**S.E. Lab**

**Comps A (T.E) - Batch B Topic :** Speedy Typing

|  |  |  |
| --- | --- | --- |
| Aditya Choudhary | 2021300022 | [aditya.choudhary@spit.ac.in](mailto:aditya.choudhary@spit.ac.in) |
| Dhruvil Doshi | 2021300027 | [dhruvil.doshi@spit.ac.in](mailto:dhruvil.doshi@spit.ac.in) |

Experiment 8: Develop Risk Mitigation, Monitoring and Management Plan for the case study.

# Theory-

**What is risk analysis in software testing?**

Risk analysis in software testing is an approach to software testing where software risk is analyzed and measured. Traditional software testing normally looks at relatively straightforward function testing (e.g. 2 + 2 = 4). A software risk analysis looks at code violations that present a threat to the stability, security, or performance of the code.

**Why Perform Risk Analysis in Software Testing?**

Because finding defects in production is expensive! The key reason why people perform risk analysis during software testing is to better understand what can really go wrong with an application before it goes into production. A risk analysis performed during software testing helps to identify areas where software flaws could result in serious issues in production. By identifying areas of concern early, developers are able to proactively remediate and reduce the overall risk of a production defect.

**THE RMMM PLAN**

A risk management strategy can be included in the software project plan, or the risk management steps can be organized into a separate risk mitigation, monitoring, and management plan. The RMMM plan documents all work performed as part of risk analysis and is used by the project manager as part of the overall project plan. What is a risk assessment? Risk assessments are part of the risk management process. A risk assessment is the process of identifying what hazards currently exist or may appear in the workplace. A risk assessment defines which workplace hazards are likely to cause harm to employees and visitors.

A Risk Mitigation, Monitoring, and Management Plan is a comprehensive strategy

designed to identify, assess, minimize, and monitor risks that could potentially impact a

project, organization, or any specific endeavor. It's a crucial framework that outlines

steps to anticipate, address, and control risks throughout their lifecycle. Here's an

overview of its key components:

**1. Risk Identification:**

a. Proactive Assessment: Identify potential risks that could affect the project or operation.

b. Sources of Risk: Internal (within the organization) and external (market conditions, regulatory changes, etc.).

c. Risk Register: Document and categorize identified risks for clarity and easy reference.

**2. Risk Analysis and Assessment:**

a. Qualitative Assessment: Evaluate the probability and impact of identified risks.

b. Quantitative Analysis: Assign numeric values to risks for more precise assessment.

c. Prioritization: Rank risks based on severity, likelihood, and potential impact on objectives.

**3. Risk Mitigation Strategies:**

a. Risk Avoidance: Eliminate the risk factor or circumvent it by changing the project scope or approach.

b. Risk Reduction: Implement measures to minimize the likelihood or impact of risks.

c. Risk Transfer: Share the risk burden through contracts, insurance, or partnerships.

d. Risk Acceptance: Acknowledge and prepare for risks that cannot be mitigated effectively.

**4. Monitoring and Management:**

a. Regular Reviews: Continuously monitor identified risks and their status throughout the project lifecycle.

b. Risk Response Plan: Establish specific actions to be taken if risk materialize.

c. Adaptation and Flexibility: Adjust strategies as needed based on changing risk profiles or new risks that emerge.

**5. Contingency Planning:**

a. Develop Contingency Plans: Create backup plans to handle worst-case scenarios or unforeseen risks.

b. Resource Allocation: Allocate resources for implementing contingency plans if necessary.

