Deciding whether to market a new product

|		Net gain/loss				Posterior probabilities of survey results				
Prior probability of product success	0.50	750000					Favorable	Neutral	Unfavorable	
Prior probability of product failure	0.50	-450000					0.35	0.25	0.40	P(Survey) 0.5
										Cost Survey -15000
Probabilities indicating accuracy of survey						Posterior probabilities				
Actual\survey	Favorable	Neutral	Unfavorable			Actual\survey	Favorable	Neutral	Unfavorable	
Success	0.60	0.30	0.10			Success	0.857	0.600	0.125	
Failure	0.10	0.20	0.70			Failure	0.143	0.400	0.875	

PrecisionTree Policy Suggestion - Optimal Decision Tree

Performed By: Rahil
Date: Thursday, December 9, 2021 6:25:20 PM
Model: Decision Tree 'Survey' in [Q2 data.xlsx]Exhibit A
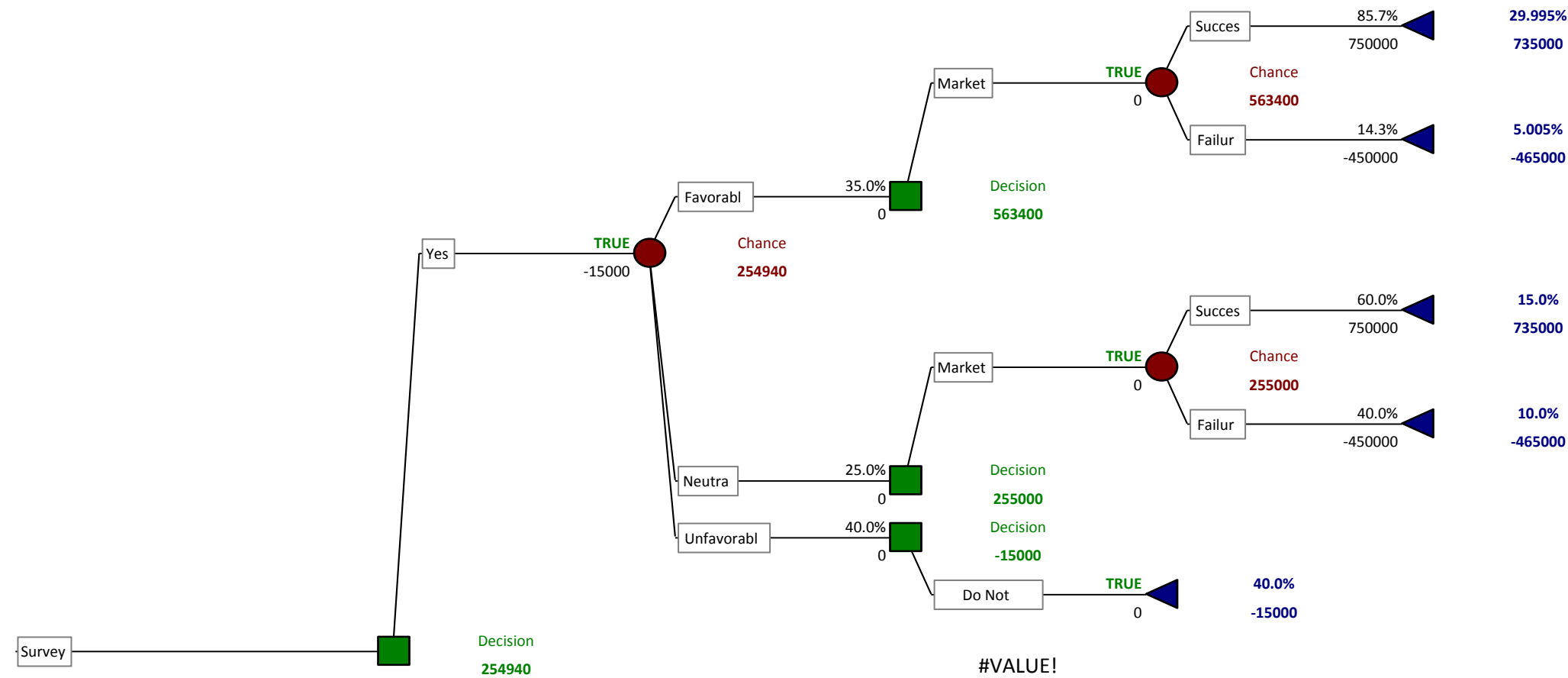
Succes	85.7%		29.995%
	750000		735000

