FOODIFY

RISK MANAGEMENT PLAN

Version *1.0*
29/09/2022

VERSION HISTORY

Version #	Implemented By	Revision Date	Approved By	Approval Date	Reason
1.0	*Kolady Anamika Martin, Verma Nandini*	*29/09/2022*	*Anandarajan Sindini*	*29/09/2022*	Initial Risk Management and Plan draft

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1 INTRODUCTION

1.1 PURPOSE OF THE RISK MANAGEMENT PLAN

A risk is an event or condition that, if it occurs, could have a positive or negative effect on a project's objectives. Risk Management is the process of identifying, assessing, responding to, monitoring, and reporting risks. This Risk Management Plan defines how risks associated with the *Foodify* project will be identified, analyzed, and managed.

It outlines how risk management activities will be performed, recorded, and monitored throughout the lifecycle of the project and provides templates and practices for recording and prioritizing risks. Threats, or risks, could stem from a wide variety of sources, including financial uncertainty, legal liabilities, strategic management errors, accidents, and natural disasters. Every business and organization faces the risk of unexpected, harmful events that can cost the company money or cause it to permanently close. Risk management allows organizations to attempt to prepare for the unexpected by minimizing risks and extra costs before they happen. By implementing a risk management plan and considering the various potential risks or events before they occur, an organization can save money and protect their future.

A robust risk management plan will help a company establish procedures to avoid potential threats, minimize their impact should they occur and cope with the results. This ability to understand and control risk enables organizations to be more confident in their business decisions.

Below are a few of the benefits of having a risk management plan:

• Creates a safe and secure work environment for all staff and customers.

• Provides protection from events that are detrimental to both the company and the environment.

• Increases the stability of business operations while also decreasing legal liability.

• Helps establish the organization's insurance needs in order to save on unnecessary premiums.

• Protects all involved people and assets from potential harm. Below are few of the main classifications of risks which can affect a software project:

1.1.1 Project risks

Project risks concern differ forms of budgetary, schedule, personnel, resource, and customer-related problems. A vital project risk is schedule slippage. Since the software is intangible, it is very tough to monitor and control a software project. It is very tough to control something which cannot be identified.

1.1.2 Technical risks

Technical risks concern potential method, implementation, interfacing, testing, and maintenance issues. It also consists of an ambiguous specification, incomplete specification, changing specification, technical uncertainty, and technical obsolescence. Most technical risks appear due to the development team's insufficient knowledge about the project.

1.1.3 Business risks

This type of risk refers to the risks of building an excellent product that no one needs, losing budgetary or personnel commitments, etc.

1.1.4 People risks

Risks that are connected with the person in the development team.

1.1.5 Estimation risks

These risks include risks that assume from the management estimates of the resources required to build the system.

1.1.6 Requirement risks

These are risks that arise from the changes to the customer requirement and the process of managing the requirements change.

1.1.7 Tools risks

These are risks that arise from the software tools and other support software used to create the system.

When a risk occurs, the corresponding mitigation response should be taken from the risk management plan. Mitigating options include the following:

• Accept Acknowledge that a risk is impacting the project. Make an explicit decision to accept the risk without any changes to the project. Project manager approval is mandatory here.

• Avoid Adjust project scope, schedule, or constraints to minimize the effects of the risk.

• Control Take action to minimize the impact or reduce the intensification of the risk.

• Transfer Implement an organizational shift in accountability, responsibility, or authority to other members that will accept the risk.

• Continue Monitoring Often suitable for low-impact risks, monitor the project environment for potentially increasing impact of the risk.

This Risk Management Plan defines how risks associated with the Foodify project will be identified, analyzed, and managed. It outlines how risk management activities will be performed, recorded, and monitored throughout the lifecycle of the project and provides templates and practices for recording and prioritizing risks. It is created by the project manager in the Planning Phase of the Foodify Web Application development Process and is monitored and updated throughout the project. The intended audience of this document is the project team, project sponsor and management.

2 RISK MANAGEMENT PROCEDURE

2.1 PROCESS

The project manager, Anandarajan Sindini, working with the project team and project sponsors will ensure that risks are actively identified, analyzed, and managed throughout the life of the project. Risks will be identified as early as possible in the project so as to minimize their impact. The steps for accomplishing this are outlined in the following sections. The QA manager, Kolady Anamika Martin will serve as the Risk Manager for this project.
The team plans to take the below mentioned steps to manage risk:

2.2 RISK IDENTIFICATION

Risk identification will involve the project team, appropriate stakeholders, and will include an evaluation of environmental factors, organizational culture and the project management plan including the project scope. Careful attention will be given to the project deliverables, assumptions, constraints, WBS, cost/effort estimates, resource plan, and other key project documents.
A Risk Management Log will be generated and updated as needed and will be stored electronically in the project library located at <file location>.

2.3 RISK ANALYSIS

All risks identified will be assessed to identify the range of possible project outcomes. Qualification will be used to determine which risks are the top risks to pursue and respond to and which risks can be ignored.

