $200
- 75%*20% = 15% of the time, Ann and Bart get angry (and $0 payoff each)
- So, Round 3 is reached from Round 2 only 60% of the time. All together, Round 3 is reached only 45% * 60% = 27% of the time

If Round 3 is reached, Ann never yields and Bart yields 75% of the time
- 75% of the time, Ann gets $300 and Bart gets $200
- 25%*30% = 7.5% of the time, Ann and Bart get angry (and $0 payoff each)
- So, Round 4 is reached from Round 3 only 17.5% of the time. All together, Round 4 is reached only 27% * 17.5% = 4.7% of the time

If Round 4 is reached, Ann never yields and Bart yields 100% of the time
- Ann gets $300 and Bart gets $200
- Round 5 is never reached

Given their payoff in every possible event, we can calculate each player's expected payoff when M = U = $200 and, similarly, in all of the other cases (M = U = $100 and M = $100, U = $200, etc..) The average payoff across all nine cases is what determines who survives to the next round.

For more details, feel free to examine the materials on Sloanspace:

1. Word document that breaks out in more detail the calculation for the highlighted case M = U = $200 above.
2. Excel spreadsheet that will be used to compute the payoffs. (Feel free to experiment – input various strategies and see what overall payoffs result.)