Market

TRUE
0

Chance
563400

Failur	14.3%		5.005%
	-450000		-465000

Favorabl   35.0%
0

Decision
563400

Yes

TRUE
-15000

Chance
254940

Succes	60.0%		15.0%
	750000		735000

Market

TRUE
0

Chance
255000

Failur	40.0%		10.0%
	-450000		-465000

Neutra   25.0%
0

Decision
255000

Unfavorabl   40.0%
0

Decision
-15000

Do Not

TRUE
0

40.0%
-15000

Survey

Decision
254940

#VALUE!

PrecisionTree Sensitivity Analysis - Strategy Region

Performed By: Rahil
Date: Friday, December 10, 2021 5:11:21 PM
Output: Decision Tree 'PART A' (Expected Value of Entire Model)
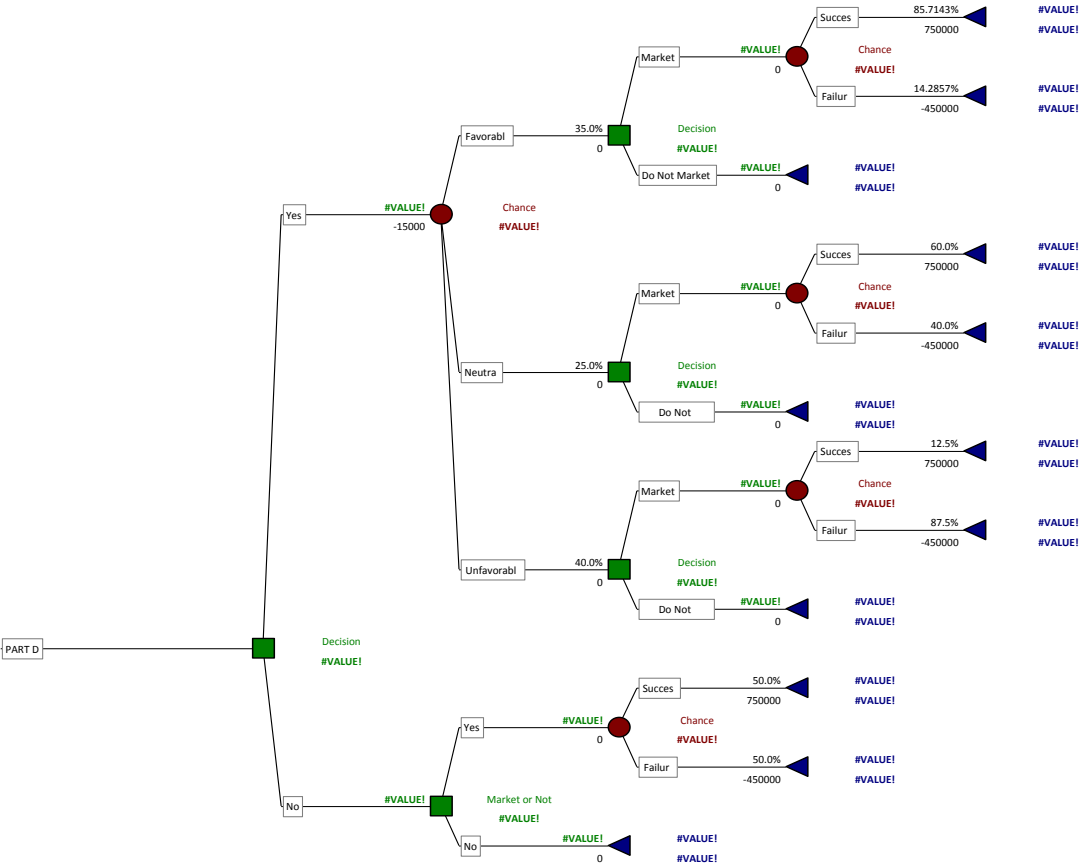**Input:** Prior probability of product success (B5)

