Analytics for Hospitals' Health-Care Data

1. INTRODUCTION:

1.1 OVERVIEW:

Today's healthcare industries are moving from volume-based business into value-based business, which requires an overwork from doctors and nurses to be more productive and efficient. This will improve healthcare practice, changing individual life style and driving them into longer life, prevent diseases, illnesses and infections. Over the last few years, healthcare data has become more complex for the reason that large amount of data are being available lately, along with the rapid change of technologies and mobile applications and new diseases have discovered. Therefore, healthcare sectors have believed that healthcare data analytics tools are really important subject in order to manage a large amount of complex data, which can lead to improve healthcare industries and help medical practice to reach a high level of efficiency and work flow accuracy.

1.2 PURPOSE:

The goal is to accurately predict the Length of Stay for each patient on case by case basis so that the Hospitals can use this information for optimal resource allocation and better functioning. The length of stay is divided into 11 different classes ranging from 0-10 days to more than 100 days.

2. LITERATURE SURVEY:

2.1 EXISITING PROBLEM:

Healthcare data has become more complex for the reason that large amount of data are being available lately, along with the rapid change of technologies and mobile applications and new diseases have discovered. Therefore, healthcare sectors have believed that healthcare data analytics tools are really important subject in order to manage a large amount of complex data, which can lead to improve healthcare industries and help medical practice to reach a high level of efficiency and work flow accuracy, if these data analytics tools applied correctly.

2.2 PROPOSED SOLUTION:

In recent days, data plays a major role everywhere. But in healthcare section, lots of data were remained unnoticed. With the help of unnoticed or unused data, we can predict or determine valuable information that can be used for future purposes.This model helps to understand the length of Stay of each patient So that it could be very easy for the hospital to arrange the stay for the upcoming patients.

2.3 DESCRIPTION:

Constructed a fine-grained transmission dynamics model to forecast the crucial information of public concern,therein using dynamical coefficients to quantify the impact of the implement schedule and intensity of the containment policies on the spread of epidemic. Data Mining is described as a process by which data is gathered, analysed and stored in order to produce useful and high quality information and knowledge. This term also includes the way of how this data is gathered, filtering and preparation of the data for use and finally the processing of data to support data analytics and predictive modelling. One of the most important elements in dealing with and managing data is to know where and how this data will be stored once when it is collected. The traditional methods of storing and retrieving such data are not efficient anymore, since it was structured and stored in data warehouses and relational databases, after extracting and loading it from different outside sources. However, this data is transformed and classified before being ready to use and function . The healthcare sector is widely considered as one of the most important industries in information technology. More and more, information technology has been considered as a practice that facilitates healthcare performance through using data and information efficiently within the healthcare sectors. One of the most important elements in dealing with and managing data is to know where and how this data will be stored once when it is collected, and it could be solved with cloud.

