

# Configuration Manual

MSc Research Project  
Cyber Security

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**MSc Project Submission Sheet**  
**School of Computing**



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**Programme:** MSc. Cyber Security

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**Lecturer:**

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**Project Title:** Blockchain-Enhanced Personal Health Records Sharing with Integrity Verification

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# Configuration Manual

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## 1 Introduction

This document is used for the configuration manual. This document consists of the step-by-step instructions including screenshots and versions of the software that has to be installed on the system to implement the code. It consists all the information that is needed to execute the research model.

**Research work:** Blockchain-Enhanced Personal Health Records Sharing with Integrity Verification.

## 2 System Configuration

The development is done on the windows laptop with the hardware list below.

Feature	Description
Operating System	Windows 11 Home version 23H2
System information	64-bit
Processor	12th Gen Intel(R) Core(TM) i5-12450H 2.00 GHz
Memory	16.0 GB

### 2.2. Software configuration and requirements

To run the EHR model the anaconda has to be installed in the system to run the code. Some pre-requisites are also needs to be installed in the system before running the code.

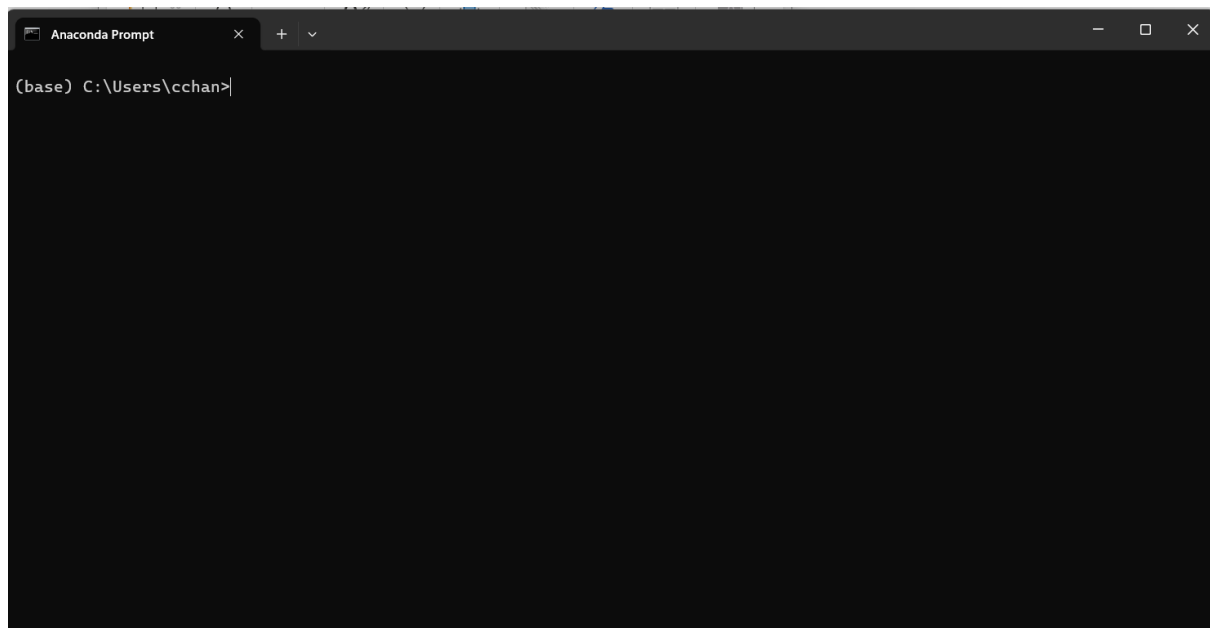
Following are the details about what all software has to be installed with their versions.

