Risk Mitigation, Monitoring, and Management (RMMM) Plan

**MoonEyes: Case Management System for Metro Detective Agency**

Senior Design I Summer 2023

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# 1.0 Introduction

## 1.1 Scope and intent of RMMM activities

The purpose of this Risk Mitigation, Monitoring, and Management plan is to identify all the possible risks. In addition to this, it will also analyze the probability of occurring those risks and how much they can affect the Case Management System for Metro Detective Agency.

There will be a risk table to list all the identified risks and their probability and possible impact will be listed as well. A risk mitigation and management plans will also be prepared to reduce or overcome the risks. The project management team is responsible for implementing the risk mitigation and management plan to counter all the risks and help for smooth project development.

## 1.2 Risk management organizational role

The project manager is the main stakeholder in risk management. All team members are responsible for keeping a check on the development cycle and identifying possible risks. They will communicate with the project manager and he will guide them about the mitigation and management plan to reduce or remove the specific risk.

# 2.0 Project risks

## 2.1 Risk table

| Risk ID | Risks | Probability | Impact |
| --- | --- | --- | --- |
| BI | Business Impact Risk | Low | High |
| C | Customer Risks | High | High |
| D | Development Risks | Medium | Low |
| E | Employee Risk | Low | High |
| P | Process Risk | Medium | High |
| PS | Product Size | High | High |
| T | Technology Risk | Medium | Medium |
| F | Financial | Medium | High |

### 2.1.1 Description of risk m

Metro Detective Agency currently has eight categories of risks pertaining to our project and subsequent software.

*These include:*

*Business Impact Risks*: The business impact risk for Metro Detective agency involves the production of a product that is not viable to the business. This may include a product that inadvertently harms the business in some way.

*Customer Risks*: When customers fail to participate in timely communication practices with the development team, the project suffers from customer risks.

*Development Risks*: Should the customer or development team fail to provide all information pertaining to tools necessary to build the product, development risks occur.

*Employee Risks*: As the development team are all currently students at the University of Michigan, Dearborn, the project is at risk due to lack of experience in software development.

*Process Risks*: When quality assurance metrics are not adhered to or developed correctly, process risks may occur leading to low product quality.

*Product Size*: Our project suffers from product size risks when erroneous assumptions in product size estimations are made.

*Technology Risk*: The technological risk associated with our project involves the use of antiquated technology and software. When this occurs, the project timeline is at risk, as developing new compatible software may be a lengthy process. In addition, data security poses another threat to the technological risk of our project, requiring immediate attention.

*Financial Risks*: Financial risks may have an impact on our project if there are budget overruns or incorrect cost estimations. This may be detrimental to the project, resulting in failure.

**The following abbreviations will be used for risk categories**

***Business Impact Risks: BI***

***Customer Risks: C***

***Development Risks: D***

***Employee Risks: E***

***Process Risks: P***

***Product Size: PS***

***Technology Risk: T***

***Financial Risks: F***

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| Risk Information Sheet | | | | |
| --- | --- | --- | --- | --- |
| **Risk Type**:  BI | **Date**:  Cont. | **Probability**:  Low | | **Impact**:  High |
| Description:  The end product is not accepted by the business, as it no longer fits the overall business strategy for the company and therefore is not wanted. | | | | |
| **Impact**:  This business impact risk for Metro Detective agency involves the production of a product that is not viable to the business. This may include a product that inadvertently harms the business in some way. | | | | |
| **Mitigation**:  Early prototype creation and client assessment to limit impact of this failure.  One-Note and database modeling created and will be reviewed and edited to conform to business standards. | | | | |
| **Current status**: In Progress | | | | |
| **Originator**: Erika Baird | | | **Assigned**: Erika Baird | |