3. THEORETICAL ANALYSIS:

3.1 FLOWCHART:
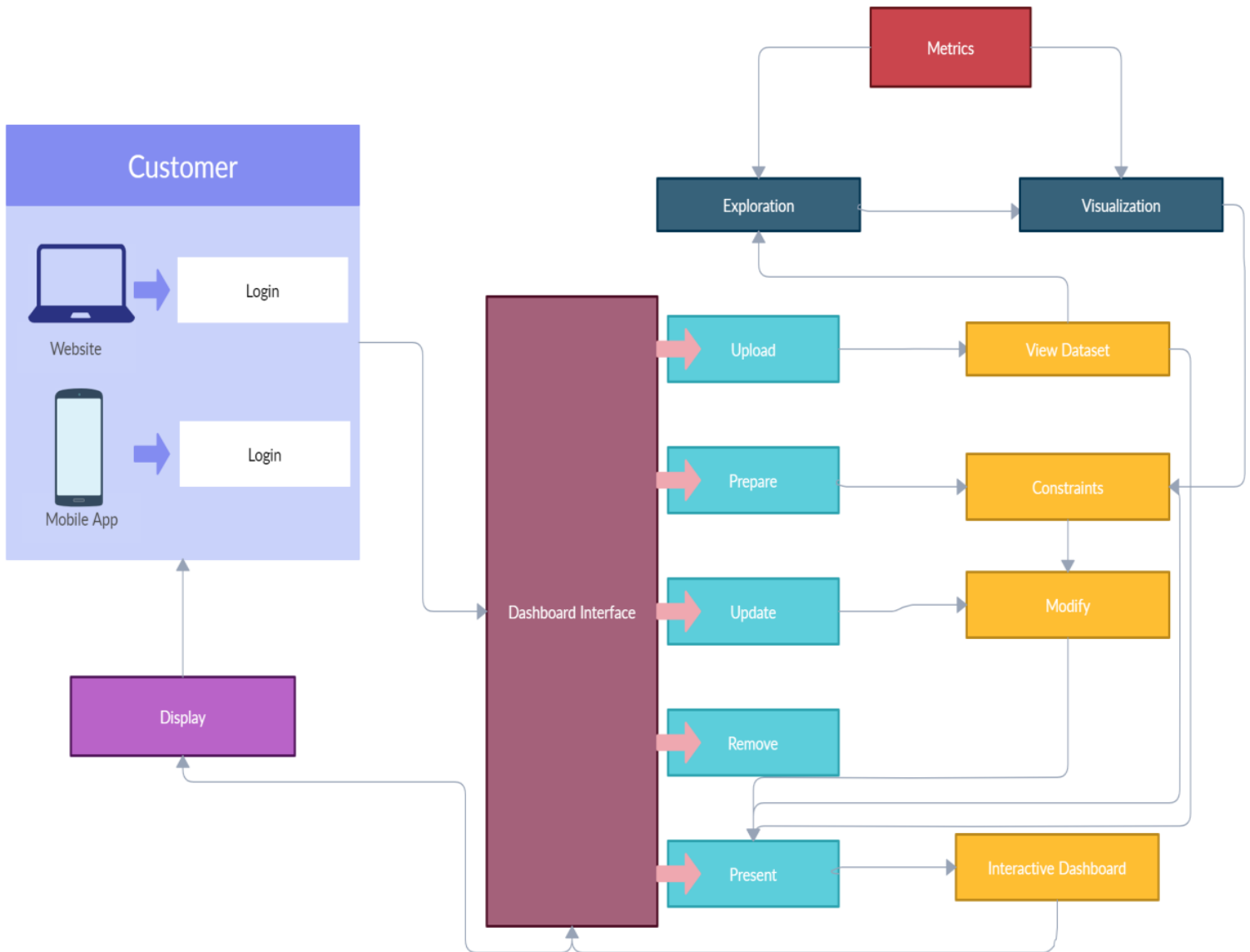
3.2 HARDWARE / SOFTWARE REQUIREMENTS:

1. Google Collab
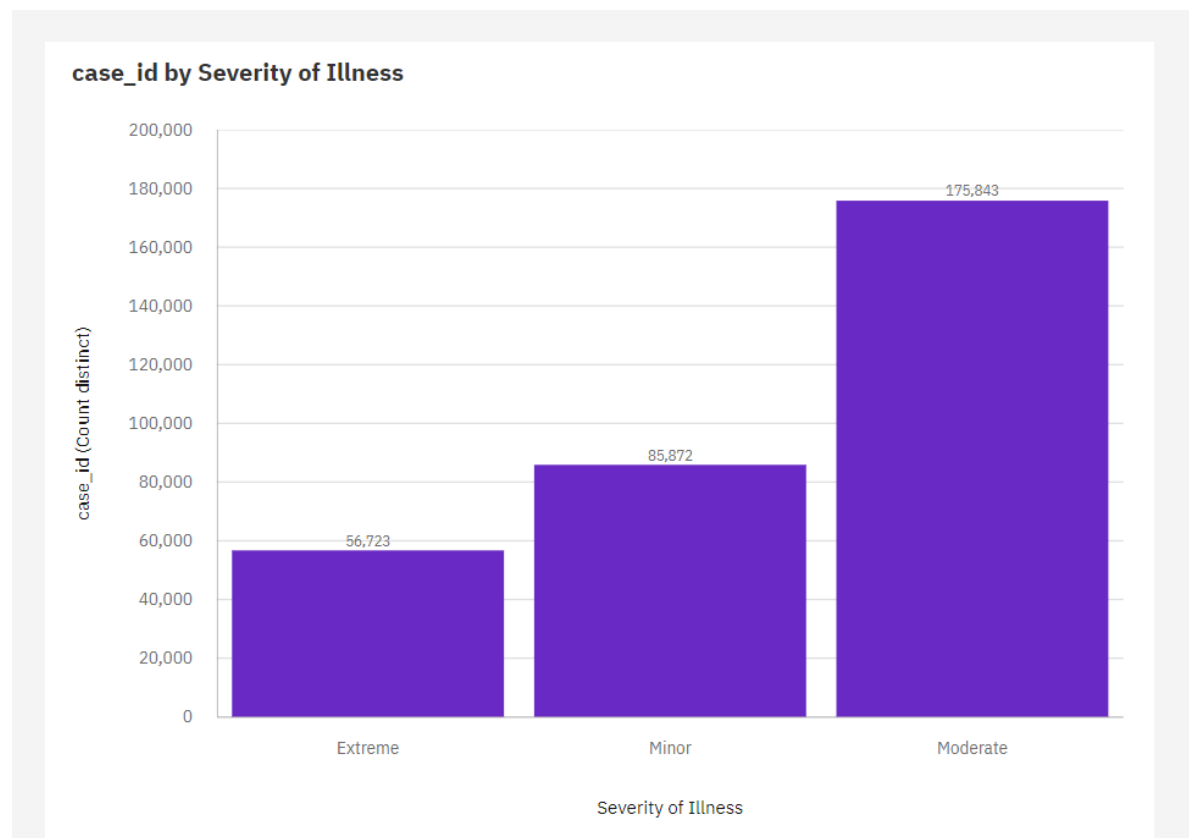
2. IBM Cognos

4. EXPERIMENTAL INVESTIGATIONS:

