ELECTRONIC NOTEBOOK FOR SYNTHETIC BIOLOGY LABS

A Third Year Project Report
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in

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by

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Abstract

Contents

Chapter 1

Introduction

Chapter 2

Context

Firstly, I am going to give some abstract background about the project by clarifying the area in which the tool will be utilized, naming the user that will work with it in order to understand the user's need for this tool and finally underline, in large, the facilities that the application is going to offer.

Afterwards, I will give details about the certain technologies and tools used to develop this project and how it was all implemented using a platform called SEEK and a web app named Jupyter Notebook.

2.1 Tool Topic

Bioinformatics is a broad science that involves working with a considerable supply of biological data and associates various groups of analysts and experts. Its practice involves the use of technology to do activities such as molecular biology modelling, image analysis, comparisons of linear sequences or 3D models and many other related tasks [1].

2.2 The User

This project aims to satisfy the needs of people working in the field of bioinformatics. More specifically, people that work with scientific data towards a more analytical outcome and need to handle computational tools in order to get a conclusive view on their input.

For example, a biochemist working in the development of pharmaceutical products might operate with actual substances using chemical formulas. An example of the endeavor of a bioinformatician would be using biological data trying to develop methods for understanding a genetic basis of diseases.

2.3 Satisfying the need

This project is going to support the users by making the viewing, browsing and writing of reports, research, studies, etc, more accessible.

As these users have less overall knowledge about programming, this need is, therefore, obvious and the application should be intuitive to use and as straightforward as possible. This leverage is due, in order to facilitate a focus on the research instead of targeting the learning of computer science or programming language related technologies, information or other details.

2.4 Objectives

The goal of this project is to build a basic functionality for an electronic notebook that would offer the users three basic features: reading, browsing and writing data.

Firstly, the user should be capable of reading documents and data representing other studies, research, investigations, etc. that are already done by other researchers and bioinformaticians. Browsing for multiple results of this kind is another feature that can be build on top of the previous one. It should ask the user for the information that he is looking for and retrieve all the results that match the query. Finally, the user should be able to post a possible paper or piece of data so that other are able to read or search for it and possibly use it in further documentation.

Further, I am going to talk about the technologies that I have used in my project, explain their benefits and, finally, clarify how they are going to fit together in this project before we go into the development steps.

2.5 Data Catalogue

2.6 E-Notebook

2.7 Production

Chapter 3

Development

3.1 Introduction

3.2 Read

3.3 Browse

3.4 Write

Chapter 4

Evaluation

Chapter 5

Reflection

Chapter 6

Conclusion

Bibliography

[1] Andrew Cowley Cath Brooksbank. Bioinformatics for the terrified. *https://www.ebi.ac.uk/training*, page What is bioinformatics, 2018.