| Risk Information Sheet | | | | |
| --- | --- | --- | --- | --- |
| **Risk Type**:  ***C*** | **Date**:  Cont. | **Probability**:  High | | **Impact**:  High |
| Description:  Ineffective communication causes unsatisfactory customer needs and requirements collection. | | | | |
| **Impact**:  This Customer Risk can cause deadlines to not be met or unsatisfactory products. | | | | |
| **Mitigation**:  Maintain a clear understanding of customer needs and their relative prioritization.  Frequent meetings with clients to take early action if product deviates from plan. | | | | |
| **Current status**: In Progress | | | | |
| **Originator**: Erika Baird | | | **Assigned**: Kylie Callison | |

| Risk Information Sheet | | | | |
| --- | --- | --- | --- | --- |
| **Risk Type**:  ***C*** | **Date**:  Cont. | **Probability**:  High | | **Impact**:  High |
| Description:  The wrong interface is developed due to poor customer cooperation. | | | | |
| **Impact**:  This Customer Risk can cause deadlines to not be met, as new interfaces must be developed, or unsatisfactory products. | | | | |
| **Mitigation**:  **Increased user involvement via frequent client meetings.**  Early prototyping. | | | | |
| **Current status**: In Progress | | | | |
| **Originator**: Erika Baird | | | **Assigned**: Kendall Gesek | |
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| Risk Information Sheet | | | | |
| --- | --- | --- | --- | --- |
| **Risk Type**:  ***C*** | **Date**:  Cont. | **Probability**:  High | | **Impact**:  High |
| Description:  Inaccuracies or incomplete information in note documentation can lead to incorrect development. | | | | |
| **Impact**:  This Customer Risk can cause deadlines to not be met or unsatisfactory products. | | | | |
| Restating important meeting notes at the end of each meeting to ensure accurate documentation. | | | | |
| **Current status**: In Progress | | | | |
| **Originator**: Erika Baird | | | **Assigned**: Pamela Shahu | |
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| Risk Information Sheet | | | | |
| --- | --- | --- | --- | --- |
| **Risk Type**:  ***D*** | **Date**:  Cont. | **Probability**:  Medium | | **Impact**:  Low |
| Description:  Solutions and code generated by inappropriate versions of tools and components are inefficient. | | | | |
| **Impact**:  The end product does not work.  Solutions and code generation must be completely redone, causing deadlines to be missed. | | | | |
| **Mitigation**:  **Specific versions of tools and components will be used by every member of the development team and will be adhered to for the entirety of the project.** | | | | |
| **Current status**: In Progress | | | | |
| **Originator**: Erika Baird | | | **Assigned**: Erika Baird | |
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| Risk Information Sheet | | | | |
| --- | --- | --- | --- | --- |
| **Risk Type**:  ***D*** | **Date**:  Cont. | **Probability**:  Medium | | **Impact**:  Low |
| Description:  Integration of tools is unfeasible. | | | | |
| **Impact**:  Unresponsive or unsupportable software. | | | | |
|  | | | | |
| **Mitigation**:  **Specification and standards for joint development created.** | | | | |
| **Current status**: In Progress | | | | |
| **Originator**: Erika Baird | | | **Assigned**: Kylie Callison | |
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| Risk Information Sheet | | | | |
| --- | --- | --- | --- | --- |
| **Risk Type**:  ***E*** | **Date**:  Cont. | **Probability**:  Low | | **Impact**:  High |
| Description:  Personnel shortfalls due to inadequate skill set for project requirements. | | | | |
| **Impact**:  Significant degradation of technical performance. | | | | |
| **Mitigation**:  Use of predefined software quality assurance and shared standards specifications. | | | | |
| **Current status**: In Progress | | | | |
| **Originator**: Erika Baird | | | **Assigned**: Kendall Gesek | |
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| Risk Information Sheet | | | | |
| --- | --- | --- | --- | --- |
| **Risk Type**:  ***E*** | **Date**:  Cont. | **Probability**:  Low | | **Impact**:  High |
| Description:  Development of the wrong software functions. | | | | |
| **Impact**:  Delays in software modifications to counteract wrong software functions. | | | | |
| **Mitigation**:  The development team will stick to formal specification methods. | | | | |
| **Current status**: In Progress | | | | |
| **Originator**: Erika Baird | | | **Assigned**: Pamela Shahu | |
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| Risk Information Sheet | | | | |
| --- | --- | --- | --- | --- |
| **Risk Type**:  ***E*** | **Date**:  Cont. | **Probability**:  Low | | **Impact**:  High |
| Description:  Poor comments in code. | | | | |
| **Impact**:  Minor delays in software modifications to understand code. | | | | |
| **Mitigation**:  **Shared standards specifications.** | | | | |
| **Current status**: In Progress | | | | |
| **Originator**: Erika Baird | | | **Assigned**: Erika Baird | |
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| Risk Information Sheet | | | | |
