Application & Data Security

VocabVersus

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| **Project Information** | |
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| Project Name | VocabVersus |

Table of Contents

[Topic 3](#_Toc137067329)

[Goal 3](#_Toc137067330)

[Summary 3](#_Toc137067331)

[Questions 3](#_Toc137067332)

[Server Communication 4](#_Toc137067333)

[Server Load Handling 4](#_Toc137067334)

[User Authentication 4](#_Toc137067335)

[Game Integrity 4](#_Toc137067336)

[Game Instances 4](#_Toc137067337)

[Word Sets 4](#_Toc137067338)

[Word Usage Tracking 4](#_Toc137067339)

# Topic

This research document will cover several design patterns, best practices and considerations that have to be made within the VocabVersus context to create a secure and data aware application.

The research is split up into two topics: The application security and data security, within these topics several large concerns as discovered from real world examples [similar to the VocabVersus context](../Project%20Plan.docx#Target_Audience), [OWASP security list](https://owasp.org/) and [GDPR regulations](https://gdpr-info.eu/) will be explored.

# Goal

The goal of this research will be to explore and find the best solutions for the most common and highest severity concerns pertaining to security and data handling.

These solutions will be explored with the goal of allowing for direct implementation into the VocabVersus web application.

# Summary

Shortly discuss the findings of the research

# Questions

This research will have one main question, whose answer can be constructed based on several sub questions, these questions are primarily within the [DOT Framework’s](https://ictresearchmethods.nl/The_DOT_Framework) Library, Field, Showroom and Workshop strategies.

Is play testing under showroom or lab? I show it to the target audience to gain knowledge of how users interact with it, but I am testing a proof of concept with a select group of people to measure it’s effectiveness and interactions

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| **Main Question** | |
| What are common or severe[[1]](#footnote-1) security risks and solutions for the VocabVersus web application? | |
| **Sub Questions** | **Research Methods** |
| How can the communication between the interface and game engine be exploited? | [Document analysis](https://ictresearchmethods.nl/Document_analysis)  [Prototyping](https://ictresearchmethods.nl/Prototyping)  [Literature Study](https://ictresearchmethods.nl/Literature_study) |
| What methods can be used by a bad actor to greatly dimmish the integrity of the VocabVersus application? | [Good & Bad Practices](https://ictresearchmethods.nl/Best_good_and_bad_practices)  [Literature Study](https://ictresearchmethods.nl/Literature_study)  [Interview](https://ictresearchmethods.nl/Interview) |
| What is the best way of authenticating players without requiring a login? | [Interview](https://ictresearchmethods.nl/Interview)  [Literature Study](https://ictresearchmethods.nl/Literature_study) |
| What common methods could be used by a player to gain an unfair advantage? | [Observation](https://ictresearchmethods.nl/Observation)  [Product Review](https://ictresearchmethods.nl/Product_review)  [Useability Testing](https://ictresearchmethods.nl/Usability_testing) |
| What is the most optimal method of storing data used during a game? | [Design Pattern Research](https://ictresearchmethods.nl/Design_pattern_research)  [Good & Bad Practices](https://ictresearchmethods.nl/Best_good_and_bad_practices) |
| How can the game activity of players be ethically stored for use in game balancing? | [Ethical Check](https://ictresearchmethods.nl/Ethical_check)  [Literature Study](https://ictresearchmethods.nl/Literature_study) |

APPLICATION

# Server Communication

Intro signalR (in some ways more secure than REST API’s?)

Able to intercept and edit signalR messages

Show like changing the name to an invalid length

# Server Load Handling

Load balancing is a thing

Spam creating games

# User Authentication

How does one authenticate a user who doesn’t want to be authenticated

Store that shiz in httponly cookies, no touch!

Tracking authentication when user rejoins

Hijacking the authentication

# Game Integrity

Also known as cheating

Botting

Call back to communication

DATA

# Game Instances

Every game instance has it’s own users

Game instances are kept track of for some time <- when everyone leaves don’t delete it (scope)

Keep track of what has happened for new or reconnecting players

# Word Sets

How to store wordsets? I did a full research on this dude

Talk about the storage size and query times

This can be data bombed!

# Word Usage Tracking

Tracking words is cool and all, but is it really ethical

1. referring to concerns that can have a large negative effect on the player experience or application integrity. [↑](#footnote-ref-1)