# Risk Identification-

|  |  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| **RID** | **Risks** | | **Category** | | **Prob-ability** | **Loss**  **(in days)** | **Expo-sure** | **Imp-act** | **RM MM** |
| R01 | User Overload |  | TE | | 30% | 5 | 1.5 | 2 |  |
| R02 | API Failure |  | TE | | 70% | 5 | 3.5 | 2 | Fig 2. |
| R03 | Inadequate knowledge about the technology used by developers | | TE | | 35% | 8 | 2.8 | 2 |  |
| R04 | Management level reporting takes more time than developer expected | | BU |  | 10% | 1 | 0.1 | 4 |  |
| R05 | Difficulty in dashboard integration with other project modules | | ST | | 55% | 4 | 2 | 3 |  |
| R06 | Inability of end user to understand the features | | DE | | 25% | 12 | 3 | 1 | Fig 3. |
| R07 | Tight Schedule / Deadline change |  | BU | | 20% | 10 | 2 | 3 |  |
| R08 | Technology used not meeting the server requirement | | DE |  | 15% | 7 | 1.1 | 2 |  |

**Fig. 1**

|  |  |  |
| --- | --- | --- |
| **Risk ID:**  2 | **Classification:**  API Failure | **Report Date:**  24/10/23 |
| **Description:**  In any software project, there is a possibility of the hardware getting corrupted, which can  lead to a loss of all the currently stored data. This in turn will affect the promised project deadlines. | | |
| **Probability:**  70% | **Impact:**  Critical | **Risk Exposure:**  3.5 days |
| **First Indicator:** | | |
| **Mitigation Approaches:**  1. Providing alert to user when his ethernet connection is slow.  2. Keep a track of requests made to API while testing our website and make sure no wastage of requests.  3. Getting paid version of API which increases the number of calls that can be made. | | |
| **Date Started:**  26/10/23 | **Date to Complete:**  26/12/23 | **Owner:**  Dhruvil Doshi |
| **Current Status:**  24/11/23 - Mitigation steps scheduled | | |
| **Contingency Plan:**  Risk Exposure is computed to be 3.5 days. Allocate this number of days within the project deadline. Develop a revised schedule considering the risk, providing some backup paragraphs that will be given at times of error until the API is starts working. We can make our own API for getting the paragraph. | | |
| **Trigger for Contingency Plan:**   * Mitigation steps unproductive as of 24/11 or, * Results of monitoring differ from expected result | | |

**Fig. 2**

|  |  |  |
| --- | --- | --- |
| **Risk ID:**  6 | **Classification:**  Inability to understand features | **Report Date:**  21/10/23 |
| **Description:**  At times users do not refer to the documentation available to them due to various reasons. In other cases, the users may find that the manual makes too many assumptions about a user having pre-existing knowledge of software. Thus, frustrated users may report false problems because of their inability to understand the software or computer hardware. This in turn causes the company to focus on “perceived” problems instead of focusing on the “actual” problems of the software | | |
| **Probability:**  25% | **Impact:**  Catastrophic | **Risk Exposure:**  3 days |
| **First Indicator:** | | |
| **Mitigation Approaches:**  1. Taking survey of selected volunteers (users) from the society about the design prototype and its workflow. Evaluating the survey and refining the design if required.  2. Preparing a questionnaire for all the users and designing the user manual according to the response from the users. Also ensuring that the manual is available in multiple languages along with a pictorial guidance.  3. Making of a demo video tutorial for easy understanding of the software. Embedding it in the software such that its visible to all the user as they use the software. | | |
| **Date Started:**  26/10/23 | **Date to Complete:**  6/1/24 | **Owner:**  Aditya Choudhary |
| **Current Status:**  24/11/23 - Mitigation steps scheduled | | |
| **Contingency Plan:**  Risk Exposure computed to be 3 days. Allocate this number of days within the project deadline. Develop a revised schedule considering the risk to revise the load balancing algorithms of the software and redesign them so to handle clients more efficiently | | |
| **Trigger for Contingency Plan:**   * Disruptive outages that cost your business time and money | | |

**Fig. 3**

# Conclusion-

From this experiment, we learned what are different types of Risk, how to analyze risks in our project Speedy Typing and how to tackle those risks in order to minimize them and hence increasing the productivity and functionality of the project.