MG-GY 9753: Business Analytics
Fall-2017

Short Case 4 Report

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Bidding for a Launch Contract:

Cost of Bidding	Solo-Bid	Co-Bid
Actinium	$6.7	$4.3
Francium	$8.5	$5.2
Polonium	$7.6	$3.8

Profit	Solo-Bid	Co-Bid
Actinium	$28.9	$21.5
Francium	$35.5	$25.1
Polonium	$32.8	$22.4

Probability

Solo-Bid Win 15%

Co-Bid Win 20%

Solo-Bid Lose 40%

Co-Bid Lose 25%

	Expected Payoff
Actinium	$10.52
Francium	$12.37
Polonium	$11.41

If you calculate **expected Payoff** with given probability above table is the result of the calculation. And looking at the table company should bid on **Francium** bid as it has highest payoff with $12.27 (Millions).

Evaluating Risk:

	Win		Lose			
	SOLO	Co-bid	Solo	Co-bid		Standard Deviation
Actinium	4.335	8.6	1.34	1.075		3.502276641
Francium	5.325	10.04	1.7	1.3		4.058691035
Polonium	4.92	8.96	1.52	0.95		3.690992414

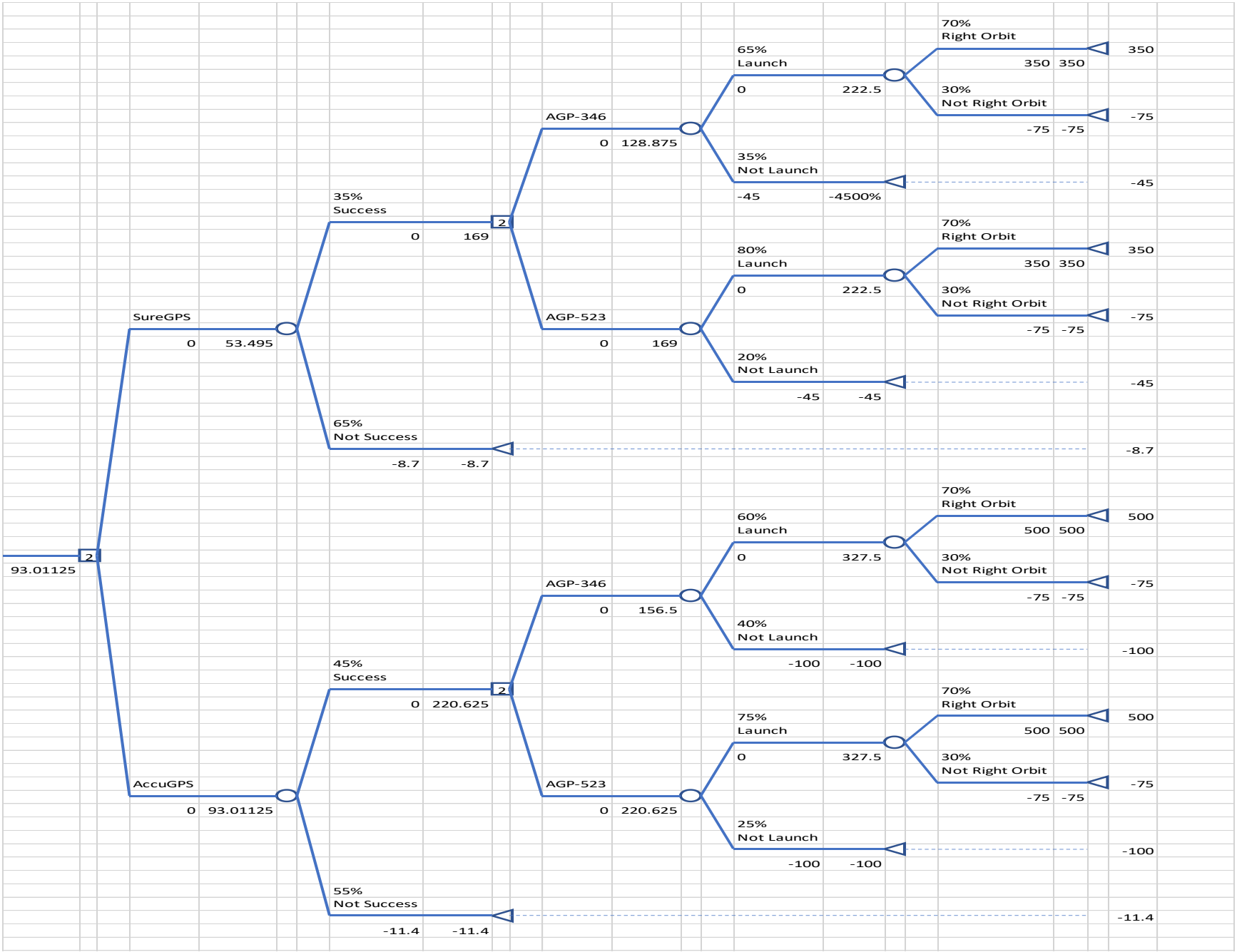
If you calculate the standard deviation the above table is the result of it. If you apply **Evaluating Risk** on this table, we choose one **with lowest Standard Deviation: 3.5022** and that is why company should bid for **Actinium.**

