
FreePass- A Random and Replicable Password Manager

— Computer Science Project 20/21 —

Context

Nowadays it's **practically impossible** to keep track of all our passwords (and even our account names).

The obvious alternative would be to use **only one password** but that would lead to a serious security problem.

The most common solution to this problem is to use a **password manager**, but even that raises some concerns.



Problem

Most password managers require the use of a **database** to store every password in order to facilitate use between multiple devices.

That leaves the users in an awkward position where they have to **trust** the service to keep their information safe and to inform them in case of a breach.



Goals

In this project we plan to create a solution where we can generate random passwords in a **replicable manner** so we don't have to store them in a database.

We will ask the user the URL of the website, the desired username and a master password, from that we will generate a replicable password that's **secure** against most type of attacks.

This service is similar to the one that *lesspass* provides.

Lesspass example: <https://lesspass.com>



Tasks

To complete this project we will need to **develop**:

- A secure and replicable password generating algorithm;
- A way to sync usernames and iteration number between devices.

The **platforms** we are expecting to release our service in are:

- A chromium browser extension (also firefox if possible);
- An android mobile app;
- A windows app (if possible).

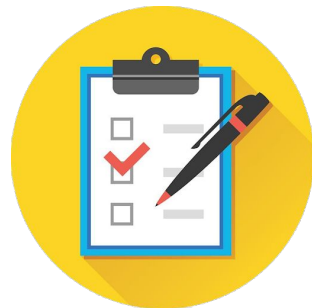


Expected results

If we are successful in our project we will have a similar product to lesspass, but **more robust** to dictionary style attacks.

Ideally, our service will be **compatible** with other password managers the user may already be using.

We expect the user to be able to **sync** his username between multiple devices and to be able to **change** the password of a specific device.



Project calendar

Complete Calendar: <https://bit.ly/3d6VPOG>

Activity / Day	1	2	3	4	5	6	7	8	9	10	11	12	13	14
Get to know the available projects	✓													
Choose the project		✓												
Present our objectives and expected calendar			✓											
Choose what programming languages we will be using				✓	✓	✓								
Discuss the software we need				✓	✓	✓								
Define the project				✓	✓	✓								
Take the first steps into creating our algorithm				✓	✓	✓								

Inception

Elaboration

Complete our password generating algorithm					✓	✓	✓	✓						
Create prototypes of a browser extension and an android mobile app					✓	✓	✓	✓						
We can also create a prototype of a windows app if time allows it					✓	✓	✓	✓						
Start working in the final version of a browser extension and android mobile app									✓	✓	✓			
Fix problematic bugs									✓	✓	✓			
Work in a windows app if time allows it									✓	✓	✓			
Fix less problematic bugs									✓	✓	✓			
Present the final version of our project and declare it ready to launch													✓	

Construction

Construction

Transition

The team

Our team is composed by:

- João Morais - 93288
- Miguel Ferreira - 93419
- Pedro Coutinho - 93278
- Pedro Paixão - 73227

Advisor professors:

- André Zúquete (DETi)
- João Paulo Barraca (DETi)



The End

Do you have any suggestions and/or questions?