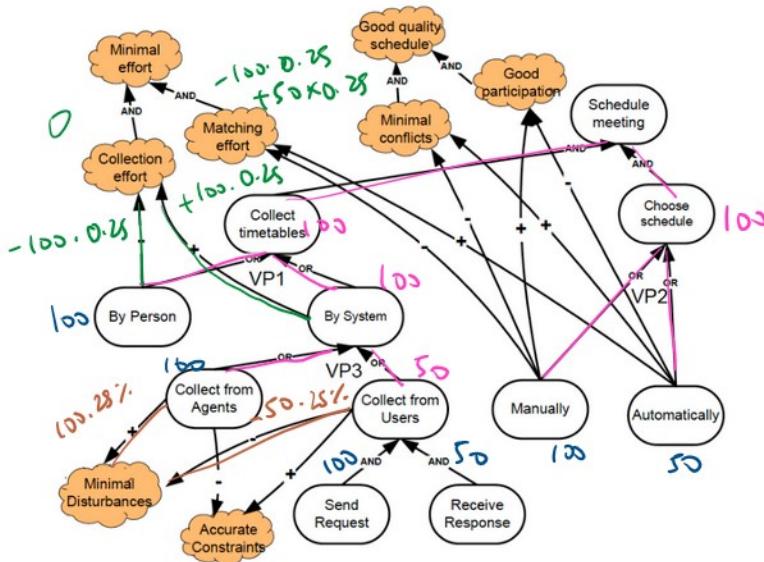


Given the following Goal Model:



Note: In this notation, clouds represent softgoals, ovals are hard goals. Goal contribution links are shown as ++ (makes the goal), + (helps the goal), - (hurts the goal), -- (breaks the goal).

Given the following power and interest values for 10 stakeholders. Assume 1=None and 10=very high

Stakeholder	Power	Interest
Alliance partners	4	4
Suppliers	4	1
Customers	4	10 ✓
Trades associations	8	9
Senior executives	1	9 ✓
Architect	3	9 ✓
MEP Planner	6 ✓	3
Contractor	7	6
Municipality	7	7
Government	10	7

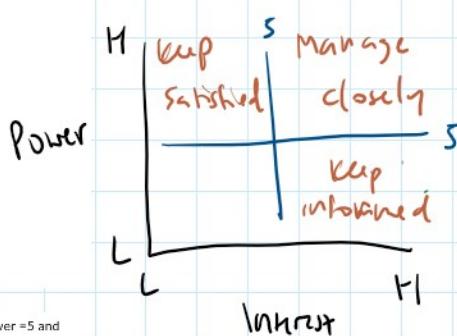
Using the power/interest grid discussed in class, assume average power = 5 and average interest = 5, and answer the following questions:

(Upload your rough work for this Question)

2 How many stakeholders should be "Kept Satisfied"? 3

1 How many stakeholders should be "Kept Informed"? 3

3 How many stakeholders should be "Managed Closely"? 4



The following tables show the impact scales of Risks on major project objectives and the probability and impact matrix.

Defined Conditions for Impact Scales of a Risk on Major Project Objectives (Examples are shown for negative impacts only)					
Project Objective	Relative or numerical scales are shown				
	Very low / .05	Low / .10	Moderate / .20	High / .40	Very high / .80
Cost	Insignificant cost increase	<10% cost increase	10-20% cost increase	20-40% cost increase	>40% cost increase
Time	Insignificant time increase	<5% time increase	5-10% time increase	10-20% time increase	>20% time increase
Scope	Scope decrease barely noticeable	Minor areas of scope affected	Major areas of scope affected	Scope reduction unacceptable to sponsor	Project end item is effectively useless
Quality	Quality degradation	Only very demanding adaptations	Quality reduction requires sponsor	Quality reduction unacceptable to	Project end item is effectively

Probability	Threats					Opportunities				
	0.90	0.05	0.09	0.18	0.36	0.72	0.72	0.36	0.18	0.09
0.70	0.04	0.07	0.14	0.28	0.56	0.56	0.28	0.14	0.07	0.04
0.50	0.03	0.05	0.10	0.20	0.40	0.40	0.20	0.10	0.05	0.03
0.30	0.02	0.03	0.06	0.12	0.24	0.24	0.12	0.06	0.03	0.02
0.10	0.01	0.01	0.02	0.04	0.08	0.08	0.04	0.02	0.01	0.01
	0.05	0.10	0.20	0.40	0.80	0.80	0.40	0.20	0.10	0.05

Impact (relative scale) on an objective (e.g., cost, time, scope or quality)

Assume the following Strategy with initial satisfaction levels:

"Send Request"= 100, "Receive Response"=50, "Manually"=100, "Automatically"=50, "By Person"= 100, "Collect from Agent"=100.

