Design Oriented Research Plan

securing data in Golang

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State	**In progress**
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VERSION HISTORY

Version	Date	Author(s)	Changes	State
0.1	14-02-2022	Mickey Krekels	Added the main structure of the document.	In progress
0.2	17-03-2022	Mickey Krekels, Sebas Bakker, Mark Tempelman	Added sub-questions and description	In progress

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1 RESEARCH DESCRIPTION

To secure the back end of our group project application, we need to learn how to implement security tactics. The main coding language we use is called Golang, this is because of the preferences of the client. The overall experience with our group in Golang is limited, but the deliverable must be of enterprise coding level. To ensure that the project is secure we need to research how this is achieved in a Golang application.

1.1 THE PROBLEM/OPPORTUNITY

The current problem is that the version of our project is not secure, the application has a lot of security pitfalls. With additional research we can address these problems, the results of this research project will ensure a secure and high-quality product for the client.

2 RESEARCH QUESTIONS

In this part of the document, I will describe the most relevant research questions. This will be done by using the Dot Framework research methodology.

2.1 MAIN RESEARCH QUESTION

- How to secure data in a Golang application?

2.2 SUB-QUESTIONS

1. How to secure API endpoints?
2. How to encrypt sensitive data in Golang?
3. How to prevent SQL injection?
4. How to prevent brute force attacks?

See the table below for the linked category and methods for each of the sub-questions.

Dot Framework research methodology			
Sub-question	**Method**	**Category**	**Reason**
1	Community research	**Library**	There is a lot of information that can be found online. There is no reason for us to reinvent the wheel.
	Security test	**Lab**	To test if our solution works, we will carry out security tests on our application
2	Community research	**Library**	There is a lot of information that can be found online. There is no reason for us to reinvent the wheel.
	Security test	**Lab**	To test if our solution works, we will carry out security tests on our application
3	Community research	**Library**	There is a lot of information that can be found online. There is no reason for us to reinvent the wheel.
	Security test	**Lab**	To test if our solution works, we will carry out security tests on our application
4	Community research	**Library**	There is a lot of information that can be found online. There is no reason for us to reinvent the wheel.
	Security test	**Lab**	To test if our solution works, we will carry out security tests on our application

3 DELIVERABLES AND TIMEPLAN

3.1 DELIVERABLES

Deliverable	Description
Research document	Document in which the answers to the sub-questions are provided and substantiated
A secure final product	The results of this research project will be incorporated into our group project to ensure the security of the application.

3.2 TIMEPLAN

Deliverable	Activity – Research question	Week
Research document	How to secure API endpoints	**5**
Research document	How to secure API endpoints	**5**
Research document	How to encrypt sensitive data in Golang	**7**
Research document	How to encrypt sensitive data in Golang*?*	**8**
Research document	How to prevent SQL injection	**9**
Research document	How to prevent SQL injection	**10**
Research document	How to prevent brute force attacks	**11**
Research document	Finalizing document	**12**

4 BIBLIOGRAFIE

There are no sources in the current document.