

CSE 563 Project Individual Report Number 4

Krishnaprasad Palamattam Aji

Table of Contents

1. Initial Risk Analysis	3
1.1. Overview	3
1.2. Usability Risk	3
1.3. Security Risk	3
1.4. Privacy Risk	4
2. Received Requirements	5
2.1. Received Function Requirement 1 related to Usability Risk	5
2.2. Received Function Requirement 2 related to Security Risk	5
2.3. Received Function Requirement 3 related to Privacy Risk	5
3. Derived Requirements	7
3.1. Derived Function Requirement 1	7
3.2. Derived Function Requirement 2	7
3.3. Derived Database Requirement 1	8
4. Architecturally Significant Elements	9
4.1. Overview and Architectural Views	9
4.2. Logical/Quality Elements and why each is architecturally significant	9
5. Conclusion	10
5.1. Risks	10
5.2. Requirements	10
5.3. Items for future consideration	10

1. Initial Risk Analysis

1.1. Overview

- Initial Risk Analysis has resulted in finding three high priority items

1.2. Usability Risk

- The ease of use of EffortLogger V2 and similar functionality of the existing application
 - Significance
 - If EffortLogger V2 is very different from the existing one, users will have resistance to using the new application
 - May result in inaccurate data due to unfamiliar interface
 - The functionality should remain the same
 - Priority
 - Highest priority is due to the received requirement about existing functionality
 - Product has to be accurate and functional
- Team Member : Krishnaprasad Palamattam Aji
- Mitigation
 - Building a prototype with basic functionality
 - Taking user reviews to modify interface to make it easy to use
 - Correctness of the application also tested with the prototype

1.3. Security Risk

- Security of the data stored by EffortLogger V2
 - Significance
 - Personal and confidential information has to be secured
 - Even if another person gets their hands on the device, data should be encrypted
 - Priority
 - Second highest priority is due to the received requirement from the firm about security of confidential data
- Team Member : Krishnaprasad Palamattam Aji
- Mitigation
 - Building a prototype that uses databases and stores data with encryption will

help to test this

- o As data is encrypted, only user with authentication can see the data

1.4. Privacy Risk

- Privacy of user data stored by EffortLogger V2
 - o Significance
 - The personal information needs to be encrypted in database and dropped in reports
 - Personal data should also be omitted while collecting effort data
 - o Priority
 - Third highest priority as received requirement about employee privacy
- Team Member : Krishnaprasad Palamattam Aji
- Mitigation
 - o Building a prototype that drops personal information in reports and encrypts data before storage
 - o User involved prototype testing can be used to see if the personal data is visible or misused

2. Received Requirements

2.1. Received Function Requirement 1 related to Usability Risk

2.1.1. Functionalities of EffortLogger V2

2.1.2. “to produce a set of tools to help them with their project tracking and accounting” - EffortLogger Customer Need V2.0 Document V1.1¹

2.1.3. Inputs and Stimulus

- Effort data of employees
- Defect data of employees
- Modification of effort or defect data

2.1.4. Sequence of Operations and Responses

- Receive effort data and log the data in database
- Receive defect data and log the data in database
- Modify the already existing data in database

2.2. Received Function Requirement 2 related to Security Risk

2.2.1. Confidential Information Security

2.2.2. “concerned about hackers gaining access to the firm’s confidential information” - EffortLogger Customer Need V2.0 Document V1.1²

2.2.3. Inputs and Stimulus

- Confidential information about employee efforts and projects

2.2.4. Sequence of Operations and Responses

- Encryption and storage in a secure database
- Proper authentication to prevent illegal access of data

2.3. Received Function Requirement 3 related to Privacy Risk

2.3.1. Employee Privacy

2.3.2. “provide mechanisms to support professional role levels and automated performance data collection that allows the various workers to be anonymous” - EffortLogger Customer Need V2.0 Document V1.1³

¹ EffortLogger Customer Need V2.0 Document V1.1 : Prior Need from 2005, Line 1

² EffortLogger Customer Need V2.0 Document V1.1 : Confidential Information Security, Line 1

³ EffortLogger Customer Need V2.0 Document V1.1 : Employee Privacy, Paragraph 2, Line 4

2.3.3. Inputs and Stimulus

- Professional roles in effort data
- Personal information in effort data

2.3.4. Sequence of Operations and Responses

- Professional roles shown in effort reports
- Personal information encrypted while storing and dropped in reports
- Personal information only available to improvement team

3. Derived Requirements

3.1. Derived Function Requirement 1

3.1.1. Login activity

3.1.2. “concerned about hackers gaining access to the firm’s confidential information” - EffortLogger Customer Need V2.0 Document V1.1⁴

3.1.3. Inputs and Stimulus

- Username and password for each user

3.1.4. Sequence of Operations and Responses

- Username and password is used to authenticate a user’s access to effort and defect data

3.2. Derived Function Requirement 2

3.2.1. Professional Roles saved in effort and defect logs

3.2.2. “provide mechanisms to support professional role levels and automated performance data collection that allows the various workers to be anonymous” - EffortLogger Customer Need V2.0 Document V1.1⁵

3.2.3. Inputs and Stimulus

- Effort data with personal identifiers
- Effort data with professional role level

3.2.4. Sequence of Operations and Responses

- Personal identifiers encrypted and stored, not accessible in reports
- Personal data is dropped in reports and replaced with professional roles

⁴ EffortLogger Customer Need V2.0 Document V1.1 : Confidential Information Security, Line 1

⁵ EffortLogger Customer Need V2.0 Document V1.1 : Employee Privacy, Paragraph 2, Line 4

3.3. Derived Database Requirement 1

3.3.1. Database for offline storage of effort and defect data

3.3.2. “concerned about hackers gaining access to the firm’s confidential information” - EffortLogger Customer Need V2.0 Document V1.1⁶

3.3.3. Types of data and/or operations performed

- Data
 - Effort data
 - Defect data
 - Project information
 - User story
- Operations
 - Encryption of data
 - Normalizing tables
 - Providing output to poker planning tool

⁶ EffortLogger Customer Need V2.0 Document V1.1 : Confidential Information Security, Line 1

4. Architecturally Significant Elements

4.1. Overview and Architectural Views

- Overview
 - Main concerns are functionality, security and privacy
 - Architectural elements to mitigate or handle these risks need to be discussed
- Architectural Views
 - Authentication for security
 - Data anonymization for privacy
 - Ease of use and correctness for functionality

4.2. Logical/Quality Elements and why each is architecturally significant

- Security
 - Username password authentication
 - Role based access control for accessing effort reports
 - Two factor authentication for improved security
 - Data encryption using hashing functions like SHA256
- Privacy
 - Removal of all Personal Identifiable Information (PII)
- Functionality
 - JavaFX application to validate functionality and compare with existing application
 - Proper documentation to make it easy to use
 - Provide APIs to integrate with other systems like planning poker tool

5. Conclusion

5.1. Risks

5.1.1. Main risks to address while building EffortLogger V2

- Usability Risk
- Security Risk
- Privacy Risk

5.1.2. Mitigation techniques

- Prototype to test and mitigate each risk
- Team Member dealing with prototype : Krishnaprasad Palamattam Aji

5.2. Requirements

5.2.1. Received requirements

- Existing functionalities of EffortLogger
- Confidential Information Security
- Employee Privacy

5.2.2. Derived Requirements

- Login activity
- Professional Role storage for removing PII
- Offline database for storage and security

5.3. Items for future consideration

- Mobile application support
- Artificial Intelligence to automate the data entry and report generation processes