| --- | --- | --- | --- | --- |
| **Risk Type**:  E | **Date**:  Cont. | **Probability**:  Low | | **Impact**:  High |
| Description:  Staff inexperience and lack of training in tools expected to be used in development. | | | | |
| **Impact**:  Reduction in technical performance.  Possible delays in timeline. | | | | |
| **Mitigation**:  **Guidebooks and tutorials available in shared repository.** | | | | |
| **Current status**: In Progress | | | | |
| **Originator**: Erika Baird | | | **Assigned**: Kylie Callison | |
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| Risk Information Sheet | | | | |
| --- | --- | --- | --- | --- |
| **Risk Type**:  ***P*** | **Date**:  Cont. | **Probability**:  Medium | | **Impact**:  High |
| Description:  Deviation from software engineering standards results in substandard quality of deliverables. | | | | |
| **Impact**:  Some reduction in technical performance. | | | | |
| **Mitigation**:  **Change management and control will be employed when a defect is identified pertaining to one of our team’s primary goals.** | | | | |
| **Current status**: In Progress | | | | |
| **Originator**: Erika Baird | | | **Assigned**: Kendall Gesek | |
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| Risk Information Sheet | | | | |
| --- | --- | --- | --- | --- |
| **Risk Type**:  ***P*** | **Date**:  Cont. | **Probability**:  Medium | | **Impact**:  High |
| Description:  User interface is too complex and is not easily understood or accepted by users. | | | | |
| **Impact**:  Not accepted by users results in product failure.  Reduction in performance of end product. | | | | |
| **Mitigation**:  **User interfaces will be created with usability, accessibility, and user audience in mind.** | | | | |
| **Current status**: In Progress | | | | |
| **Originator**: Erika Baird | | | **Assigned**: Pamela Shahu | |
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| Risk Information Sheet | | | | |
| --- | --- | --- | --- | --- |
| **Risk Type**:  ***P*** | **Date**:  Cont. | **Probability**:  Medium | | **Impact**:  High |
| Description:  Quality metrics that should be consistent are not clearly defined, limiting design and product quality. | | | | |
| **Impact**:  Reduction in technical performance. | | | | |
| **Mitigation**:  **Software quality metrics employed by our team are established in the software project plan and specific implementation clearly defined in the software quality assurance plan.** | | | | |
| **Current status**: In Progress | | | | |
| **Originator**: Erika Baird | | | **Assigned**: Erika Baird | |
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| Risk Information Sheet | | | | |
| --- | --- | --- | --- | --- |
| **Risk Type**:  ***PR*** | **Date**:  Cont. | **Probability**:  High | | **Impact**:  High |
| Description:  Rate of defect repair is underestimated. | | | | |
| **Impact**:  Unachievable product schedule deadlines. | | | | |
| **Mitigation**:  **Frequent testing to uncover defects early allowing for more repair time.** | | | | |
| **Current status**: In Progress | | | | |
| **Originator**: Erika Baird | | | **Assigned**: Kylie Callison | |
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| Risk Information Sheet | | | | |
| --- | --- | --- | --- | --- |
| **Risk Type**:  ***PR*** | **Date**:  Cont. | **Probability**:  High | | **Impact**:  High |
| Description:  Failures of timely deliverables due to incorrect time estimations. | | | | |
| **Impact**:  Product schedule and deliverable dates cannot be maintained. | | | | |
| **Mitigation**:  **Gantt chart with all relevant deliverables along with timelines developed and edited to counteract any timeline issues.** | | | | |
| **Current status**: In Progress | | | | |
| **Originator**: Erika Baird | | | **Assigned**: Kendall Gesek | |
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| Risk Information Sheet | | | | |
| --- | --- | --- | --- | --- |
| **Risk Type**:  ***T*** | **Date**:  Cont. | **Probability**:  Medium | | **Impact**:  High |
| Description:  The database used in the system cannot be accessed. | | | | |
| **Impact**:  Nonresponsive or unsupportable software.  Unrealistic security measures threaten database software safety. | | | | |
| **Mitigation**:  **Access control policies defined for authentication and authorization of specific users.** | | | | |
| **Current status**: In Progress | | | | |
| **Originator**: Erika Baird | | | **Assigned**: Pamela Shahu | |
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| Risk Information Sheet | | | | |
| --- | --- | --- | --- | --- |
| **Risk Type**:  ***T*** | **Date**:  Cont. | **Probability**:  Medium | | **Impact**:  Medium |
| Description:  The system suffers from data logging and storage integration issues. | | | | |
| **Impact**:  Non Responsive or unsupportable software. | | | | |
| **Mitigation**:  **The use of load-balancing strategies.** | | | | |
| **Current status**: In Progress | | | | |
| **Originator**: Erika Baird | | | **Assigned**: Erika Baird | |
|  |  |  |  |  |