#### Software Configuration

Software	Version
Anaconda	24.5.0
Python	3.9.7

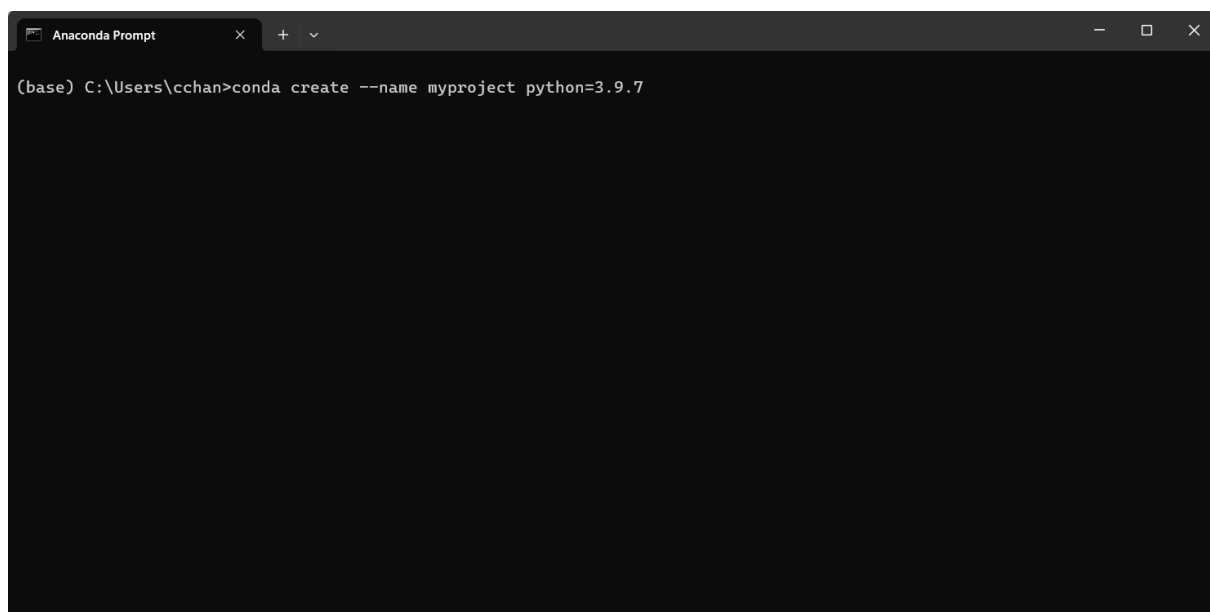
## 3. System Configuration

1. Anaconda can be downloaded from the below link:  
<https://www.anaconda.com/download>
2. once the anaconda is installed, open anaconda prompt.



