Security & Data Privacy Research

VocabVersus

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# Topic

This research document will be focused on investigating the design patterns and best practices when handling **security** and **data privacy** within an application.

The research in this document is used for developing the VocabVersus web-application, and thus will be targeted towards specific topics within this domain.

The research done, will be split up into its two primary components:

**Security** – For security, security risks within an application will be discussed containing; **the risk itself**, **the workings of possible exploits** on this risk and **existing practices/solutions** for the given risk.

**Data Privacy** –For data privacy, the requirements of maintaining properly stored data will be discussed, such as **legal** requirements on how private information should be handled and **ethical** considerations that should be investigated when working with personal/private data.

# Goal

The goal of this research will be to gain a larger understanding of the requirements and practices used when handling security and data privacy within a web-application.

This includes **limitations** for data privacy along with **functional knowledge** on how to handle these limitations or possible security exploits in a ‘real world’ application.

# Methodology

The [DOT framework](https://ictresearchmethods.nl/The_DOT_Framework) will be used to conduct research from multiple perspectives, allowing for well-rounded research, with clear conclusions based on multiple sources.

As I will be investigating pre-established rules/regulations along with ‘common’ security practices, a lot of library content will be available to use during this research.

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Description automatically generated Workshop research will be an important part of this research, as a lot of the topics/questions being investigated are based on ‘real world’ scenarios, it will be good to both use limited PoC applications to help convey and describe issues involved with security & data privacy.

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Description automatically generatedLab research will be used to further investigate PoC applications created with the workshop strategy, as it can give empirical evidence for how system solutions will perform under specific circumstances (such as in edge-cases).

# Questions

There are multiple questions that will guide the research, these questions are based on the topics explained in the [introduction to this topic](#_Topic).

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| **Main Question** | |
| What are common methods used to protect an application’s security and private/personal data | |
| **Sub Questions** | **Research Methods** |
| What issues might occur when security risks are not properly evaluated and handled | [Root cause analysis](https://ictresearchmethods.nl/Root_cause_analysis) |
| What are the most common security risks encountered within a web application | [Literature study](https://ictresearchmethods.nl/Literature_study) |
| What are common best practices used to avoid exploits for security risks | [Good/Bad -practices](https://ictresearchmethods.nl/Best_good_and_bad_practices)  [Community research](https://ictresearchmethods.nl/Community_research) |
| How are common best practices used in the real world to improve application security | [Design pattern research](https://ictresearchmethods.nl/Design_pattern_research)  [Prototyping](https://ictresearchmethods.nl/Prototyping)  [Component test](https://ictresearchmethods.nl/Component_test) |
| What legal requirements exist for (Dutch) web-applications storing personal/private data | [Literature study](https://ictresearchmethods.nl/Literature_study) |
| What ethical concerns might be applicable when handling personal/private user data | [Ethical check](https://ictresearchmethods.nl/Ethical_check)  [Peer review](https://ictresearchmethods.nl/Peer_review) |

# Security

## Security Vulnerability effects

## Common Security Risks

### OWASP

# Data Privacy

## Introductory examples

## Private Data limitations

### Legal

#### GDPR

### Ethical

## Private Data handling

### Functional