Predictive analytics supports healthcare sectors to achieve a high level of effective overall care and preventive care, as predictive systems' results allow
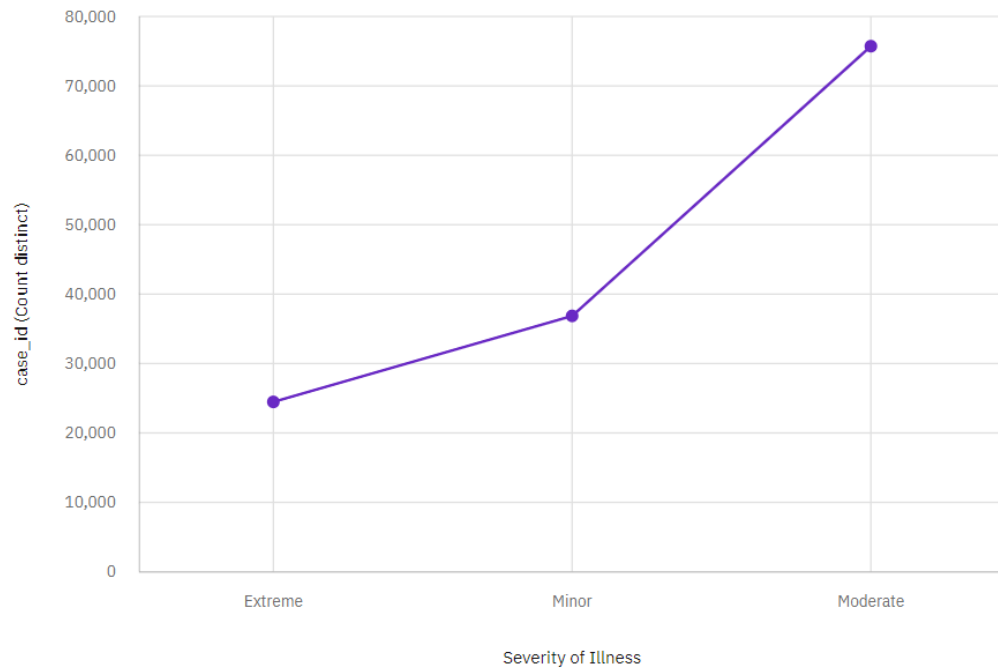