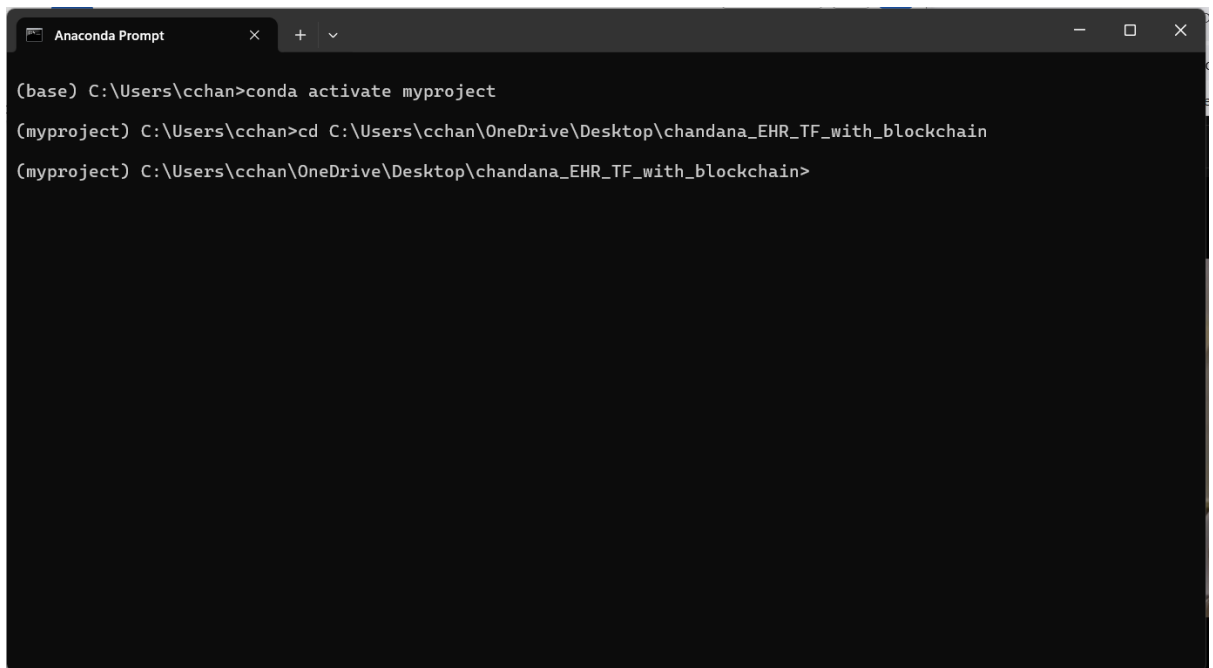
**Figure – 1 Anaconda prompt**

3. Create a new environment below code has to be run  
**conda create --name environment\_name python=3.9.7**



**Figure 2 creating a new variable**

4. Activate the new environment with the below code  
**conda activate environment\_name**
5. To run the code we have to go inside the folder that can be executed using the below code.  
**cd path of the file**

A screenshot of the Anaconda Prompt terminal window. The window title is 'Anaconda Prompt'. The terminal shows the following commands and their outputs: 1. Command: `(base) C:\Users\cchan>conda activate myproject`, Output: `(myproject) C:\Users\cchan>`. 2. Command: `(myproject) C:\Users\cchan>cd C:\Users\cchan\OneDrive\Desktop\chandana_EHR_TF_with_blockchain`, Output: `(myproject) C:\Users\cchan\OneDrive\Desktop\chandana_EHR_TF_with_blockchain>`. The terminal background is dark, and the text is light gray.

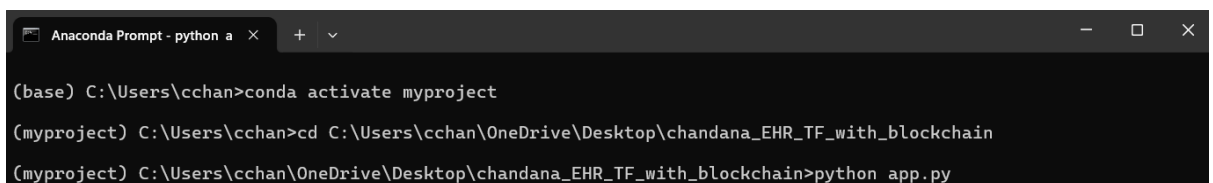
```
(base) C:\Users\cchan>conda activate myproject
(myproject) C:\Users\cchan>cd C:\Users\cchan\OneDrive\Desktop\chandana_EHR_TF_with_blockchain
(myproject) C:\Users\cchan\OneDrive\Desktop\chandana_EHR_TF_with_blockchain>
```

**Figure 3 opening the folder**

6. There are some pre-requisites that has to be installed in the anaconda these package is the requirement to run the code. The code folder consist of requirement.txt file which has the list of pre required packages. Following code has to be executed in anaconda to install the requirements.

**pip install -r requirements.txt**

7. The folder containing the main file has to be executed in terms of executing the model. The following code has to be run in the anaconda prompt.

A screenshot of the Anaconda Prompt terminal window. The window title is 'Anaconda Prompt - python a'. The terminal shows the following commands and their outputs: 1. Command: `(base) C:\Users\cchan>conda activate myproject`, Output: `(myproject) C:\Users\cchan>`. 2. Command: `(myproject) C:\Users\cchan>cd C:\Users\cchan\OneDrive\Desktop\chandana_EHR_TF_with_blockchain`, Output: `(myproject) C:\Users\cchan\OneDrive\Desktop\chandana_EHR_TF_with_blockchain>`. 3. Command: `(myproject) C:\Users\cchan\OneDrive\Desktop\chandana_EHR_TF_with_blockchain>python app.py`, Output: `python app.py`. The terminal background is dark, and the text is light gray.

```
(base) C:\Users\cchan>conda activate myproject
(myproject) C:\Users\cchan>cd C:\Users\cchan\OneDrive\Desktop\chandana_EHR_TF_with_blockchain
(myproject) C:\Users\cchan\OneDrive\Desktop\chandana_EHR_TF_with_blockchain>python app.py
python app.py
```