- Suggest which of the two recommendations should be used and why.
  It is always risk vs reward. Sometimes it depends on how much risk you are willing to take or how much reward you want. As this is the company's main revenue generating business and business is stable in this

market company can take more risk and go for better reward and Invest in **Francium** as it has better reward in terms of others and market is stable, so company can afford to take risk in this comparing to other markets.

GEO Satellite Launch:

Prepare a Decision Tree showing all possibilities with associated probabilities and Payoffs.


2
93.01125
SureGPS
0
53.495
AccuGPS
0
93.01125
35%
Success
0
169
65%
Not Success
-8.7
-8.7
45%
Success
0
220.625
55%
Not Success
-11.4
-11.4
2
2
AGP-346
0
128.875
AGP-523
0
169
AGP-346
0
156.5
AGP-523
0
220.625
65%
Launch
0
222.5
35%
Not Launch
-45
-4500%
80%
Launch
0
222.5
20%
Not Launch
-45
-45
60%
Launch
0
327.5
40%
Not Launch
-100
-100
75%
Launch
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327.5
25%
Not Launch
-100
-100
70%
Right Orbit
350
350
30%
Not Right Orbit
-75
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350
-75
-45
70%
Right Orbit
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30%
Not Right Orbit
-75
-75
350
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-45
-8.7
70%
Right Orbit
500
500
30%
Not Right Orbit
-75
-75
500
-75
-100
70%
Right Orbit
500
500
30%
Not Right Orbit
-75
-75
500
-75
-100
-11.4

• **Provide recommendation to Aakash on which bid to submit and which rocket to use**
Once again this comes to risk vs reward but this time company should play safe in terms of risk and go for **AccuGPS with rocket AGP-523** as it has most probability of being successful launch and in right orbit with almost best expected payoff 93.0112 million.

What is the expected payoff in your recommendation?
Expected payoff in my recommendation is **93.0112 million.**

• **What is the overall probability of the success of your recommendation?**
Overall probability in my recommendation (AccuGPS with rocket AGP-523 with successful launch and right orbit) is **0.2362**.

Mining an Asteroid

What is the expected payoff in each options if the consulting company in not hired?

	Expected payoff without consulting company
Glutoes	**$92.50**
Vitan	**$48.00**

With the probability of 0.15 for High ratio. Amount is in Millions of $. Expected payoff = (probability * Amount) - Cost

What is the expected payoff in each option if the consulting company predicts high ratio?

	Expected payoff with Consulting company
Glutoes	$670
Vitan	$939

What is the expected payoff in each option if the consulting company predicts low ratio?

	Expected payoff with Consulting company
Glutoes	**$303**

Vitan	**$372**

What is the maximum amount the company should be ready to pay for the opinion of the consulting company?

Maximum amount company should pay to the consulting company should be the

= (max. Expected payoff with Consulting company) – (min. Expected payoff without consulting company)
= $891 (Millions)

Moon Landing:

What is the expected utility for each landing site?

When R=3000

	Average Utility
Aitken	0.0470
Birkhoff	0.0619
Grimaldi	0.0739
Imbrium	0.0806

Which landing site the company should choose?

Company should choose **Imbrium** which has **highest average utility**.

What is the expected utility for each landing site?

When R=4000

	Average Utility
Aitken	0.0635
Birkhoff	0.0622
Grimaldi	0.06
Imbrium	0.0627

Which landing site the company should choose?

Company should choose **Aitken** which has highest average utility.