Please be reminded that one answer from the list below can be used more than once.

Answer the following questions : (Upload your rough work for this Question)

3 What is the Satisfaction level of "Schedule Meeting" ?  
1. 12.5  
2. -12.5  
3. 100  
4. -100

2 What is the Satisfaction level of "Minimal Effort"?  
1. 100  
2. 50  
3. 100  
4. -100

1 What is the Satisfaction level of "Minimal Disturbance"?  
1. 100  
2. 50  
3. 100  
4. -100

100 or

$$(100 \times 0.25) - (50 \times 0.15) = 25 - 12.5$$

Time	Insignificant time increase	>5% time increase	5-10% time increase	10-20% time increase	>20% time increase
Scope	Scope decrease barely noticeable	Minor areas of scope affected	Major areas of scope affected	Scope reduction unacceptable to sponsor	Project end item is effectively useless
Quality	Quality degradation barely noticeable	Only very demanding applications are affected	Quality reduction requires sponsor approval	Quality reduction unacceptable to sponsor	Project end item is effectively useless

	0.05	0.10	0.20	0.40	0.80	0.80	0.40	0.20	0.10	0.05
--	------	------	------	------	------	------	------	------	------	------

Impact (relative scale) on an objective (e.g., cost, time, scope or quality)

(Upload your rough work for this question)

- 0.24 What is the risk rating of Risk 3? 1. 0.18  
 0.28 What is the risk rating of Risk 2? 2. 0.28  
 0.18 What is the risk rating of Risk 1? 3. 0.24

Give three risks: Risk1, Risk 2, Risk 3, with the following impacts and probability of occurrences.

$$0.2 \times 0.9 = 0.18$$

$$0.4 \times 0.7 = 0.28$$

$$0.8 \times 0.3 = 0.24$$

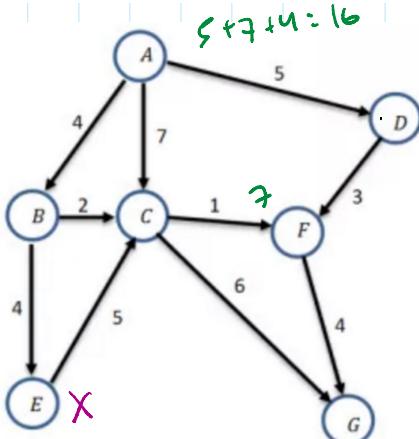
Impact of Risk 1: "increases the cost by 10-20%", probability = 0.9

Impact of Risk 2: "increases the Time by 10-20%", probability = 0.7

Impact of Risk 3: "The project end item is effectively useless", Probability = 0.3.

Using the probability and impact matrix and the impact scale, Answer the following questions:

Consider seven requirements A, B, C, D, E, F, G. The traceability graph of the "depends on" relationship is given below. Such that each edge in the graph is weighted with the strength value of the relationship. For example, "A depends on B" and the strength of this relationship is 4. Be noted that "A depends on B" does not mean that B depends on A, as shown in the graph (one-directional arrow). Answer the following questions: (Upload your rough work for this question).



If we assume, the total strength of dependency = The sum of dependency strengths for each requirement to every other requirement. Which of the seven requirements "has the highest total strength of dependency"? (Just type the requirement letter only (for example B))

A ↗

Which of the seven requirements "does not depend" on any other requirements? (Just type the requirement letter only (for example B))

A ↗

Which of the seven requirements "is not a prerequisite" to any other requirements? (Just type the requirement letter only (for example B))

G ↗

Consider a software project that involves building a healthcare monitoring system for storing patient information and symptoms. The software is responsible for providing efficient diagnosis. The expenses for the project are estimated to be \$35,000 for development costs, \$12,000 for hardware and software (all in year 0), and annual costs of \$7,000 for maintenance (for year 1 and thereafter). The new income to be generated by subscription for the system is estimated to be \$9,100 for year 1, with an increase of 40% for subsequent years. Assume a discount rate of 15%.