**Figure 4 Executing the main file.**

8. Once app.py code is executed in the prompt will run and gives the domain of the website.

```
Anaconda Prompt - python a x + v

(base) C:\Users\cchan>conda activate myproject

(myproject) C:\Users\cchan>cd C:\Users\cchan\OneDrive\Desktop\chandana_EHR_TF_with_blockchain

(myproject) C:\Users\cchan\OneDrive\Desktop\chandana_EHR_TF_with_blockchain>python app.py
[nltk_data] Downloading package punkt to
[nltk_data] C:\Users\cchan\AppData\Roaming\nltk_data...
[nltk_data] Package punkt is already up-to-date!
[nltk_data] Downloading package stopwords to
[nltk_data] C:\Users\cchan\AppData\Roaming\nltk_data...
[nltk_data] Package stopwords is already up-to-date!
* Serving Flask app 'app'
* Debug mode: on
WARNING: This is a development server. Do not use it in a production deployment. Use a production WSGI server i
nstead.
* Running on http://127.0.0.1:5002
Press CTRL+C to quit
* Restarting with stat
[nltk_data] Downloading package punkt to
[nltk_data] C:\Users\cchan\AppData\Roaming\nltk_data...
[nltk_data] Package punkt is already up-to-date!
[nltk_data] Downloading package stopwords to
[nltk_data] C:\Users\cchan\AppData\Roaming\nltk_data...
[nltk_data] Package stopwords is already up-to-date!
* Debugger is active!
* Debugger PIN: 113-656-962
```

Figure 5 website domain

## 4. Website Interface

The first page is the admin page that can be accessed by the credential given in the code folder.

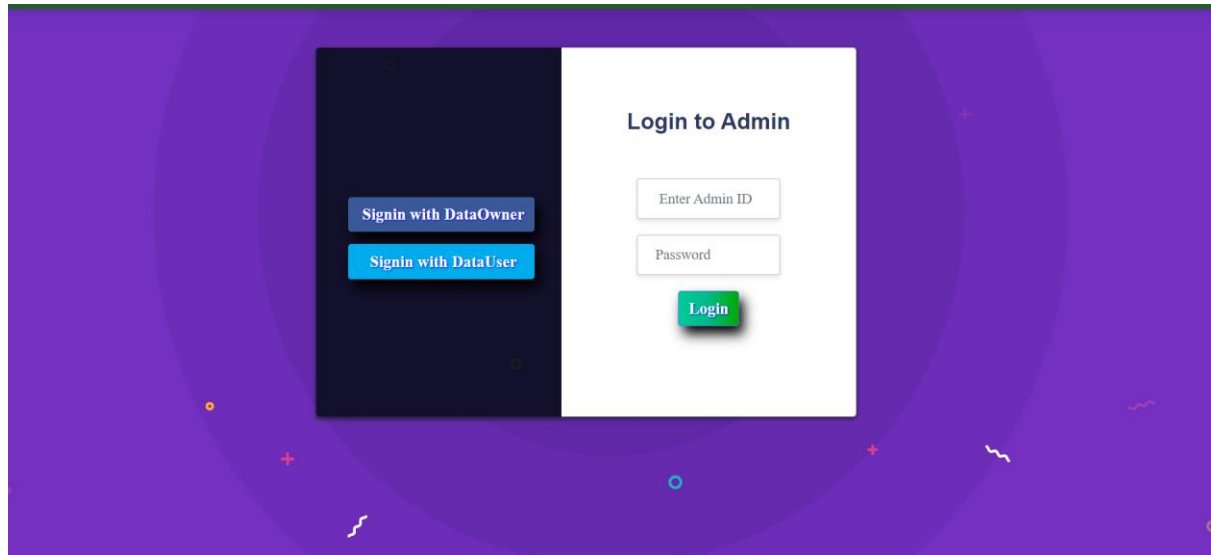


Figure 6 Admin page

The admin page have the whole system controll it can create the dataOwner, can view the files and view the list of the DataUsers. The admin is the one who decides which dataOwner is going to encrypt the data with RSA or ECC algorithm.

**Blockchain Enhanced Personal Health Record Sharing**

Home Data Owners All Files All Users Change Password Logout Admin

### CREATE DATA OWNER

Data Owner Code: Enter user id

Data Owner Name: Enter unique user name

Data Owner Email Id: Ex: user@gmail.com

Create password: Password should be more than 4 characters

Choose Algorithm: Select here....

