

Team: **Modern Family 2031**

Requirements	Weight (req)	Risks (Failure Modes)				Loss of Objective
		Complicated user interface (UI)	Performance issues due to slow	Security issues that lead to data breaches	Adjacent systems that are experiencing	
Likelihood (risk)		0.5	0.4	0.6	0.5	
Plan a family activity	1.0	0.6	0.5	0.4	0.7	1.09
Coordinate the usage of shared resources	0.8	0.6	0.7	0.3	0.5	0.808
Connect with family members to keep up-to-date	0.6	0.6	0.5	0.5	0.8	0.72
Monitor shared digital subscriptions	0.5	0.5	0.2	0.7	0.2	0.425
Collaborate on shared media playlists	0.8	0.6	0.4	0.4	0.8	0.88
Risk Criticality		1.085	0.712	0.966	1.16	

Risk	Description
Complicated user interface (UI)	Since our target users consist of families in North America, there is no guarantee that all our users will be tech-savvy. Especially since one of our primary user classes consists of busy parents, who are
Performance issues due to slow	Depending on the strength of our users' internet connection and the network connections on our system's backend, there is a risk that performance for actions will be slow on our system. This could be
Security issues that lead to data	Our system has information that pertains to families' day-to-day lives and account information for digital subscriptions that families have. Thus, it is imperative that we maintain security for this data.
Adjacent systems that are	As our system has a heavy reliance on adjacent systems, such as calendar services and social media services, the actions performed on our systems depend on communications with these adjacent

Risk	Likelihood Reasoning
Complicated user interface (UI)	We gave this a likelihood of 0.5 because usability is a key component of our system. Since we are targeting users that have a wide range of capabilities with technology, it is hard to guarantee that the
Performance issues due to slow	We gave this a likelihood of 0.4 because our users' network speeds are out of our control. Additionally, the network speeds on our backends are also slightly out of our control, even with the assumption
Security issues that lead to data	We gave this a likelihood of 0.6 because software security is a big issue, and breaches may happen even if they were not done so by malicious intent from our internal system. However, we are currently
Adjacent systems that are	We gave this a likelihood of 0.5 because our system relies quite heavily on communication with adjacent systems for the user to perform their workflows. This is also outside of our control, so even if an

Requirement	Highest Impact Risk	Highest Impact Risk Reasoning
Plan a family activity	Adjacent systems that are	We estimate that the "adjacent systems being down as the highest impact risk since planning a family activity relies on being able to find a time in the schedule that suits all family
Coordinate the usage of shared	Performance issues due to	We estimate that the "performance issues due to slow networks" as the highest impact risk since, when a family member wants to book a resource, it is likely they need the
Connect with family members to	Adjacent systems that are	We estimate that the adjacent systems being down as the highest impact risk since there is a heavy reliance on receiving information about posts on social media to help facilitate
Monitor shared digital subscriptions	Security issues that lead to	We estimate that the security issues that may lead to data breaches as the highest impact risk since this use case allows families to keep track of sensitive credential information
Collaborate on shared media	Adjacent systems that are	We estimate that the adjacent systems being down as the highest impact risk since this use case relies heavily on media services in order to enable families to collaborate on

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Countermeasures	Risks (Failure Modes)				Overall single effect of
	Complicated user interface (UI)	Performance issues due to slow	Security issues that lead to data breaches	Adjacent systems that are experiencing	
Criticality (risk)	1.085	0.712	0.966	1.16	
C1. Testing (A/B testing, integration testing, stress testing etc.)	0.7	0.6	0.3	0.1	1.5925
C2. Lazy loading and caching frequently accessed family member information	0	0.6	0	0.5	1.0072
C3. Option of following manual steps to complete the tasks	0.3	0.2	0	0.8	1.3959
C4. Data encryption	0	0	0.7	0	0.6762
Combined Risk Reduction	0.79	0.872	0.79	0.91	

Countermeasure	Description
C1. Testing (A/B testing, integration testing, stress testing etc.)	Before the system proceeds to the production stage, it needs to be thoroughly tested by several testing strategies such as A/B testing, integration testing, and stress testing. Through user
C2. Lazy loading and caching frequently accessed family member information	The frontend of the system determines what is necessary for the initial experience and lazy-load content only if user interaction happens, which reduces load time and conserves bandwidth.
C3. Option of following manual steps to complete the tasks	For the tasks that rely on adjacent systems, our system provides the option of following manual steps for an alternative workflow, which re-uses other existing features, such as the chat. For
C4. Data encryption	During the early stages of development, the developers decide and utilize an appropriate encryption strategy for data storage of the system. The encryption translates data into ciphertext,

Countermeasure	Highest Mitigated Risk	Impact Estimate Reasoning
C1. Testing (A/B testing, integration testing, stress testing etc.)	Complicated UI that leads to	A/B testing of countermeasure 1 provides a technique to show users multiple variants of a design to discover which one has a better performance.
C2. Lazy loading and caching frequently accessed family member information	Performance issues due to slow	Countermeasure 2 focuses on fast loading time and low usage of the bandwidth of the system. We have assigned "performance issues due to slow
C3. Option of following manual steps to complete the tasks	Adjacent systems that are	We have estimated "adjacent systems that are experiencing downtime" as the highest mitigated risk of countermeasure 3 because the countermeasure
C4. Data encryption	Security issues that lead to data	Data encryption has no impact on UI design, network connection, or adjacent system availability. The sole mitigated risk of countermeasure

	Original Risk Exposure	Mitigated Risk Exposure	Difference
Complicated UI	1.085	0.23	0.86
Performance	0.712	0.23	0.48
Data security	0.966	0.68	0.29
Adjacent systems down	1.16	0.21	0.95

Original and Mitigated Risk Criticalities

