Applicable Examples

1. The Family Restaurant

The owner of a family restaurant assigns numerical values to **Likelihood** (1=Low, 2=Medium, 3=High, 4=Very High) and **Impact** (1=Low, 2=Medium, 3=High, 4=Very High).

Risk	Likelihood Score	Impact Score	Risk Rating (L x I)
X. Food Spoilage	4	2	?
Y. Negative Review	3	3	?
Z. Oven Breakdown	2	4	?

- Legend (Colors for Risk Levels):

- **Red**: Immediate action required (Risk ≥ 9)
- **Orange**: High risk (Risk 7–8)
- **Yellow**: Medium risk (Risk 4–6)
- **Green**: Low risk (Risk 1–3)

- Questions:

1. Calculate the Risk Rating for X, Y, and Z.
2. Using the scores, plot these risks on the matrix below.
3. If the Risk Rating threshold for immediate action is 9, which risk(s) must be addressed immediately?

Solution:

1. Calculate the Risk Rating for X, Y, and Z.

- **X. Food Spoilage:** 4 x 2 = 8
- **Y. Negative Review:** 3 x 3 = 9
- **Z. Oven Breakdown:** 2 x 4 = 8

2. Using the scores, plot these risks on the matrix below.

Colored Risk Matrix (Impact →, Likelihood ↓)

Likelihood ↓ / Impact →	1 (Low)	2 (Med)	3 (High)	4 (V. High)
4 (V. High)		X (8)		
3 (High)			Y (9)	
2 (Medium)				Z (8)
1 (Low)				

3. **Immediate Action:** Risk **Y (Negative Review)**

2. The Family Restaurant - Risk Assessment Exercise

The owner of a family restaurant assigns numerical values to **Likelihood** and **Impact** on a scale of 1 to 5.

Likelihood Scale:

- 1 = Very Unlikely
- 2 = Unlikely
- 3 = Possible
- 4 = Likely
- 5 = Very Likely

Impact Scale:

- 1 = Negligible
- 2 = Minor
- 3 = Moderate
- 4 = Major
- 5 = Severe

Risk	Likelihood Score	Impact Score	Risk Rating (L x I)
X. Food Spoilage	4	2	?
Y. Negative Review	3	3	?
Z. Oven Breakdown	2	4	?

- **Legend (Colors for Risk Levels):**

- **Red: Critical Risk** (Immediate action required) | **Risk 17–25**
- **Orange: High Risk** (Action required) | **Risk 10–16**
- **Yellow: Medium Risk** (Monitor and manage) | **Risk 5–9**
- **Green: Low Risk** (Accept and review) | **Risk 1–4**

- **Questions**:

1. Calculate the Risk Rating (Likelihood x Impact) for risks X, Y, and Z.
2. Using the scores and the 5x5 matrix above, plot these risks by writing the risk letter (X, Y, or Z) in the correct cell.
3. If the threshold for **Immediate Action** is a "Critical Risk" (Red, 17-25), which risk(s) must be addressed immediately?

- Solution:

1. Calculate the Risk Ratings

- **X. Food Spoilage:** Likelihood (4) x Impact (2) = **8**

- **Y. Negative Review:** Likelihood (3) x Impact (3) = **9**

- **Z. Oven Breakdown:** Likelihood (2) x Impact (4) = **8**

2. & 3. Plotting on the Matrix and Risk Levels

Here is the completed 5x5 risk matrix with the risks plotted and their corresponding risk levels.

Completed 5x5 Risk Matrix:

Likelihood ↓ / Impact →	1 Negligible	2 Minor	3 Moderate	4 Major	5 Sever
5 Very Unlikely	5	10	15	20	25
4 Unlikely	4	8 (X)	12	16	20
3 Possible	3	6	9(Y)	12	15
2 Likely	2	4	6	8(Z)	10
1 Very Likely	1	2	3	4	5

Risk Levels:

All three risks (Food Spoilage, Negative Review, and Oven Breakdown) fall into the **Yellow "Medium Risk"** category with scores of 8, 9, and 8 respectively. This means:

- They do not require *immediate* action.
- The restaurant owner should create plans to manage these risks and monitor them closely to ensure they do not escalate.

3. A cloud service provider evaluates operational risks:

Risk	Likelihood Score	Impact Score	Risk Rating (L x I)
A. Server Downtime	3	4	?
B. Data Breach	2	4	?
C. Customer Complaint	4	2	?

- Legend (Colors for Risk Levels):

- **Red**: Immediate action required (Risk ≥ 9)
- **Orange**: High risk (Risk 7–8)
- **Yellow**: Medium risk (Risk 4–6)
- **Green**: Low risk (Risk 1–3)

- Questions:

1. Calculate the Risk Rating for A, B, and C.
2. Using the scores, plot these risks on the matrix below.
3. If the Risk Rating threshold for immediate action is 9, which risk(s) must be addressed immediately?

1. Calculate the Risk Rating for A, B, and C.

A=12, B=8, C=8.

