Analytics for Hospitals' Health-Care Data

Literature Survey

Team ID: PNT2022TMID52975

Title of the Paper			
Data Visualization and Predictive Analysis for Smart Healthcare: Tool for a Hospital			
Conference: IEEE			
Year:	2021	**Author:**	Amala Menon, Aishwarya M S, Anu Maria Joykutty, Asna Yusafali AV, Ashifa Yusafali AV
Inferences	• Data analysis and visualization tool for a hospital was implemented as a web application. • For the visualizations embedded in the application, the Python library Altair was used. • Visualizations became easier using navigation by menu bars in the application rather than writing complicated queries to the database • Help the hospital optimize time and resources effectively.		

Title of the Paper			
A Systematic Review on Health Care Analytics: Application and Theoretical Perspective of Data Mining			
Journal: MDPI - Healthcare (Basel)			
Year:	2018	**Author:**	Islam MS, Hasan MM, Wang X, Germack HD, Noor-E-Alam M
Inferences	• Human-generated data is predominant considering the wide adoption of Electronic Medical Record in clinical care. • A large volume of data is collected through Information system on a regular basis. • Analytics provides tools and techniques to extract information from this complex and voluminous data and translate it into information to assist decision-making in healthcare.		

Title of the Paper			
Large Scale Infrastructure for Health Data Analytics			
Conference: IEEE			
Year:	2016	**Author:**	Samantha Crossfield Owen Johnson Thomas Fleming
Inferences	• Integrated Reasearch Campus (IRC)- service built for secure and large-scale data analytics. • IRC used for large data capture, storage and analysis and secure links to data services. • IRC aids research on a large, cost-effective basis and this data is now used at scale by multiple research teams.		

Title of the Paper			
Predicting Length of Stay Patients in Hospitals			
Conference: IEEE			
Year:	2021	**Author:**	Zhiwei Fu, Xinran Gu et.al.
Inferences	• Due to coronavirus pneumonic cases, it is important to predict length of stay(LOS). • To increase efficiency of hospital services for improved healthcare. • Used four ANN models MLP, CNN, Multilayer perceptron with PCA and BilSTM. • Compared with Microsoft Hospital Length of stay data. • Accuracy Between 73% and 88% with CNN providing highest accuracy.		

References:

[1] A. Menon, A. M. S, A. Maria Joykutty, A. Y. Av and A. Y. Av, "Data Visualization and Predictive Analysis for Smart Healthcare: Tool for a Hospital," *2021 IEEE Region 10 Symposium (TENSYMP)*, 2021, pp. 1-8, doi: 10.1109/TENSYMP52854.2021.9550822.

[2] Islam MS, Hasan MM, Wang X, Germack HD, Noor-E-Alam M. A Systematic Review on Healthcare Analytics: Application and Theoretical Perspective of Data Mining. Healthcare (Basel). 2018 May 23;6(2):54. doi: 10.3390/healthcare6020054. PMID: 29882866; PMCID: PMC6023432.

[3] S. Crossfield, O. Johnson and T. Fleming, "Large Scale Infrastructure for Health Data Analytics," 2016 IEEE International Conference on Healthcare Informatics (ICHI), 2016, pp. 306-306, doi: 10.1109/ICHI.2016.48.

[4] Z. Fu, X. Gu, J. Fu, M. Moattari and F. Zulkernine, "Predicting the Length of Stay of Patients in Hospitals," 2021 IEEE International Conference on Bioinformatics and Biomedicine (BIBM), 2021, pp. 3150-3156, doi: 10.1109/BIBM52615.2021.9669527.