2.3.1 Qualitative Risk Analysis

The probability and impact of occurrence for each identified risk will be assessed by the project manager, with input from the project team using the following approach:

Impact	High	1. Server Crash 2. Non-scalable deployment servers 3. Inefficient Code 4. Underestimation of Project Size	1. Reused Software Component Issues 2. High Rate of bugs & issues	
	Medium	1. Database Limits 2. API Malfunction 3. Developer Management Conflict 4. Undermined Motivation 5. Project Restructure 6. Inadequate Domain Knowledge 7. Planning Abandonment in high pressure 8. Under/Over Estimation of user base	1. Insufficient Firebase Storage 2. Requirements Changes 3. New use cases 4. Ill Staff 5. Time Underestimation 6. Multiple Commitments of Staff 7. Customer incorrect estimation of changes	
	Low	1. Scraper failure 2. Project Management Restructure	1. Course Structure Revamp	
		Low	Medium	High
	Probability			

Probability
- **High** – Greater than *80%* probability of occurrence
- **Medium** – Between *20%* and *80%* probability of occurrence
- **Low** – Below *20%* probability of occurrence

Impact
- **High** – Risk that has the potential to greatly impact project cost, project schedule or performance
- **Medium** – Risk that has the potential to slightly impact project cost, project schedule or performance
- **Low** – Risk that has relatively little impact on cost, schedule or performance

Zone Type
- RED zone – High severity
- YELLOW zone – Medium severity
- GREEN zone – Low severity

S. No	Risk	Probability	Effects
1	**TECHNOLOGY**		
1.1	The scraper assumes that the data provided from the Stars Planner has a particular structure. Drastic changes in this structure would cause the scraper to not work as per intended.	Low	Low
1.2	The database used in the system cannot process as many transactions per second as expected.	Low	Medium
1.3	Server crashes and essential data is lost	Low	High
1.4	Google Login API malfunctions	Low	Medium
1.5	Reused software components might have bugs and defects which may break the code	Medium	High
2	**PEOPLE**		
2.1	The developers are occupied with multiple projects at the same time and may be unavailable to attend possible meetings	Medium	Medium
2.2	Conflicts between the developers and project manager	Low	Medium
2.3	As the project duration is short, a team member falling ill and needing some time off would drastically delay project milestones	Medium	Medium

2.4	Undermined motivation within the team members and developers	Low	Low
2.5	Inadequate domain knowledge within developers	Low	Medium
3	**ORGANIZATIONAL**		
3.1	The course project might be revamped with different components	Medium	Low
3.2	The project management might be restructured with different people responsible for the different parts	Low	Low
4	**TOOLS**		
4.1	The code generated by mobile SDK might be inefficient for actual deployment	Low	High
4.2	The use of Firebase for data storage might be insufficient for the user data	Medium	Medium
4.3	The deployment servers might not be scalable enough to meet the demands of peak user traffic	Low	High
5	**REQUIREMENTS**		
5.1	Changes in requirements are proposed to improve the quality of the software at late stage of development	Medium	Medium
5.2	New use cases arise at late stage of development, giving rise to new requirements to be incorporated	Medium	Medium
5.3	Customers fail to understand the impact of requirement changes	Medium	Medium
6	**ESTIMATION**		
6.1	The time required to develop the	Medium	Medium

	various components of the software is underestimated		
6.2	Abandoning of planning under pressure	Medium	Medium
6.3	The rate of bugs and issues in the system might be underestimated	Medium	High
6.4	The size of the software application with be underestimated	Low	High
6.5	The user base of the application might be under or over-estimated, hence adversely impacting the design decisions	Low	Medium

2.3.2 Quantitative Risk Analysis

Analysis of risk events that have been prioritized using the qualitative risk analysis process and their effect on project activities will be estimated, a numerical rating applied to each risk based on this analysis, and then documented in this section of the risk management plan.

2.4 RISK RESPONSE PLANNING

Each major risk (those falling in the Red & Yellow zones) will be assigned to a project team member for monitoring purposes to ensure that the risk will not "fall through the cracks".

For each major risk, one of the following approaches will be selected to address it:

- **Avoid** – eliminate the threat by eliminating the cause
- **Mitigate** – Identify ways to reduce the probability or the impact of the risk
- **Accept** – Nothing will be done
- **Transfer** – Make another party responsible for the risk (buy insurance, outsourcing, etc.)

For each risk that will be mitigated, the project team will identify ways to prevent the risk from occurring or reduce its impact or probability of occurring. This may include prototyping, adding tasks to the project schedule, adding resources, etc.
For each major risk that is to be mitigated or that is accepted, a course of action will be outlined for the event that the risk does materialize in order to minimize its impact.