| Risk Information Sheet | | | | |
| --- | --- | --- | --- | --- |
| **Risk Type**:  ***T*** | **Date**:  Cont. | **Probability**:  Medium | | **Impact**:  Medium |
| Description:  Outdated technology allows for unauthorized system access, system intrusion, or break-ins. | | | | |
| **Impact**:  Failure to meet this requirement results in product failure. | | | | |
| **Mitigation**:  **A checklist will be created with a thorough comparison to determine the best suited technology.** | | | | |
| **Current status**: In Progress | | | | |
| **Originator**: Erika Baird | | | **Assigned**: Kylie Callison | |
|  |  |  |  |  |

| Risk Information Sheet | | | | |
| --- | --- | --- | --- | --- |
| **Risk Type**:  ***T*** | **Date**:  Cont. | **Probability**:  Medium | | **Impact**:  Medium |
| Description:  Integration issues occur with wireless transmission. | | | | |
| **Impact**:  Unresponsive or unsupportable software. | | | | |
| **Mitigation**:  Alternatives will be created for mobile network data transmission.  Prototype mock tests will be developed. | | | | |
| **Current status**: In Progress | | | | |
| **Originator**: Erika Baird | | | **Assigned**: Kendall Gesek | |
|  |  |  |  |  |

| Risk Information Sheet | | | | |
| --- | --- | --- | --- | --- |
| **Risk Type**:  ***T*** | **Date**:  Cont. | **Probability**:  Medium | | **Impact**:  Medium |
| Description:  Component incompatibility is detected | | | | |
| **Impact**:  Unresponsive or unsupportable software. | | | | |
| **Mitigation**:  Selection of technology will be determined early in the software process to determine compatibility. | | | | |
| **Current status**: In Progress | | | | |
| **Originator**: Erika Baird | | | **Assigned**: Pamela Shahu | |
|  |  |  |  |  |

| Risk Information Sheet | | | | |
| --- | --- | --- | --- | --- |
| **Risk Type**:  ***F*** | **Date**:  Cont. | **Probability**:  Medium | | **Impact**:  High |
| Description:  Low estimations of cost can lead to irrecoverable project failures. | | | | |
| **Impact**:  Shortage of financial resources causes possible cost overruns. | | | | |
| **Mitigation**:  Specific cost-effective plans have been determined for cloud-based systems. | | | | |
| **Current status**: In Progress | | | | |
| **Originator**: Erika Baird | | | **Assigned**: Erika Baird | |
|  |  |  |  |  |

| Risk Information Sheet | | | | |
| --- | --- | --- | --- | --- |
| **Risk Type**: ***F*** | **Date**:  Cont. | **Probability**:  Medium | | **Impact**:  High |
| **Description:**  Shortage of financial or personnel resources with improper budget estimations. | | | | |
| **Impact**:  Shortage of financial resources causes possible cost overruns. | | | | |
| **Mitigation**:  During the scope of this project, the cloud-based system used falls under the year free data plan. | | | | |
| **Current status**: In Progress | | | | |
| **Originator**: Erika Baird | | | **Assigned**: Kylie Callison | |