Strategy Region of Decision Tree 'PART A'
EXHIBIT B
Expected Value of Node 'Decision' (B53)
With Variation of Prior probability of product success (B5)
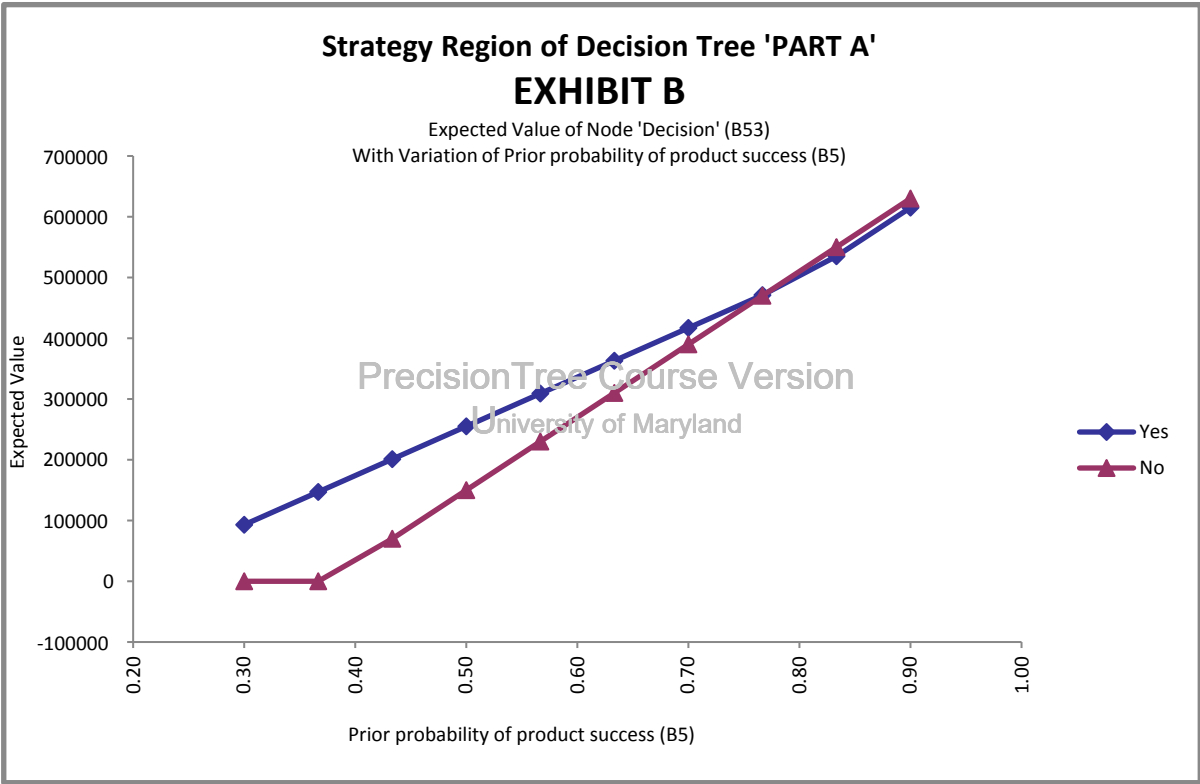
	Strategy Region Data					
	Input		**Yes**		**No**	
	Value	Change (%)	Value	Change (%)	Value	Change (%)
#1	0.30	-40.00%	93000	-63.53%	0	-100.00%
#2	0.37	-26.67%	147000	-42.35%	0	-100.00%
#3	0.43	-13.33%	201000	-21.18%	70000	-72.55%
#4	0.50	0.00%	255000	0.00%	150000	-41.18%
#5	0.57	13.33%	309000	21.18%	230000	-9.80%
#6	0.63	26.67%	363000	42.35%	310000	21.57%
#7	0.70	40.00%	417000	63.53%	390000	52.94%
#8	0.77	53.33%	471000	84.71%	470000	84.31%
#9	0.83	66.67%	535000	109.80%	550000	115.69%
#10	0.90	80.00%	615000	141.18%	630000	147.06%