Submit

**Figure 7 DataOwner creation page**

## DATAOWNER

Dataowner are the once who have the privilege of storing the data in the cloud and they can create the datausers, dataowners can create the attributes and also give access to the files according to the attributes.

**Blockchain Enhanced Personal Health Record Sharing**

Home Data Users Files Change Domains Change Password Profile Logout chandana

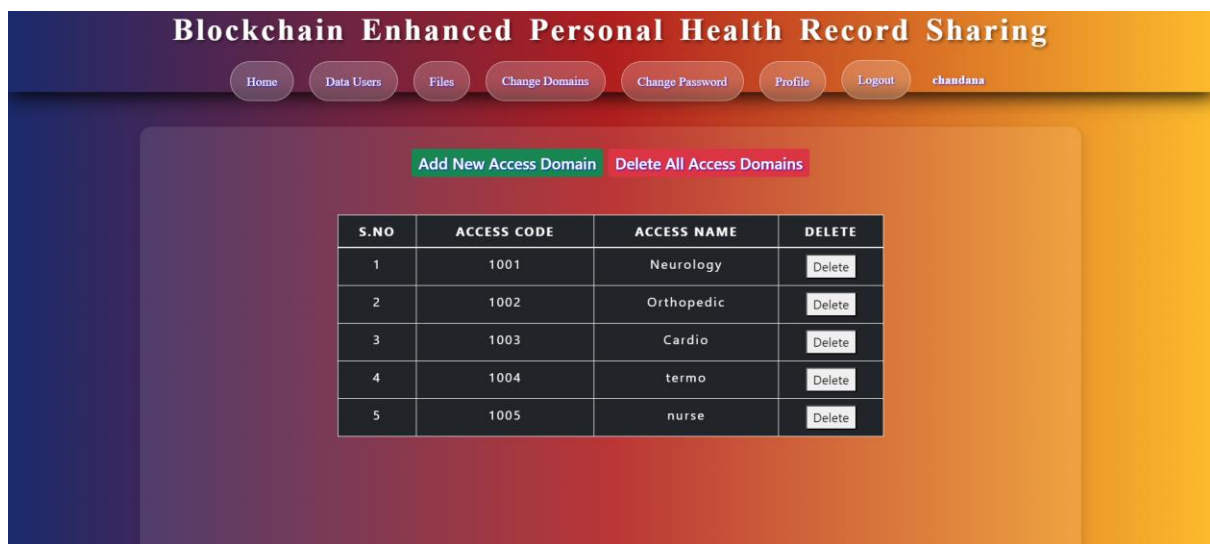
Add User

USER ID	USER NAME	EMAIL ID	ATTRIBUTE	D.O.NAME	EDIT	DELETE
1	John	cc03101997@gmail.com	Neurology	chandana	Edit	Delete
2	Ridika	ridikaka0397@gmail.com	Orthopedic	chandana	Edit	Delete

**Figure 8 Creation of data user.**



**Figure 9 uploading of the file.**



**Figure 10 add and remove a domain**



**Blockchain Enhanced Personal Health Record Sharing**

Home Data Users Files Change Domains Change Password Profile Logout chandana

**FILE ACCESS CONTROL**

File Number: 1 File Name: file\_1.txt Access Given: Cardio

Give Access :

- Neurology
- Orthopedic
- Cardio
- termo
- nurse

Submit

**Figure 11 giving access to the file according to the domain**

## DATAUSER

The datauser can access the file that they have privilege to view. They can download the file while downloading the file get decrypted and made available to the user. There is one additional security in this where the user can verify the file to check the integrity of the file.

**Blockchain Enhanced Personal Health Record Sharing**

Home Files Verify Files Profile Change Password Logout John

**Files List**

F.NO	DATE	D.O.NAME	FILE NAME	REMARKS	SIZE	DOWNLOAD
2	2024-08-07	chandana	file_2.txt	f2	0.85KB	Download
3	2024-08-09	chandana	file_3.txt	f3	0.60KB	Download

**Figure 12 The datauser can download the file**



**Figure 13 the datauser can verify the file.**