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### 2.1.2 Probability and impact for risk *m*

| Risk ID | Risks | Probability | Impact |
| --- | --- | --- | --- |
| BI | Business Impact Risk | Low | High |
| C | Customer Risks | High | High |
| D | Development Risks | Medium | Low |
| E | Employee Risk | Low | High |
| P | Process Risk | Medium | High |
| PS | Product Size | High | High |
| T | Technology Risk | Medium | Medium |
| F | Financial | Medium | High |

## 2.2 Risk refinement

**Customer Risk**

Customer risk involves identifying all the specific needs and requirements of different user groups. Included is a list of such risks in the Software Requirement Specification document. There must be testing for all the non-functional requirements including user interface requirements. Conduct user training to make it easy for them to use the system and perform their tasks.

**Product Size**

Product size involves estimating the potential number of users who will interact with the system. These users must be added to the requirement that the system should handle the estimated number of users at the same time.

# 3.0 Risk Mitigation, Monitoring and Management

## 3.1 Risk mitigation for risks

Please view above Risk information sheets for details on mitigation.

## 3.2 Risk monitoring for risks

**Business Impact Risk**

Monitor the rates for the required hardware on a weekly basis and analyze the changes that may affect our budget.

**Customer Risks**

Take feedback from the users and conduct usability testing to keep check on the implementation according to the user feedback.

**Development Risks**

Conduct code review to make sure that all the developers are working with the same standard and are following the instructions.

**Employees Risk**

Motivate the employees to use technology and get their feedback on how they are taking advantage of technology in daily life. Monitor their satisfaction and concerns about the new system.

**Process Risks**

Install a monitoring system to track the performance of the system and make a register to check the graphs if it’s going up or down. Write down the issues on a daily basis to improve the system’s performance.

**Product Size**

Monitor the performance metrics to keep check on the performance. Follow the response time at different times to monitor the performance with different loads.

**Technology Risk**

Check the compatibility of the system with the browsers and other required third-party systems. Make sure the compatibility with the new releases of those software as well.

**Financial Risk**

Monitor the cloud system and storage that our system is using to store the date of users and cases. Set alarms for breaching a specific storage size.

## 3.3 Risk management for risks

**Business Impact Risk**   
Make it possible that the required hardware is purchased from the best available market and according to the budget and schedule.

**Customer Risks**

List all the user requirements in the SRS document according to the feedback of the users so that they are implemented to meet the requirements.

**Development Risks**

Conduct a one or two days training for developers to get familiar with the coding standard that will be followed in the development cycle.

**Employee Risk**

Conduct training to ensure that all the employees have enough skill set to use the modern automated system and they can do all the tasks using the system.

**Process Risks**

Integrate the backup system with the actual system to avoid any downtime. Test the backups on a daily basis to make sure the system performance reduces downtime.

**Product Size**

Conduct the load testing to make sure that the system has the capacity to handle the big volume of users and data.

**Technology Risk**

Conduct testing for the integration with third- party software and compatibility with different browsers.

**Financial Risk**

Conduct reviews on cloud resources allocations and implement optimization tools and techniques. Implement a budget monitoring system to meet financial objectives.

# 4.0 Special conditions

Few things can trigger the smooth process of development like changes during development. A proper process of change management should be followed for every new change. Take approval from all stakeholders before converting the change into the design. All the design and risk documents should be revised after the change is approved. Communication gaps between the development team and management may cause many risks. The team should identify all the possible risks and convey them to the project manager on time. The manager should make a mitigation and monitoring plan and the team will implement that plan.