Deciding whether to market a new product

		Net gain/loss			Posterior probabilities of survey results					
Prior probability of product success	0.50	750000				Favorable	Neutral	Unfavorable		
Prior probability of product failure	0.50	-450000				0.35	0.25	0.40	P(Survey)	0.5
									Cost Survey	15000
Probabilities indicating accuracy of survey					Posterior probabilities					
Actual\survey	Favorable	Neutral	Unfavorable		Actual\survey	Favorable	Neutral	Unfavorable		
Success	0.60	0.30	0.10		Success	0.857	0.600	0.125		
Failure	0.10	0.20	0.70		Failure	0.143	0.400	0.875		

PrecisionTree Policy Suggestion - Optimal Decision Tree

Performed By: Rahil
Date: Friday, December 10, 2021 5:13:47 PM
Model: Decision Tree 'PART D' in [Q2 data.xlsx]PartD
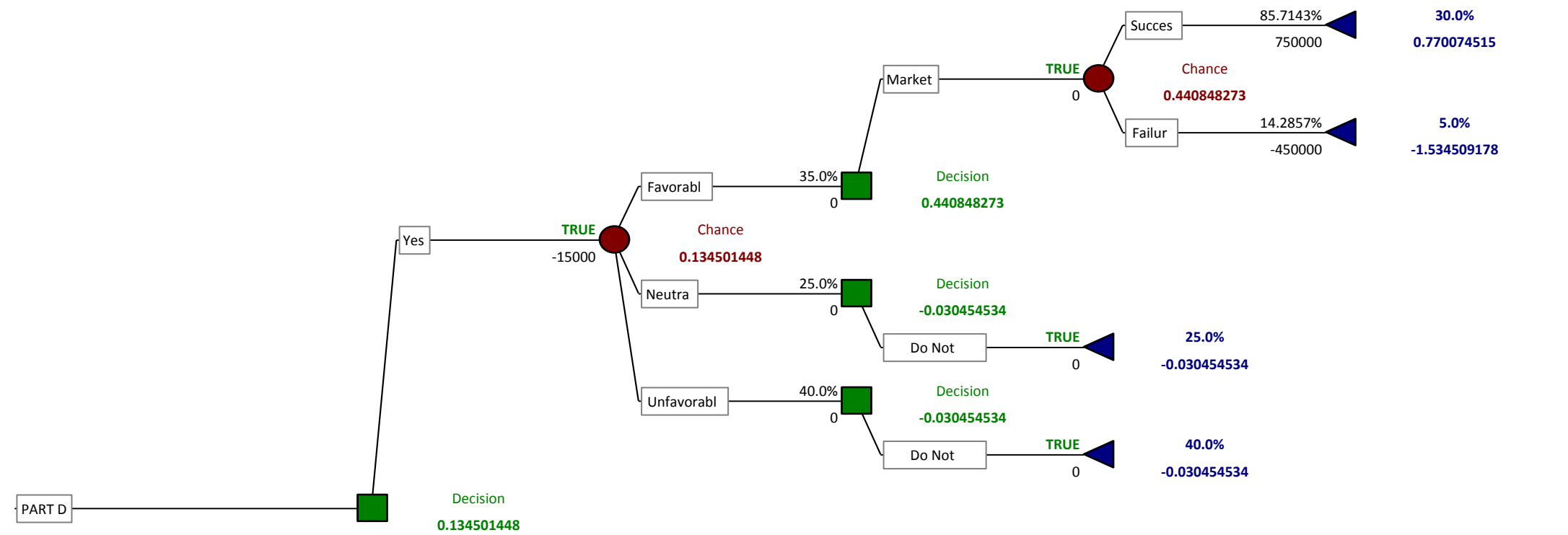
PrecisionTree decision tree diagram. Key node values:

- PART D → Decision 0.134501448
- Yes → TRUE, -15000 → Chance 0.134501448
- Favorabl (35.0%) → Decision 0.440848273 → Market → TRUE, 0 → Chance 0.440848273
  - Succes: 85.7143%, 750000, 30.0%, 0.770074515
  - Failur: 14.2857%, -450000, 5.0%, -1.534509178
- Neutra (25.0%) → Decision -0.030454534 → Do Not → TRUE, 0, 25.0%, -0.030454534
- Unfavorabl (40.0%) → Decision -0.030454534 → Do Not → TRUE, 0, 40.0%, -0.030454534

PrecisionTree Sensitivity Analysis - Strategy Region

Performed By: Rahil
Date: Friday, December 10, 2021 5:15:33 PM
Output: Decision Tree 'PART D' (Expected Utility of Entire Model)
Input: Prior probability of product success (B5)

