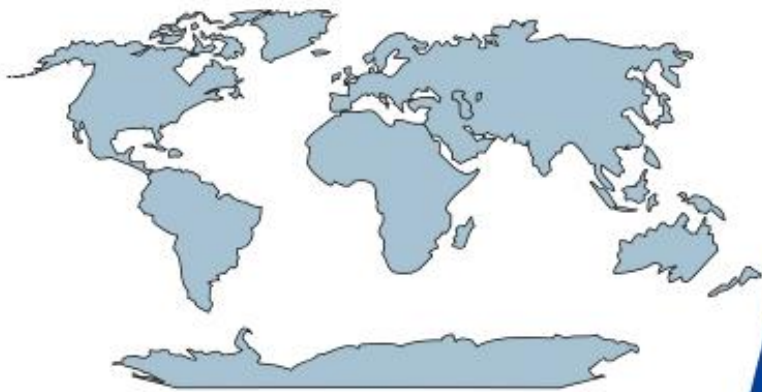


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**DATA SECURITY IN DATA SCIENCE**

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**ABSTRACT**

*This research paper is conceptual paper that touches the very important topic of data security in data science. Recent achievements in IT industry such as AI, IOT applications and cloud application requires huge data to operate at best. As data possess such importance so does its security. Data security has got greater importance in today's world where the data is extensively available and can be exploited if it gets in wrong hands. Data security and privacy are inevitable and vital. Data resides in different warehouses and cloud storages that could succumb to data breach and could result in compromise of confidentiality, integrity and Availability of data. Together they are called 3 pilers of data security.*

*Data that is generated from the widely used social media applications as well as very sensitive data such as government data, medical data need lot of security attention. This research paper discusses contemporary problems as well as preventive measures and data science techniques to secure privacy of data at some extent.*

*Keywords – data security, data science, anonymization, encryption, access control, authentication, authorization*

**INTRODUCTION**

Data is new oil. It is the most important asset after time. There is around 2.5 quintillion bytes of data is created every day. Data is then harnessed for the analytical purpose. World of Data science revolves around the data. Data requires storage to be stored in it. So data warehouses, cloud storages, etc. these are options available as a storage facility such as Facebook, Instagram, whatsapp, etc. applications are generating humongous amount of data and store it in warehouses and analyze the data get the insights out of it, make models and make predictions. All of these comes under data science. Now the question is how to get data to make models based on them. To attackers, these centralized storage systems attracts more as they contain lots and lots of data. Once this system is compromised data is vulnerable and open to the attackers to get. Data security is the concept that becomes very much inevitable. 3 main objectives of data security or information security are Confidentiality, Integrity and Availability. There are following attacks can compromise these objectives of information/data security: malwares, Denial of Service (DoS), Brute force attack, etc.

**REVIEW OF LITERATURE**

A review of the work done in the area of data security in data science. This paper is the result of curation of wide range of data that has been collected from various research paper, articles related with the topic gives the picture that the work has been done with the area of data security in data science. But none of the study is conducted regarding to the developing countries dealing with data security issues while doing data analysis. Which is why, this paper is an attempt in this direction to better conceive the data security issues breaches and how to take preventive measures.

Facebook sued over Cambridge Analytica data scandal (BBC news,28 Oct 2020)-In this scandal, Facebook data of over 87 million people was used for advertising during elections. This is just one example but there are numerous cyberattacks have been taken place that challenged privacy of users.

**METHODOLOGY**

Data is stored in databases, warehouses and also in cloud storages. So now there are two aspects in the Data security, first one is Infrastructure security in which security of the storage facilities such as warehouses, cloud storages are taken care of. Infrastructure security is done using authorization, authentication, access control techniques.

• **Authentication**

Authentication is useful to keep the wrong hands away from the databases. Authorized users must only access the database. Authentication, paired with authorization, is one of the recommended ways to improve data security and protect against data breaches. Authentication checks if a user's credentials match with those stored in the database. Today's standard authentication processes include using a combination of ways to identify an authorized user, such as passwords, OTP, security tokens, a swipe card, pins, biometrics, etc.