Milestone 2

**Ethical and legal/privacy/terms and conditions (5000 char)**

Terms and Condition

By using our Services, one agrees to not:

* violate the Terms and Conditions;
* impersonate any other person, falsely claim or misrepresent someone else, or access someone else’s accounts without their permission.
* use our services in such a way that could disable, overburden or damage it.
* threatens the security or sovereignty of the nation.
* use or act on through the Website, directly or indirectly, to commit any crimes;
* use our website to disturb service provider, internet users or interfere their hardware. For example, spreading worms or viruses or performing cyberattacks in order to gain unwarranted access to someone’s computer, sending fishing mails or sharing defamatory material.
* Sometimes, we may include links to other sites. These are provided for your benefit to provide further information. They do not imply that we endorse the website. We take no responsibility for the content of the linked website.
* Change or alter our website or any of its constituents parts.
* Contravent any law or legal code, for example patents, copyright, trademarks or intellectual property applicable in that region or area

Disclaimers and privacy policy

Sometimes our service may be under maintenance upgrades, and some functions and features may not be available for service or fully operational.

Unfortunately, the sharing of data over internet is not totally safe and secure. Even though we ensure you to protect your sensitive personal data, but we cannot promise the safety or security of your personal data on our site. If we have received your data, we will use strict procedures, conduct stern measures and security checks to prevent unauthorized access.

Sometimes, there may be inaccuracies in the content provided on the platform or delay, errors in our service, because of which, we do not claim that the information published is right in every case.

Information you give us is the information we get when you fill in forms on our site or by giving us by name, e-mail or otherwise. It includes information you provide when you sign up for our site. The information you give us may include your name e-mail address, Aadhar ID and phone number, financial information, Identity and images.

The data which we collect will be transferred and stored at a data center facility. By submitting your sensitive data, you agree to this transfer, storing or processing. We ensure you that we will take all steps necessary for your data to be treated securely and safely. All personal data will be encrypted using appropriate technology.

You are responsible for your password’s confidentiality. You should not share your password with anyone.

Security is important in the development of health information system containing sensitive personal data, and therefore a lot has been invested in system security solutions. The health information system has the highest level of security system, which minimizes the possibility of its attack. To make the system more secure, security is decentralized, which ensures that one or more attacks do not cause real damage to the health information system. The health information system does not have any so-called super-administrator who have all the passwords so that they can view patients' health data without restrictions.

You can control who has viewed your health data, because there is a trace of every view. If you suspect that unauthorized persons have viewed the data unreasonably, you can file a complaint with the Data Protection Inspectorate.

ethical

You can do a lot yourself to ensure the security of your health information. In order to prevent the data on the patient portal from being made available to third parties, it is necessary to follow and be aware of the following principles:

1. The patient portal can only be logged in with secure public authentication tools. I

2. It is your responsibility to maintain the security settings of the computer through which you access the Patient Portal. This prevents the spread of malware, which can, among other things, steal health data from the patient portal. Typically, maintaining security settings means three things - a working and automatically updating antivirus program, automatic activation of security updates, and a working firewall through which your computer communicates with the Internet. If you are unable to configure these components, we recommend that you have it done by a computer specialist you trust.

3. The password code should not be passed on to anyone or written down - it is wise to remember them. On the other hand, we recommend that you to write the password pin which allows you to conveniently update forgotten PIN codes.

4. The password/pin should not be entered in (public) places where someone can look up.

5. The digital ID and/ or the password should not be used on foreign computers whose security settings you are not sure about and whether the malware can steal your PIN codes without your knowledge.

6. If you want to save some data from the patient portal to yourself, we recommend that you do so either on a medium that only you can access, or in encrypted form. In general, we do not recommend saving the data visible through the Patient Portal elsewhere, as you can view it again on the Patient Portal at a time convenient to you - it will remain there forever.

7. When leaving the computer, do not leave the patient portal open, but be sure to close both the portal and the entire browser session through which you visited the patient portal. This is to deny that no one will be able to access the data viewed from the patient portal after leaving the computer.

8. When leaving the computer, be sure to log out from the portal.

9. If the computer through which you visit the patient portal is used by someone other than you, we recommend that you create a limited user account for each user and log out of your account when transferring the computer to another person.

10. If you are using a Mobile ID, enter the Mobile ID verification code from your mobile phone only if you initiated a Mobile ID session on your computer and the four-digit verification code displayed on the computer screen matches the code displayed on your mobile phone. If you haven't initiated a mobile ID session on your computer, but your phone asks for a verification code, it's probably a hacker's attempt to use your mobile ID for malicious purposes.

11. In addition to your health data, you will also see a log of the use of your data on the patient portal, i.e. data on who has viewed your health data and when. If, in your opinion, the health data has been viewed unauthorized, i.e. there has been no medical relationship between you and the data viewer, we recommend that you file a complaint with the Data Protection Inspectorate or the Health Board.

