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Faculty of Physical Sciences and Engineering

A project progress report submitted for the award of
BSc Computer Science

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Examiner:

**Automatically Generated Cyber Security
Compliance Engine**

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Chapter 1

Project Description

1.1 The Problem

There are hundreds of cyber security compliance standards, and many businesses require their partners to comply with numerous standards. "Unlike cybersecurity alone, cyber supply chain risk management focuses on gaining visibility and control not only over the focal organization but also over its extended enterprise partners, such as Tier 1/Tier 2 suppliers and customers. In addition, while cybersecurity emphasizes purely technical means of control, CSCRM seeks to engage both managerial and human factors engineering in preventing risks from disrupting IT systems operations." (Boyson, S. (2014) Cyber supply chain risk management: Revolutionizing the strategic control of critical IT systems, *Technovation*, 34(7), pp. 342–353.) Keeping track of each company's compliance to a particular standard is a lengthy and potentially expensive task since it can be very difficult to maintain without the use of an external service or consultant. ("Says who?")

Most SMEs will not be able to afford this - due to the time and experience level required, it might not be something a system administrator can do on top of their other responsibilities, and a consultant might be too expensive. ("Says who?")

1.2 The Solution

An automatically generated cyber security compliance engine, could provide a low cost, time efficient solution for businesses that need a flexible, customisable way of tracking their partners compliance, or their own compliance, with multiple standards. ("Says who?")

The goal of this project is to create a client-server system that will generate and store compliance forms for the end user. The forms will be automatically generated via an

interface on the application by an admin, and accessible by users. This will include the ability to update the forms at a later date. This project is a client-server system only, not an application, and it will deal with cyber security compliance only - no other forms of compliance will be within the scope of this project.

Chapter 2

Background and Literature Review

2.1 Compliance

2.1.1 Definition

(TODO: Definition of Compliance)

2.1.2 Cyber essentials use case

"The Government worked with the Information Assurance for Small and Medium Enterprises (IASME) consortium and the Information Security Forum (ISF) to develop Cyber Essentials, a set of basic technical controls to help organisations protect themselves against common online security threats." (Cyber Essentials Scheme: overview (2014) GOV.UK.)

2.1.3 The State of Compliance in the UK (crime stats)

"We have seen a significant growth in cyber criminality in the form of high-profile ransomware campaigns over the last year. Breaches leaked personal data on a massive scale leaving victims vulnerable to fraud, while lives were put at risk and services damaged by the WannaCry ransomware campaign that affected the NHS and many other organisations worldwide. Tactics are currently shifting as businesses are targeted over individuals..." (Cyber Crime (no date) NCA National Crime Agency.)

2.1.4 Impact

Cyber attacks are financially devastating and disrupting and upsetting to people and businesses. We know that there is significant under-reporting, although the new General Data Protection Regulation is likely to prompt a better picture of scale. Currently the level of sentencing at court is not commensurate with the seriousness of attacks, and this is an area which is ripe for consideration.

2.1.4.1 Use cases (interpol database (supply chain examples (cyber terrorism)))

Chapter 3

Requirements and Analysis

This chapter will analyse the requirements of the proposed application and inform the design decisions that have been made.