treatments and actions to be taken when all the risks are recognized in early stages, which aids for minimizing costs.
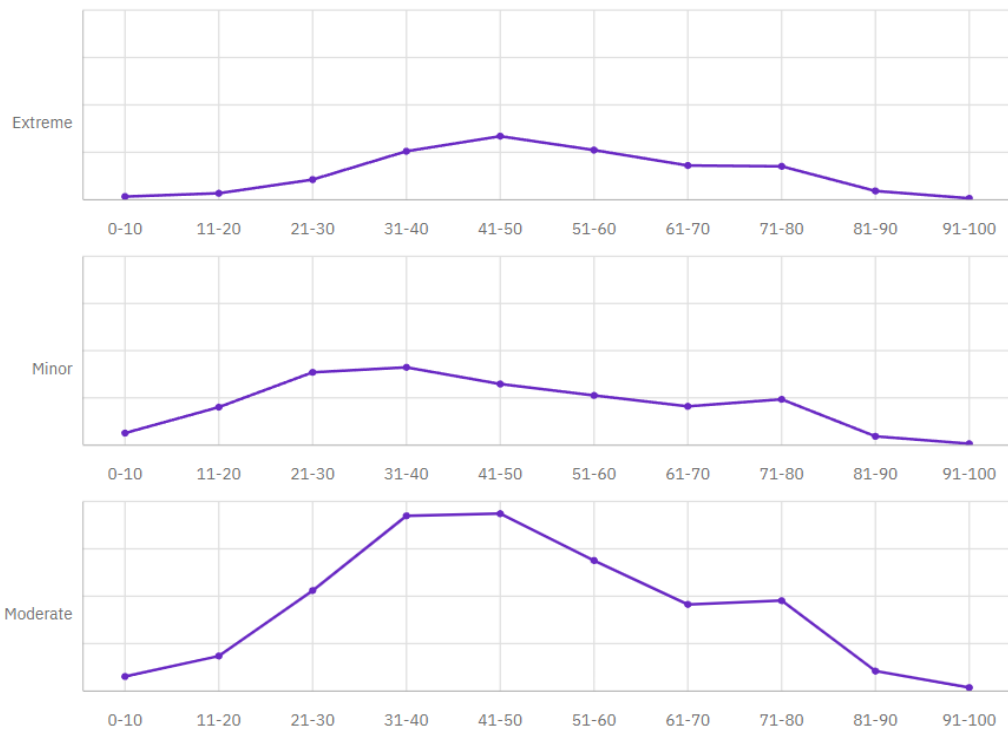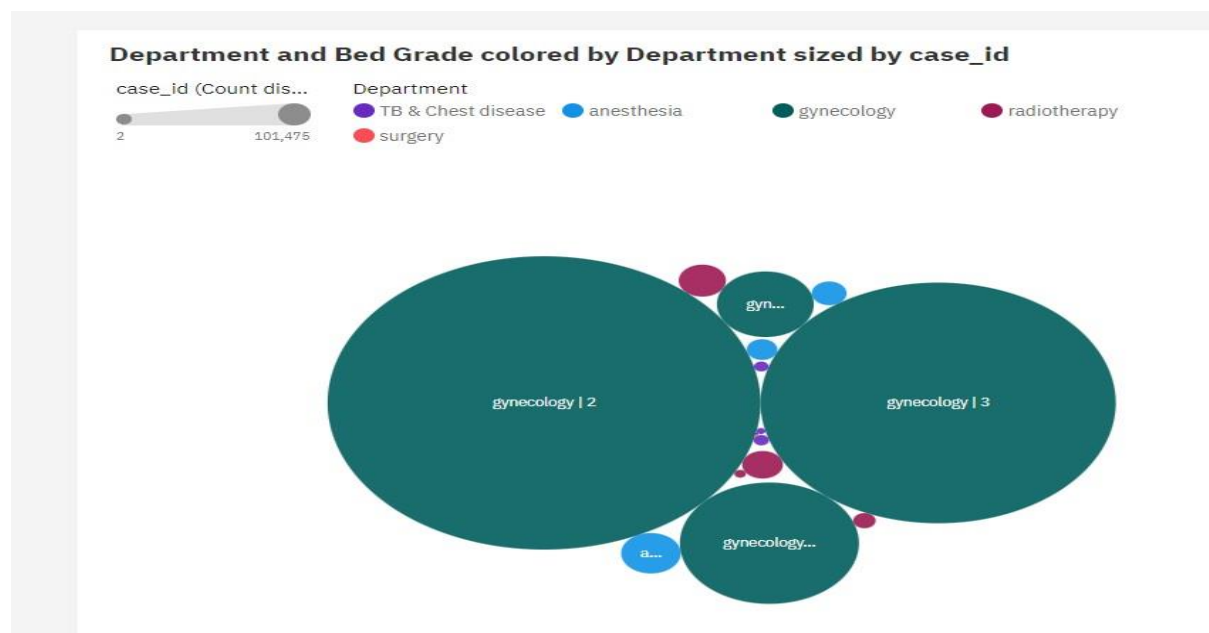
5.RESULT:

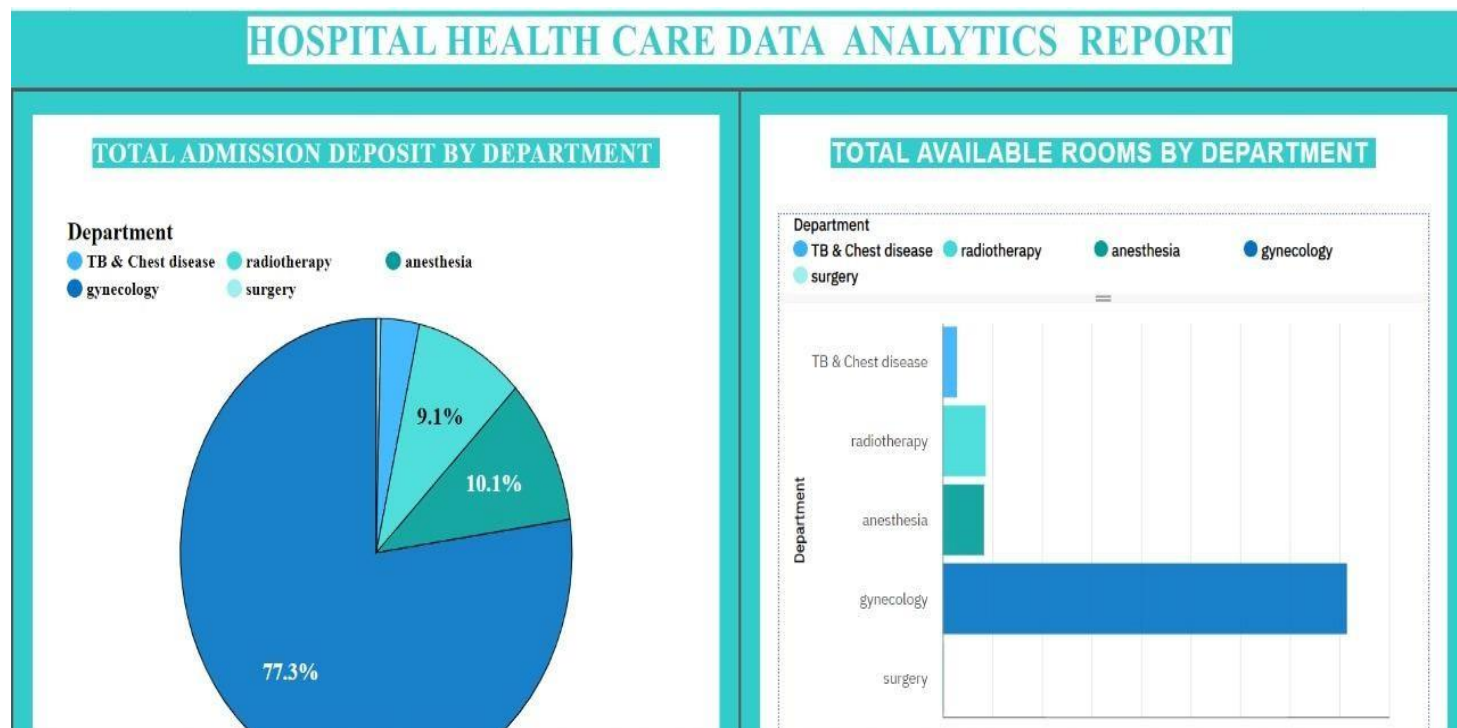## 5.1 Data Visualization:

case_id by Severity of Illness

case_id by Severity of Illness

case_id by Age

Department and Bed Grade colored by Department sized by case_id
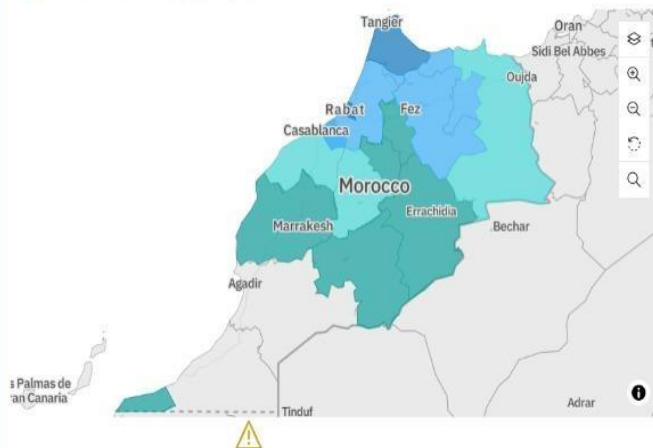

5.2DASHBOARD:
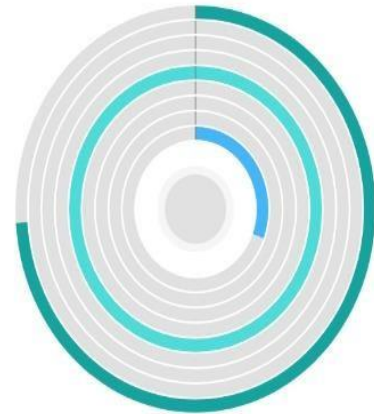
CITY CODE HOSPITAL BY DEPARTMENT

Department
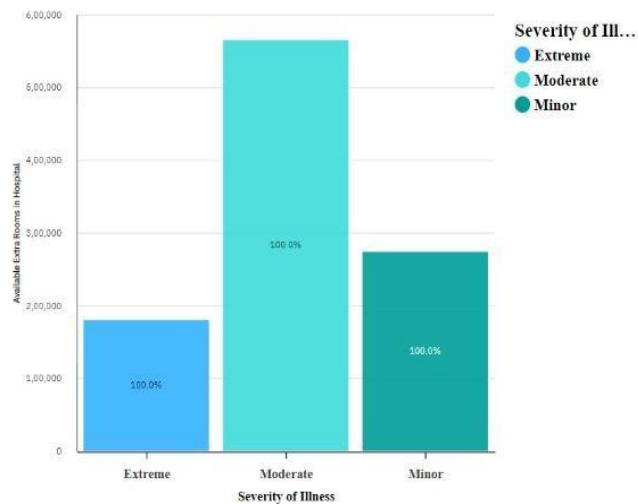- radiotherapy
- anesthesia
- gynecology
- TB & Chest disease
- surgery

TYPE OF ADMISSION BY ADMISSION DEPOSIT

Type of Admission
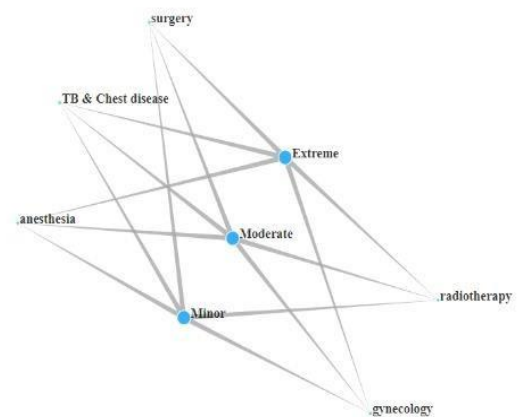- Urgent
- Trauma
- Emergency

AVAILABLE EXTRA ROOMS FOR ILLNESS

Severity of Ill...
- Extreme
- Moderate
- Minor

SEVERITY OF ILLNESS TO DEPARTMENT

From
- Severity of Illness

To
- Department

6.ADVANTAGES AND DISADVANTAGES:

Data analytics in Hospital attempts to reduce patient wait times via improved scheduling and staffing, give patients more options when scheduling appointments and receiving treatments and reduce readmission rates by using population health data to predict which patients are at greatest risk.

One of the major drawbacks in the application of big data in healthcare industry is the issue of lack of privacy. Application of big data technologies involves monitoring of patient's data, tracking of medical inventory and assets, organizing collected data, and visualization of data on the dashboard and the reports

7.CONCLUSION:

Big data analytics in healthcare is evolving into a promising field for providing insight from very large data sets and improving outcomes while reducing costs. Its potential is great; however there remain challenges to overcome.

THANK YOU

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