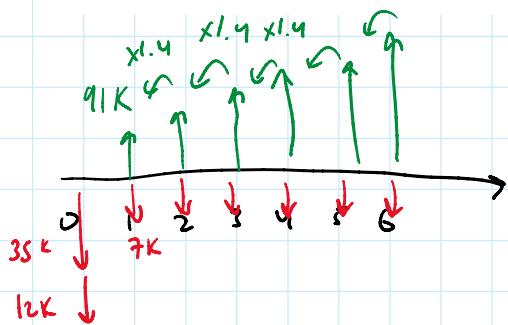
(Upload your rough work for this question)

1- What is the NPV after 6 years?(Round to the nearest integer, no decimal points)

\_\_\_\_\_ ↗

What is ROI% after 6 years?(Round to the nearest integer (i.e. no percentage added).

\_\_\_\_\_ ↗



$$\text{ROI} = \frac{\text{Benefit} - (\text{Cost})}{(\text{Cost})}$$

$$= \frac{148546.9 - 891K}{891K}$$

$$= 0.669$$

$$\text{NPV} = -(35K + 12K) - 7K \left( \frac{1}{1.15} + \frac{1}{1.15^2} + \frac{1}{1.15^3} + \frac{1}{1.15^4} + \frac{1}{1.15^5} + \frac{1}{1.15^6} \right)$$

$$NPV = -(38k + 12k) - 7k \left( \frac{1}{1.15} + \frac{1}{1.15^2} + \frac{1}{1.15^3} + \frac{1}{1.15^4} + \frac{1}{1.15^5} + \frac{1}{1.15^6} \right)$$

$$+ \frac{91k}{1.15} + \frac{91k \cdot 1.15}{1.15^2} + \frac{91k \cdot (1.15)^2}{1.15^3} + \frac{91k \cdot (1.15)^3}{1.15^4} + \frac{91k \cdot (1.15)^4}{1.15^5} + \frac{91k \cdot (1.15)^5}{1.15^6}$$

$$= -47k + 1826.09 + 4340.26 + 7124.83 + 10274.63 + 13900.35 + \\ 18132.68$$

$$= 8398.85$$

Your task is to prioritize a number of requirements based on the Analytic Hierarchy Process (AHP) method.

Using the following scale throughout this question:

- 1: if A contributes equally to B
- 3: if A contributes slightly more than B
- 5: if A contributes strongly more than B

- 7: if A contributes very strongly more than B
- 9: if A contributes extremely more than B

You obtained the relative value contributions for the requirements from your stakeholders:

- "Obtain Optimal strategy" contributes slightly more than "Decide Preferred Dates"
- "Obtain Optimal strategy" contributes slightly more than "Quantify Conflicts"
- "Quantify Conflicts" contributes strongly more than "Decide Preferred Dates"
- "Identify Feasibility Factors" contributes very strongly more than "Quantify conflicts"

- "Identify Feasibility Factors" contributes equally to "Obtain Optimal strategy" and "Decide Preferred Dates"

$$D = A > B$$

You also obtained the relative cost contributions for the requirements from your team:

Perform the Analytic Hierarchy Process (AHP) and answer the following questions :  
(Upload your Rough Work for this Question)

2 The Relative Value for "Obtain Optimal Strategy" requirement is?

1. 35%
2. 32%
3. 13%

1 The Relative Value for "Identify Feasibility Factors" requirement is?

You also obtained the relative cost contributions for the requirements from your team:

- "Obtain Optimal strategy" contributes strongly more than "Decide Preferred Dates"
- "Obtain Optimal strategy" contributes extremely more than "Quantify Conflicts"
- "Quantify Conflicts" contributes strongly more than "Decide Preferred Dates"
- "Identify Feasibility Factors" contributes slightly more than "Quantify conflicts"
- "Identify Feasibility Factors" contributes slightly to "Obtain Optimal strategy"
- "Identify Feasibility Factors" contributes equally to "Decide Preferred Dates"

Obtain optimal = A  
 Decided dates = B  
 Quantify = C  
 Id feasibility = D

value				cost				
				A	B	C	D	
A	1	3	3	1	0.333	0.3	0.26	0.518
B	3	1	5	1	0.125	0.1	0.017	0.362
C	3	5	1	7	0.125	0.09	0.059	0.0484
D	1	1	7	1	0.333	0.1	0.69	0.3928

$= \frac{1.2612}{4} = 0.5152$

$= 0.14142$

$= 0.35557$

The present value of \$1,000 one year from now, assuming a 10% discount rate is \$900.09? (Upload your rough work)

- True  
 False

$$\frac{1000}{1.1} =$$



False

$$\frac{1000}{1.1} =$$

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