**IST 659 FALL 2021**

**Project Proposal: Stem Cells System**

1. **Business Description**

Life-saving cells stored under extreme conditions will also require a database to ensure that the right stem cell is used for the right person. The main idea of the project is to create a database for stem cells administration to manage its records of the labs, cells, blood, and blood banks situated in various regions, allowing the researchers and doctors across various regions to track and export/import the cells to save lives. This system will be helpful in the following ways:

* It will be feasible or the health assistants to reach out to labs and request desired cells.
* It will keep track of types of cells discovered and available.
* The Database that is to be created will contain records of the blood donors, donated blood stock and its availability.
* It will ensure Data security.
* It will have history of donations or combinations of cells and blood infused.

We have assumed the following:

* All the blood, cells/plasma are always readily available and fully stocked.

1. **Problem Statement**

Stem cells are most researched elements of medical history. These cells help in saving lives via restoration and regeneration. Currently all the cells’ data exists in the form of report. Searching, managing these reports is difficult as the paper records must be stored carefully and to search for one cell the researchers must go through all records. Furthermore, during the case of accidents, where blood loss occurs, the need for blood is anticipated.

As they are on-paper records, they are prone to wear and tear and eventually loss of valuable data. Furthermore, due to many records, space issues arise.

This archaic system also makes it difficult for the hospitals find availability in nearby labs. Also, they must be aware of which lab has the desired cells. This results in a need for an effective and efficient Management system that can solve all the issues mentioned above.

1. **Proposed Solution**

With the use of this Stem Cell System, we can ensure improved experience between all the users of this system as they can interact online and exchange information.

This system will help solve all the issues faced by the administration as it will make the data records easier to store, maintain and access. It will also solve the problem of the wastage of space caused in the case of having physical records. The hospitals will also be able to find labs nearby and the type and availability of cells.

It will help the labs to track the records of the researchers as well as the lab inventory. They will be able to keep track of all the cells and blood being collected, transported, and perform suitable analysis.

The requesters and senders can query the system and find data according to their region, city, and the department. They can also check the availability of blood donation centers, blood type which is being highly demanded in case of accidents.

1. **Users**

The primary end consumers of this product are the hospitals who’ll be using it for easier access to the labs and blood banks, their cells information, blood readily available in hospital. Labs and blood camps come at the other end, who use it to update the cell and blood data, based on their research, storage, and availability. The administrative team can use this database management system to investigate the transactional records between hospitals and labs to ensure no dues are remaining.

1. **Potential Entities and Attributes**

**LABS**

* Lab ID
* Lab Name
* Lab Location
* Lab Capacity
* Number of Researchers
* Phone Number
* Lab Type

**CELLS**

* Cell ID
* Cell Name
* Cell Type
* Cell Source
* Cell Purpose

**Donations**

* Donor ID
* Donor Name
* Region
* City
* Zip
* Donation Type

**Cell Donation**

* Cell\_don ID
* Cell\_don Type

**Blood Donation**

* Donor\_blood ID
* Donor\_blood Name
* Donor\_blood Quantity
* Donor\_blood Type
* Donor\_blood Address
* Donor\_blood Zip
* Donor\_blood City

**Blood Bank**

* Blood\_Lab ID
* Blood\_Lab Name
* Blood\_Lab Location
* Blood\_Lab Capacity
* Number of Assistants
* Phone Number