**feasibility study/ Business Context of the idea/ Monetization/ Opportunity Analysis(1000)**

For the future, once we’ve established a good user base we can convert meDapp to be as an subscription based model. Users will pay a small amount of money upfront and then he/she would be able to avail our services hassle-free and annoying advertisement-free.

In our initial days we can give out free trials our heavy discounts to encourage people to join medapp.

Our primary reason for the subscription based model is that we want to give user premium experience. Keeping track of your medical records is something very crucial and users will expect the user-interface to be as minimalistic as possible.

Advertisement based model makes the task of keeping your user-interface clean , tidy and clutter-free very difficult.

We can also partner up with government hospitals or institutions( district, state, centre), private hospitals, clinics, dispensaries, doctors, medical practitioners and diagnostic labs/centre to promote our service and to influence their patients to use meDapp. They can make meDapp as their primary file sharing system between themselves and patients.

**One Impressive Post on LinkedIn about your Project (300)**

Really excited to share the progress of the project I am currently doing as part of Design Thinking and Innovation course for this semester, with my team members Sheershak Gaur and Aniket Kumar Jha.

meDapp is a decentralized electronic health records management web application. It is an ipfs based solution for managing your medical records and data- all in a secure network. This network can store the medical record for every patient which can be accessible by multiple people including hospitals, patients, doctors and others. This provides a safe mechanism to record and maintain medical records for everyone.

**Week wise progress**

Shown below is the week wise progress of the building of meDapp, initially thought as a blockchain based solution of saving medical records, to now, a user focused IPFS powered website.

Week 1:

A team of Sanidhya Raghuvanshi, Aniket Kumar Jha and Sheershak Gaur was assembled at the start of the semester 3. We discussed about the several topics we could make our project; the idea had to be unique. We had shortlisted our options to a) Smart City application for interconnected facilities and b) MeDapp – a blockchain based solution of documenting medical records.

Week 2:

We viewed the drawbacks of working with the smart city app, as it required knowledge of Artificial Intelligence and Machine learning. We then finalised MeDapp because it was a more creative and unique idea, and it was necessary to create a decentralised platform for saving medical records at the users’ tips.

Week 3:

We would then come across learning a new world of blockchains. We started exploring Ethereum blockchain technology and what were the main areas of uses of blockchains. By that time, we started exploring the platform options of the front-end part of MeDapp.

Week 4:

We worked on Milestone 1; this was the first time we had to display whatever we had learned so far in the form of a document. In doing so, we had discussed with a few people about the project and we got more than positive responses. By this time, we encountered a few minor issues of our project as we exchanged knowledge which had to be sorted.

Week 5:

We had to pace up with the project, so we finished with all the learning of blockchains. Meanwhile we attended a workshop by Tom Dwyer, a renowned blockchain expert, on how to build a Dapp. We had also started making progress with the UI of the website, beginning with the login and sign up pages.

Week 6:

We encountered a major setback in our project as discussed with the teachers, about the high cost requirement of sending medical information to a blockchain network. The problem was that for storing only 1 MB of data on Ethereum blockchain, it cost around $16000 according to recent prices. We could tackle this problem by sending only text data to blockchain, but then for high sized image files and their encryption, we would still have this problem.

Week 7:

Due to this problem, we had to shift our platform from Ethereum blockchain to IPFS, the inter planetary file system similar to blockchain in terms of decentralised data network. The change of the entire project from blockchain to IPFS was so sudden and late, so everyone started learning about IPFS and its uses, connecting IPFS using JavaScript. By this time, we also started the Milestone 2 as it carried 25 marks and was a major part of our project.

Week 8:

We have completed most of the website UI, installed IPFS to our systems and started working with connecting IPFS with the website using JS. We have also finished milestone 2, which is a great review of our monthly work done. We used Mockflow and Lucidcharts as discussed by Dr. Anurag Goswami in the design thinking seminars for the diagrams in milestone 2.

**WEEK WISE PLAN**

Since we are lagging behind in the project, we are planning to work a few things even during the mid-term exams.

Week 9:

Proceeding with the same pace, we plan to learn JavaScript in this week because we will need it to make required files for connecting IPFS with our website. Also, we plan to learn about concepts of encryption and cryptography (symmetric and asymmetric), (public and private keys)

in order to make our website, and user’s data more secure.

Week 10:

We will dedicate this week to complete our project which means completing all the webpages using html and CSS files, creating JavaScript files for backend, adding information and content on our website like about us, how to sign up, how to use, FAQ’s etc.

Week 11:

For our second last week, we plan to debug our code, make our website smoother and faster and extensively test it. This will help us in achieving a better user satisfaction level and engagement.

Week 12:

In the final week, we are hopeful that our main code will be finished and revised. After which we plan to complete our documentation, presentation and video. We chose to do these in our last week because if we are not complete with our code and start documentation, it may lead to discrepancy in our documentation with respect to our main code.