Strategy Region of Decision Tree 'PART D'
EXHIBIT C
Expected Utility of Node 'Decision' (B53)
With Variation of Prior probability of product success (B5)
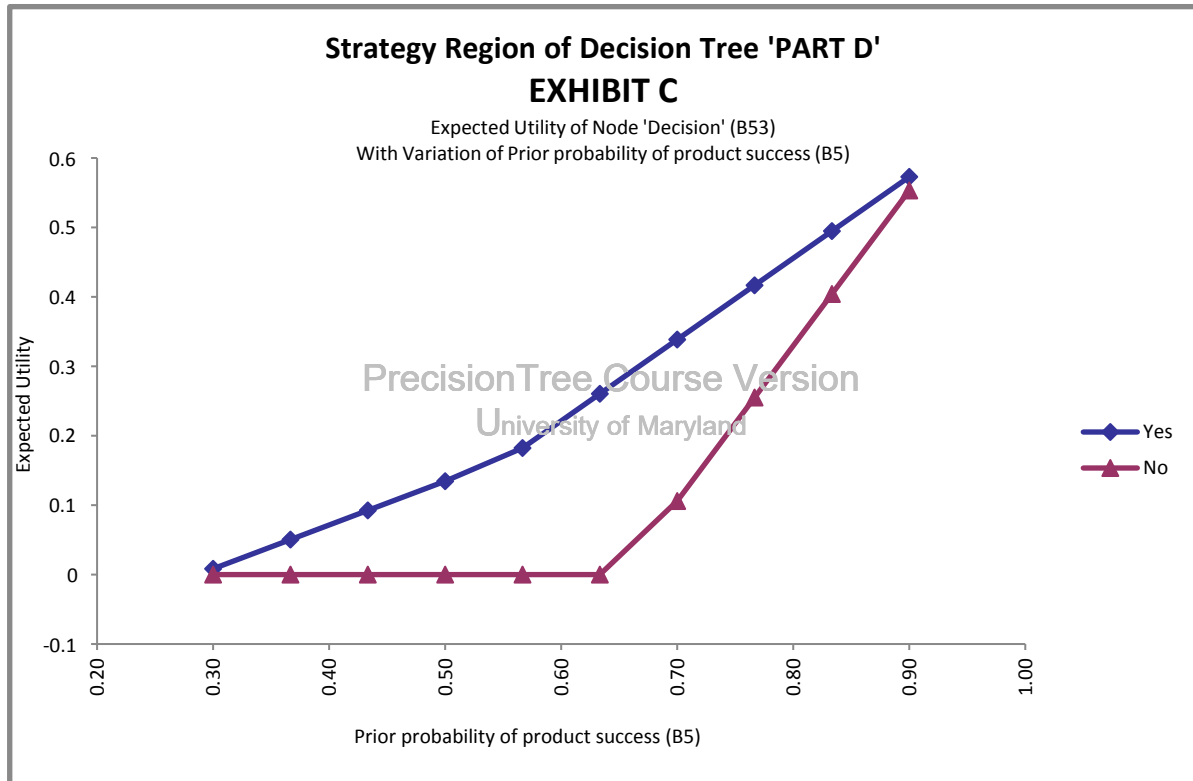
Strategy Region Data						
	Input		**Yes**		**No**	
	Value	Change (%)	Value	Change (%)	Value	Change (%)
#1	0.30	-40.00%	0.00835687	-93.79%	0	-100.00%
#2	0.37	-26.67%	0.050405063	-62.52%	0	-100.00%
#3	0.43	-13.33%	0.092453256	-31.26%	0	-100.00%
#4	0.50	0.00%	0.134501448	0.00%	0	-100.00%
#5	0.57	13.33%	0.182288177	35.53%	0	-100.00%
#6	0.63	26.67%	0.260401013	93.60%	0	-100.00%
#7	0.70	40.00%	0.338513849	151.68%	0.105927955	-21.24%
#8	0.77	53.33%	0.416626685	209.76%	0.255026151	89.61%
#9	0.83	66.67%	0.49473952	267.83%	0.404124348	200.46%
#10	0.90	80.00%	0.572852356	325.91%	0.553222545	311.31%