



# Data Integrity in Engineering, Physics, Mathematics and Statistics Research

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**Correspondence:** [editorialoffice@spparenet.org](mailto:editorialoffice@spparenet.org)

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**Background**

Taking a close look at the diversity of challenges facing man, it is logical to wonder why surpassing the equilibrium of supremacy over human challenges seems elusive to humans despite the acclaimed advancement in technology and knowledge in the 21<sup>st</sup> century. To move forward man seriously needs to go back to the drawing board to re-evaluate and overhaul all strategies to add some innovations to be sure of success. In This open access publication is Licensed under a creative common’s attribution 4.0 international License

this position paper, Special Journals Publisher outlines its accepted perspectives of the integrity of Anatomy and Physiology Research data published and to be published in its database for the perusal of our stakeholders, partners, friends, and well-wishers and admirers of its journals.

**General definitions**

Data may be seen and defined as symbols, facts, characters, values, information, or any

other form of identity that can help confirm the outcome of observations, experiences, or encounters (1,2). Data are known facts that are used to confirm another fact and to erase all forms of doubts and speculations (3,4). Integrity means truthfulness and honesty and data may be a fact but without integrity, it is worthless and ultimately useless (5,6)

### **Specific definitions**

Data integrity in Engineering, Physics, Mathematics, and Statistics Research may be defined as the degree of novelty and uniqueness of Engineering, Physics, Mathematics, and Statistics Research data that is free from variables that challenge its originality, quality, and relevance (7). No result-oriented decision in Engineering, Physics, Mathematics, and Statistics Research can be made without this type of data to avoid a colossal and historic mistake. Data integrity in Engineering, Physics, Mathematics, and Statistics Research may also be defined and score data as one with high integrity and with demonstrable high accuracy, reliability, stringently error-free, and without bias. (8)

Legal data in Engineering, Physics, Mathematics, and Statistics Research are data that do not contradict the dictates of professional bodies, associations, and most importantly the law of the land (9). Legal data in Engineering, Physics, Mathematics, and Statistics Research does not attract any fine or tax upon publication and no one in the society is disallowed to touch, quote, or use it. The integrity of a data protocol describes the measures used to ensure the validity and accuracy of a data set or all data contained in a database (10). Engineering, Physics, Mathematics, and Statistics Research data validation and accompanying protocols are optimized protocols that also adds to the quality and public acceptance of databases (11),

### **Checks and balances of data integrity in Engineering, Physics, Mathematics, and Statistics and Physiology Research (12)**

There are so many quality control checks and balances designed to reduce errors and increase the integrity of Engineering, Physics, Mathematics, and Statistics Research data, published in our database. Engineering, Physics, Mathematics, and Statistics Research data quality assurance principles if piloted are of a great deal of importance in promoting the integrity of Engineering, Physics, Mathematics, and Statistics Research data published by a database (13). These integrity checks and balances are based on existing rules and regulations with little modification to fit into the objectives of Engineering, Physics, Mathematics, and Statistics Research projects at hand. These rules exist in any discipline established overtime to stabilize the practice or corporate utilization of such rules for the ultimate benefit of the stakeholders (14)

### **Data transformation and coding for integrity in Engineering, Physics, Mathematics, and Statistics Research (15)**

The importance of Engineering, Physics, Mathematics, and Statistics Research data integrity is also obvious when creating relationships between dissimilar data elements before being stored in a database. These make retrieval easy and certain without data loss or compromise. The concept of data integrity in Engineering, Physics, Mathematics, and Statistics Research ensures that the data is transformed and transferred from one stage of data management to another is accurate and stringently free of error so that when

the information is stored in the database (16), its value and reliability is inferred regardless of the duration for which it is stored or the frequency of access.

### **Data integrity and safety concerns in Engineering, Physics, Mathematics, and Statistics Research (17, 18)**

Engineering, Physics, Mathematics, and Statistics Research data integrity encompasses safety concern measures taken to protect data from misuse, piracy, and adulteration. Engineering, Physics, Mathematics, and Statistics Research data integrity is preserved when time is taken to decide which data is available to who and which data is not available or accessible to who. Therefore, any technology that will help preserve the security of data to achieve the ultimate good for which the technology was designed, would be a step in a positive direction. This is very serious because success in hacking or breaking into a database without authorization may lead to Engineering, Physics, Mathematics, and Statistics Research data misuse and this can affect any organization negatively to the extent of threatening the existence of such an organization. The end-goal of data security is to protect your data from external or internal breaches (19).

### **Data integrity and quality concepts in Engineering, Physics, Mathematics, and Statistics Research (20)**

Every organization has a standard and quality of data storage and retrieval. This impacts the standard and defines the volume of traffic the database draws. Engineering, Physics, Mathematics, and Statistics Research data quality concepts ensure that the data stored in a database is compliant with defined

standards and requirements and this can be done using a set of rules on a specific or complete dataset, stored in the target database. On the other hand, Engineering, Physics, Mathematics, and Statistics Research data integrity deals with the accuracy and completeness of data present in the database and it covers all aspects of data quality and advances further by executing several rules and procedures that oversee how information is entered, deposited, transmitted, and many more.