**Is your idea/Project/Product is applicable for patent? If Yes then, Why do you think it can be submitted for patent? How do you plan to proceed for Patent? (Even if your answer is no, explain why do you think it cannot be submitted for patent? (Minimum 300 characters maximum 1000, this question carry 1 Mark)  \***

In terms of innovation, meDapp is a new, cutting edge technology and IPFS also being a currently new technology, we are hopeful that our idea might be applicable for patent. But because of some technicalities in patenting whole website,

we may not be able to fully patent it. We will look for atleast patenting our idea but we can also copyright our design, code and user interface.

**User Interface Design \* (500 characters)**

The user interface is designed to be simple and easy to use while trying to be as effective as possible for the user to complete their needs. All the options and buttons are well highlighted so that the user doesn't miss any of them. Information and other user interface elements are separated from each other to increase the readability. There is a navigation bar at the top for the user to browse between different options. If clicked on an option, it redirects the user to that particular page. The login and sign up page are combined together and is centred. This means that the user can quickly switch between both the options as per the requirement without any hassle.

**Project cost estimation \* (500c)**

Our completed/final project is not too expensive to maintain. We tackled a major cost related obstacle while using Ethereum, so we had to shift to IPFS. We're now using IPFS (Inter Planetary File System) which is a decentralized storage network to store the entire medical data because of one reason - Free of cost. Only SQL database needs to be hosted, which can cost anywhere from ₹200 ($2.5) to ₹1000 per month depending on the storage needs. It is around 10 mb per user. Domain registration can cost us around ₹100 per month. Website design and maintenance may cost us in the long run. Any additional plugins or tools maybe implemented later on to make the website more effective and user-friendly. Overall cost may come around ₹500 to completely finish it and maintain it.

**Two people outside of Bennett:**

Sehej Bansal ([sehejbansal@gmail.com](mailto:sehejbansal@gmail.com), +919891787856): We discussed our project with NIT Kurukshetra graduate currently working at LANDIS GYR, who appreciated our idea of the project. He rated our project as a 9, and also gave us an input of using public key when asking for data with encryption as he is familiar with Ethereum blockchain.

Kunwar Bindra [(kbindra21@gmail.com](mailto:(kbindra21@gmail.com), +91880776339): The senior cardiologist at Bhardwaj Hospital Noida, he is an experienced doctor with whom we reviewed meDapp. he told us that half of the government hospitals don’t even save their essential records on cloud, so the website would be initially a bit challenging to partner with them. He admired how IPFS is a safe decentralized way of saving such data. He rated our project 8 because of the progress we have made till now, which tells us we have to speed up with the project.

**Data Flow Diagram:**

We have created the data flow diagram on Lucidchart as suggested by Dr. Anurag Goswami. We have two faces to the project- the admin side that is the hospital, and the user. The working is explained as follows:

USER:

* User signup/registration, credentials including Aadhaar card and phone number get stored to SQL database
* User login, verification from SQL,
* Enters main processing webpage, functions to a) generate user file data, register user to IPFS, view current profile and b) retrieve data uploaded to IPFS by admin(hospital) c) permit secondary user to decrypt a file by generating secret key
* Termination/ logout, return to homepage

ADMIN:

* Admin signup/login, saved to SQL
* Processing webpage method is to encrypt and upload medical records to IPFS
* Termination/ logout, returns to homepage

**Discuss your Project with at least three students of your senior batches of Bennett University and ask them how they rate your project from 1 to 10 scale. Write all three name, Roll No, email and Mobile No of those students. They should be ready to confirm if they are called on their mobile number \***

**(At least 200 Character feedback from each of them)**

Manthan Gupta ([MG3546@bennett.edu.in)(+91](mailto:MG3546@bennett.edu.in)(+91) 9540541694): He really liked the idea of our project and thought it was unique. He said that our implementation can be improved a lot to make it more appealing and presentable. Overall, he rated our project 8 out of 10.

Pranav Bansal ([PB9944@bennett.edu.in)(+91](mailto:PB9944@bennett.edu.in)(+91) 7838941500): He gave us the reference to a live seminar that taught about how to create a Dapp. He liked our approach to use the IPFS more than Blockchain, and rated the project 7 out of 10.

Uday Agarwal ([UA7357@bennett.edu.in)(+91](mailto:UA7357@bennett.edu.in)(+91) 8368923909): Like everyone else whom we have discussed the project with, he also appreciated the idea of the project. He rated our project 8, and said that if we do this well, we should get a patent for the website.

For blockchain to be successful, it is necessary to gauge public reaction to this upcoming technology. Initially we talked to few people but they were not aware of the uses of blockchain fields except bitcoin and other cryptocurrencies. One of the seniors of Shiv Nadar University (Shrey Saxena : [shreysaxena@gmail.com](mailto:shreysaxena@gmail.com)) provided us with web resources to help us learn more about this technology.(Prashant Kumar: [prashantkumar5541@gmail.com](mailto:prashantkumar5541@gmail.com)) was very excited to hear what we’ll be doing and said it’s going to make hospital visits very convenient.(Sumit Goswami: [sumit.goswami999@gmail.com](mailto:sumit.goswami999@gmail.com)) told us to focus more for the integration with the government institutions like connecting it with Aadhar ID to impact more people.