Area of Risk	Approach Selected	Strategy
Technology	Avoid	Sufficient and appropriate investment in high quality

		technology to ensure robustness and reliability. Investments in highly redundant databases and highly scalable servers will enable to avoid the imminent risks
People	Mitigate	The team will be reorganized so to enable more overlap between work of various team members, this will ensure a substitute in the event of a staff illness A team member will be in charge to ensure overall team wellness and cohesion as well as monitor their KPIs
Organizational	Accept	Organizational changes will have to be accepted and appropriate changes will have to be made accordingly
Tools	Mitigate	Thorough analysis will be done before the agreed use of a tool for the project. Any defective components will not be used and replaced with reliable bought-in tools
Requirements changes	Accept	The requirements are bound to change in due course will have to be accepted, and the necessary changes will have to be made in project timeline and structure on the basis of such CRs
Estimation	Mitigate	Investigate use of a program generate for accurate estimation of timelines and project

		milestones

2.5 RISK MONITORING, CONTROLLING, AND REPORTING

- The level of risk on a project will be tracked, monitored and reported throughout the project lifecycle.
- A "Top 10 Risk List" will be maintained by the project team and will be reported as a component of the project status reporting process for this project.
- All project change requests will be analyzed for their possible impact to the project risks.
- Management will be notified of important changes to risk status as a component to the Executive Project Status Report.
- Each identified risk will be thoroughly and regularly assessed to monitor any changes in its likelihood.
- Each risk will be discussed at the Management Progress Meetings.

3 TOOLS AND PRACTICES

- A Risk Log will be maintained by the project manager and will be reviewed as a standing agenda item for project team meetings.
- Constant monitoring on each risk on a weekly basis will also be done and checked by the project manager to ensure everything is in control.
- Further any risk indicators for each of the risk areas will be closely monitored.
- The risk mitigation strategies will be diligently practiced with frequent reviews and drills to avert any possible risk which might occur during the project.
- At each team meeting, all the identified risks will be reviewed and further updates will be made in case of any new risks.

- RISK MANAGEMENT PLAN APPROVAL

The undersigned acknowledge they have reviewed the **Risk Management Plan** for the *Foodify* project. Changes to this Risk Management Plan will be coordinated with and approved by the undersigned or their designated representatives.

Signature:	Anamika	Date:	29/09/22
Print Name:	Kolady Anamika Martin		
Title:	Ms		
Role:	Quality Assurance Manager & Release Engineer		
Signature:		Date:	29/09/22
Print Name:	Verma Nandini		
Title:	Ms		
Role:	Lead Developer & Front-end Developer		
Signature:	Sindini	Date:	29/09/22
Print Name:	Anandarajan Sindini		
Title:	Ms		
Role:	Project Manager		

APPENDIX A: REFERENCES

The following table summarizes the documents referenced in this document.

Document Name and Version	Description	Location
Foodify System Requirements Specifications (SRS)	The Foodify System Requirement Specification (SRS) is the document describing all the requirement specifications which are being referred to in this risk management plan.	https://drive.google.com/file/d/1Cg2jFAuaWHIAe_pdZJs2pdI-yOfPpJ-n/view?usp=sharing
Foodify Project Pan	The Foodify Project plan encompasses its timeline of development and describes all the phases of the process – analysis and planning, ideation, design and development, deployment, production and launch, and maintenance.	https://drive.google.com/file/d/12HsSjnkHaIpRkSfJX_9foEPu21dU4xM2/view?usp=sharing
Foodify Project Proposal	The Foodify Project Proposal is a document submitted to a business customer explaining the software benefits.	https://drive.google.com/file/d/1UrlvrUhPzOXA7V5Qu6Zv1wWvM_Yy9YXz/view?usp=sharing
Foodify Software Quality Assurance Plan	The Quality Management Plan describes all the Quality Assurance (QA) and management protocols which complement the risk management plan.	https://docs.google.com/document/d/1PqCpzLzQGsceOawFA48uNVSq557NTLMa/edit?usp=sharing&ouid=103845088704439563092&rtpof=true&sd=true
CDC UP Risk Management Plan Template	The Foodify Risk Management Plan is based on the CDC Up Template.	NTULearn Course website for CZ3002 Advanced Software Engineering https://ntulearn.ntu.edu.sg/bbcswebdav/pid-2965315-dt-content-rid-26443382_1/xid-26443382_1

APPENDIX B: KEY TERMS

The following table provides definitions for terms relevant to the Risk Management Plan.

Term	Definition
Budget	The approved estimate for the project or any work breakdown structure component or any schedule activity.
Change Management Log	A tool used by project teams to document and track the resolution of change requests.
Change Request (CR)	A request to expand or reduce the project scope, modify policies, processes, plans, or procedures, modify costs or budgets, or revise schedules. Requests for a change can be direct or indirect, externally, or internally initiated, and legally or contractually mandated or optional. Only formally documented requested changes are processed, and only approved change requests are implemented.
Data Warehouse	A collection of data designed to support management decision making.
Key Performance Indicators (KPI)	Measurable indicators that will be used to report progress that is chosen to reflect the critical success factors of the project.
Quality Assurance (QA)	The process of evaluating overall project performance on a regular basis to provide confidence that the project will satisfy the relevant quality standards.
Qualitative Analysis	It assesses priority identified by using the probability of occurring, corresponding impact on project objectives, as well as other factors such as the time frame and risk tolerance of the project constraints of cost, schedule, scope, and quality.
Risk Response Planning	The process of developing options and actions to enhance opportunities and to reduce threats to project objectives. Risk response actions may include mitigation, contingency, transfer, avoidance, and acceptance.