3.1 Use cases

Explanation

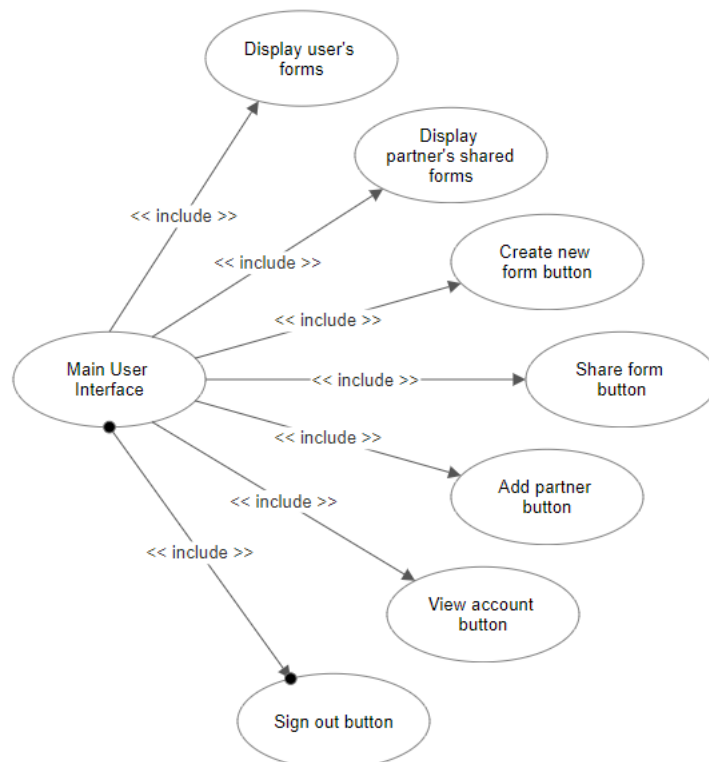


Figure 3.1: Use Case Diagram 1

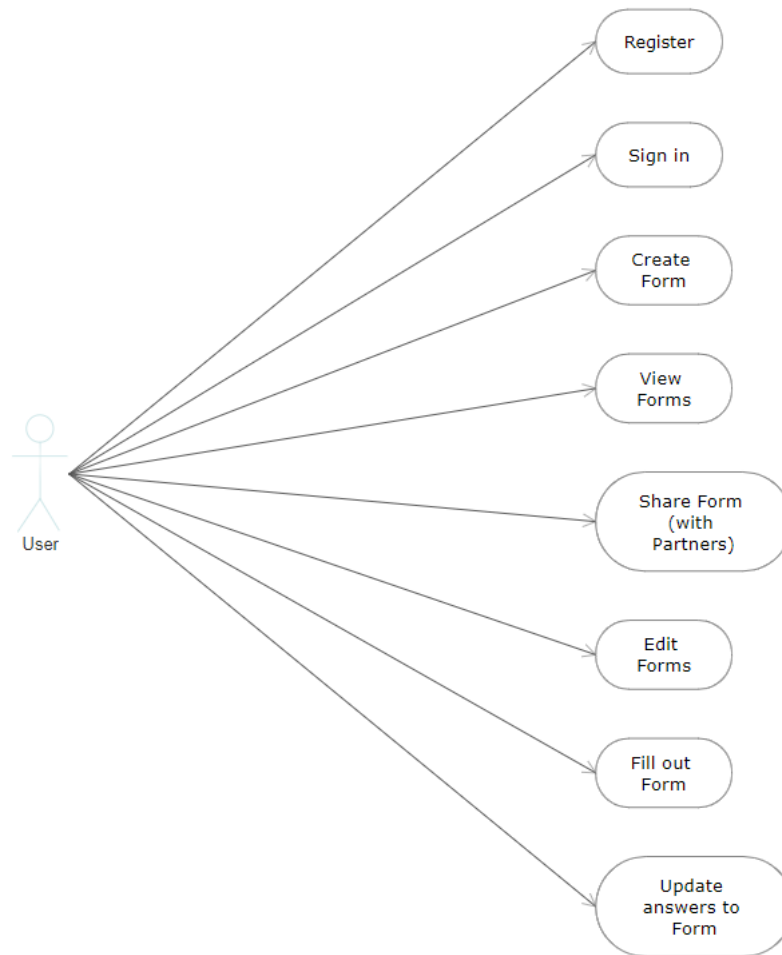


Figure 3.2: Use Case Diagram 2

3.1.1 Use case description

The following table explains the main use cases of this project. (//TODO: CHANGE THIS LINE)

3.2 Functional requirements

Explanation

Requirements analysis table (Requirement(stated above) — Complexity — Time — Importance)

Use Case	Description
Display user's forms	A list of forms created by the user will be displayed, with the form's name, owner and date of last modification.
Display partner's shared form	A list of forms shared with the user by a partner will be displayed, with the form's name, owner and date of last modification.
Create new form button	Takes the user to a page where they can design a new form.
Share form button	Allows the user to share forms they have created with partners.
Add partner button	Allows the user to search for other people's accounts on the application, and add them as partners. This should be done with people you wish to share forms with or receive forms from.
View account button	Allows the user to view their account information and edit it if necessary. Details such as name, email, company and the ability to change the account's password.
Sign out button	Allows the user to sign out from the application.