### **Physical data Integrity in Engineering, Physics, Mathematics, and Statistics Research (21, 22)**

The physical integrity of Engineering, Physics, Mathematics, and Statistics Research data is protected against external factors, such as natural disasters, power outages, or hackers. Moreover, human faults, storage attrition, and several other problems can also make it unmanageable for data operators to obtain information from a database. The print database is subject to external forces and interference to ensure that stored data are not retrieved when needed. Stored data that are not retrievable are useless and definitely will drawback advances by several decades instead of advancing it. Special journals Publisher recently deals with online media and may have no big problems with Physical data integrity

### **Entity data Integrity in Engineering, Physics, Mathematics, and Statistics Research (23)**

Entity integrity is a logical data integrity type that depends on the grouping of data items using defined codes, and associated passwords to help systematic arrangement and storage of datasets so that retrieval of

such data will not be an issue. This is because human errors and technical difficulties, contribute to major systemic challenges in database management. The purpose is to make sure that data is very unique and not recorded several times. Entity integrity stores data in a tabular format, which can be interconnected and used in a range of ways.

### **Referential data Integrity in Engineering, Physics, Mathematics, and Statistics Research (24)**

Referential data integrity is a logical data integrity type that defines a series of procedures that encourage data managers to store data properly and reliably which makes retrieval and usage very easy. In referential Engineering, Physics, Mathematics, and Statistics Research data integrity, data managers make sure that only the required alterations, additions, or removals happen via rules implanted into the database's structure about the way foreign keys and passwords are used to access data. These rules might include conditions that; first, remove duplicate Engineering, Physics, Mathematics, and Statistics Research data records, second, warrant that data is precise, and/or third, prohibit recording data that is not suitable or out of scope with database guidelines.

### **Domain data Integrity in Engineering, Physics, Mathematics, and Statistics Research (25, 26)**

Domain integrity is a logical data integrity type that we can define as the ability to identify a defined area of specialization and outline how datasets are stored to reflect such identified domain. Again, rules and regulations are designed and set out guides

that preserve and protect the quality of such data from external uninvited interferences. An assortment of procedures is therefore designed to ensure the precision of every data item is maintained in such a domain. Domain data integrity encompasses rules and other processes that restrict the format, type, and volume of data recorded in a database. It ensures that every column in a relational database is in a defined domain. (27)

### **User-Defined Data Integrity in Engineering, Physics, Mathematics, and Statistics Research (28)**

User-defined data integrity is a logical data integrity type that comprises of the rules defined by the operator to fulfill their specific requirements in dataset management. The entity, referential, and domain integrity are not enough to refine and secure Engineering, Physics, Mathematics, and Statistics Research data. Particular rules must be considered and integrated into Engineering, Physics, Mathematics, and Statistics Research data integrity processes to meet standards.

### **Factors Affecting Data Integrity (29-32)**

Entering or managing Engineering, Physics, Mathematics, and Statistics Research data manually increases the chances of errors, duplications, or deletion. Often, the entered data fails to follow the apt protocol, or the errors in the manual entry can extend to the execution of processes, hence corrupting the results. Computer systems and high technology software are now available to check for accuracy at the point of Engineering, Physics, Mathematics, and Statistics Research data entry to remove or reduce errors even reduce such data are stored. A transfer of error occurs if the data is not successfully transferred from one site

within a database to another. These errors usually occur when an Engineering, Physics, Mathematics, and Statistics Research data item exists in the target table but is absent from the source table within a relational database. The computerized data management systems take care of any incongruity eliminating the multiplicity effects in data management. Your data's integrity can also be compromised due to spyware, malware, and viruses invading a computer and altering, deleting, or stealing data. There is a lot of antiviruses and antimalware's that can be installed to take care of these

### **Significance and best practices of data integrity (33, 34)**

The whole essence of Engineering, Physics, Mathematics, and Statistics Research data integrity research and questions are summed up in what it can do to help advance information when and where needed and how best to use this information in the best interest of the stakeholders. The significance may therefore include but not limited to the facts that:

- It can also be seen as widely available and can be traced back to the original
- Protecting the validity and accuracy of data also increases stability and performance
- The ability to reuse and maintain data adds to its integrity as well.
- For data to be complete, its rules, relationships, dates, definitions, and lineage must be accurate
- Ensures consistency in the data model, value, and types before and after storage and retrieval
- Ensure that the data stored in a database can be found and linked to other data
- External data back up guarantees that such an entire data set can be recovered in a database accident

- It strengthens the stability of data, offers optimum performance, and makes it reusable and maintained easily.
- Data backup and duplication is critical for ensuring data integrity.
- input validation to preclude the entering of invalid data,
- Error detection/data validation to identify errors in data transmission, and
- Security measures such as data loss prevention, access control, data encryption, and more.

### **Conclusion**

Engineering, Physics, Mathematics, and Statistics Research data integrity is therefore invaluable in this era of technological advancement and complex evolution of norms and theories orchestrated and induced by natural social, economic, and environmental challenges that have continued to threaten human existence on earth. Resources are limited, the mistake will be too costly and redundancies are not allowed in this struggle for supremacy over emerging and re-emerging challenges. Data integrity is one factor that will put humans ahead of the inherent challenges that come to our ways.

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