2. Using the scores, plot these risks on the matrix below.

Colored Risk Matrix (Impact →, Likelihood ↓)

Likelihood ↓ / Impact →	1 (Low)	2 (Med)	3 (High)	4 (V. High)
4 (V. High)		**C (8)**		
3 (High)				**A (12)**
2 (Medium)				**B (8)**
1 (Low)				

3. If the Risk Rating threshold for immediate action is 9, which risk(s) must be addressed immediately?

Immediate Action: Risk **A (Server Downtime)** because it exceeds the threshold (≥9)

Calculate the risk for the following scenarios:

Example 1: Office Equipment Risk

Scenario: A small business has an old server

Risk: Server failure causing data loss and downtime

- Likelihood: 20% per year (0.20)
- Impact: $15,000 (recovery costs + lost business)

Calculation:

Risk = 0.20 × $15,000 = $3,000

Interpretation: The business should budget $3,000 annually for this risk or consider spending up to $3,000 to prevent it.

Example 2: Car Accident Risk

Scenario: A delivery company with 10 vehicles

Risk: Minor accident damage per vehicle

- Likelihood: 10% per vehicle per year (0.10)
- Impact: $2,500 repair cost per accident

Calculation:

Risk per vehicle = 0.10 × $2,500 = $250

Total fleet risk = 10 vehicles × $250 = $2,500

Decision: If accident prevention measures cost $2,000 annually, they're worth implementing.

Example 3: Project Delay Risk

Scenario: Construction project with a tight deadline

Risk: Weather delays

- Likelihood: 30% chance of 5-day delay (0.30)
- Impact: $1,000 per day in penalties + extra costs

Total Impact = 5 days × $1,000/day = $5,000

Calculation:

Risk = 0.30 × $5,000 = $1,500

Action: The project manager can justify spending up to $1,500 on weather protection measures.

Example 4: Customer Loss Risk

Scenario: E-commerce store

Risk: Website downtime losing customers

- Likelihood: 5% chance of 1-hour outage during peak (0.05)
- Impact: $8,000 in lost sales + $2,000 reputation damage = $10,000

Calculation:

Risk = 0.05 × $10,000 = $500

Solution: Investing $400 in better hosting is justified.

Example 5: Multiple Risk Scenarios

Scenario: Manufacturing company

Risk Scenario	Likelihood	Impact	Risk Calculation
Equipment breakdown	15%	$20,000	0.15 × $20,000 = $3,000
Supply chain delay	25%	$8,000	0.25 × $8,000 = $2,000
Employee injury	5%	$50,000	0.05 × $50,000 = $2,500
Total Annual Risk			**$7,500**

Business Decision: The company can now make informed choices about:

- Which risks to insure against
- Which risks to mitigate
- How much to spend on prevention

❖ ***Activity*:**

Problem 1: Pizza Delivery

You deliver pizzas using your car.

- Chance of minor accident: 8% per year (0.08)
- Repair cost if an accident happens: $800

Calculate the risk value and decide:
If accident prevention driving lessons cost $50, are they worth it?

Problem 2: Textbox Loss

You carry $200 worth of textbooks.

- Chance of losing them: 4% per semester (0.04)
- Replacement cost: $200

Calculate the risk value and decide:
If a backpack with better security costs $15, should you buy it?

Problem 3: Computer Virus

Your $800 laptop could get a virus.

- Chance of serious virus: 12% per year (0.12)
- Repair cost: $150

Calculate the risk value and decide:
If antivirus software costs $20 per year, is it worth it?

Problem 4: Cloud Service Provider Risk Assessment

A cloud service provider is evaluating its operational risks using a new scoring system. The risk rating is calculated by multiplying the Likelihood Score by the Impact Score. Use the provided legend to determine the risk level and priority for each risk.

- **Scoring System:**

Likelihood & Impact Score: 1=Very Low, 2=Low, 3=Medium, 4=High, 5=Very High

- **Risk Legend (Colors for Risk Levels):**

- **Red:** Critical Risk (Requires immediate action) - **Risk Rating 20-25**
- **Orange:** High Risk (Needs management attention) - **Risk Rating 12-19**
- **Yellow:** Medium Risk (Monitor and manage) - **Risk Rating 5-11**
- **Green:** Low Risk (Accept with minimal controls) - **Risk Rating 1-4**

Risk	Likelihood Score	Impact Score	Risk Rating (L x I)	Risk Level (Color)	Priority (1=Highest)
A. Major Data Center Outage	**2**	**5**	**?**	**?**	**?**
B. Security Vulnerability Exploit	**4**	**4**	**?**	**?**	**?**
C. Billing System Error	**3**	**3**	**?**	**?**	**?**
D. Network Latency Issues	**5**	**2**	**?**	**?**	**?**
E. Compliance Audit Failure	**3**	**5**	**?**	**?**	**?**

Questions:

1. Calculate the Risk Rating for each risk (A through E).

2. Determine the Risk Level (Color) for each risk based on the legend.
3. Prioritize the risks from 1 (Highest) to 5 (Lowest).
4. Which risk(s) would be considered **Critical (Red)** and require immediate action?
5. Which risk is most likely to occur but has a lower overall priority?