Table 3.1: Use case descriptions

Requirement	Description
Register	New users will create an account before being allowed to use the application
Log in	Users will need to log in before they are able to access their account, create, share and complete forms
Create a form	Users will be able to create a new form, which will be saved to their account
Share a form	users will be able to share a form that they have created with a partner
Add a partner	Users will be able to view and edit their account information, including; name, email, company and password(not viewable)
Sign out	Users will be able to sign out of the application
Notifications	Users will be notified of various changes, including their partners' answers to forms

Table 3.2: Functional requirements

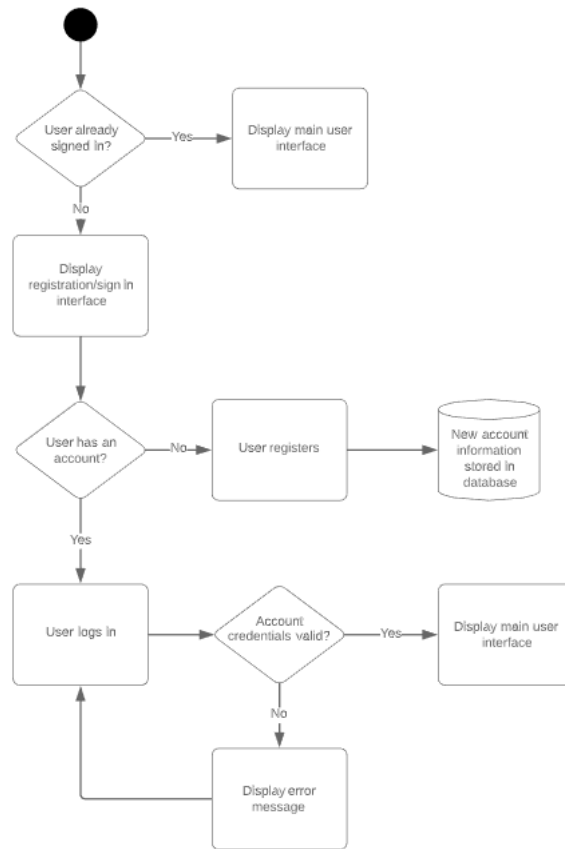


Figure 3.3: Activity Diagram: Authentication

3.3 Non-functional requirements

Explanation
table

3.4 Risk analysis

Explanation
tables

3.5 Functionality

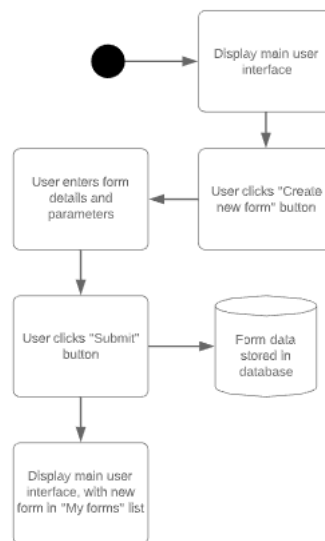


Figure 3.4: Activity Diagram: Form Creation

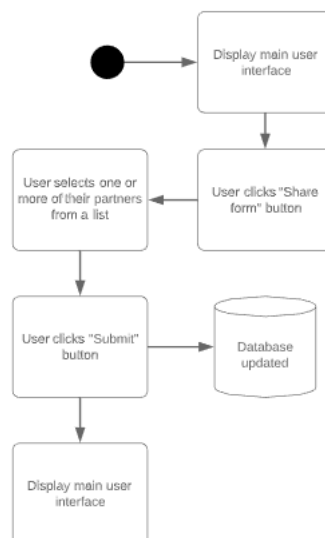


Figure 3.5: Activity Diagram: Form Sharing

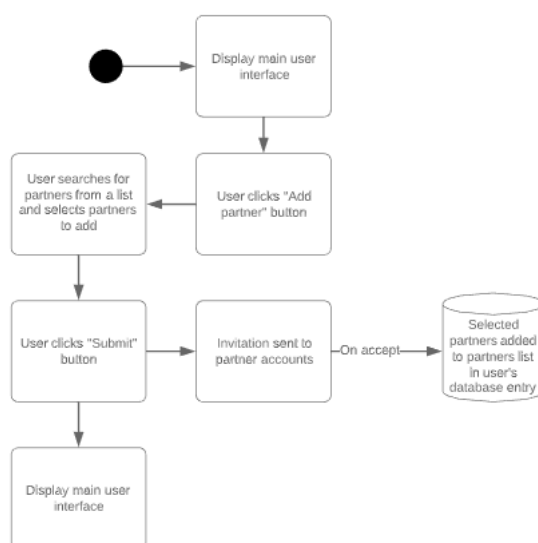


Figure 3.6: Activity Diagram: Partner Invitation

Chapter 4

Conclusions

It works.

