



SAS on Healthcare Application

Vinayak R Laxmeshwar
Master of computer application
RV College of Engineering®
Bengaluru-560060

Dr B H Chandrashekhar
Associate Professor
RV College of Engineering®
Bengaluru-560060

Abstract: statistical analysis systems (SAS) is one that has far-reaching benefits for the healthcare industry, from insurers to doctors to patients. SAS programs, healthcare companies can cultivate cleaner data that is more complete, consistent, and reliable. It also provides new ways to report and visualize data. They include improved cost control and revenue generation as well as giving the user the ability to explore clinical outcomes and raise the level of patient care.

1. Introduction

SAS stands for Applications for Statistical Analysis. It was founded by SAS Institute in the year 1960. SAS has been used as of 1 January 1960 for data processing, business intelligence, predictive analysis, descriptive and prescriptive analysis, etc. Since then, the Program has implemented several new statistical techniques and components.

SAS is a standalone platform which means you can run SAS on any Linux or Windows operating system. SAS is operated by SAS programmers who use multiple operation sequences on the SAS datasets to prepare proper data analysis reports. Over the years SAS added various solutions to its portfolio of products. It has a data governance, data quality, big data analytics, text mining, fraud management, health science, and so on solution. For every business domain we can safely assume SAS has a solution.

The Statistical Analysis System (SAS) is one of the most common and effective methods used in data analysis and statistical modeling. It is one of the fastest and most robust advanced analytics, multivariate analysis, business intelligence, data mining, data management, report writing, statistical analysis, application development, business modeling, and data warehousing software. SAS is an asset in various labor markets, as it holds the largest market share in advanced analytics jobs.

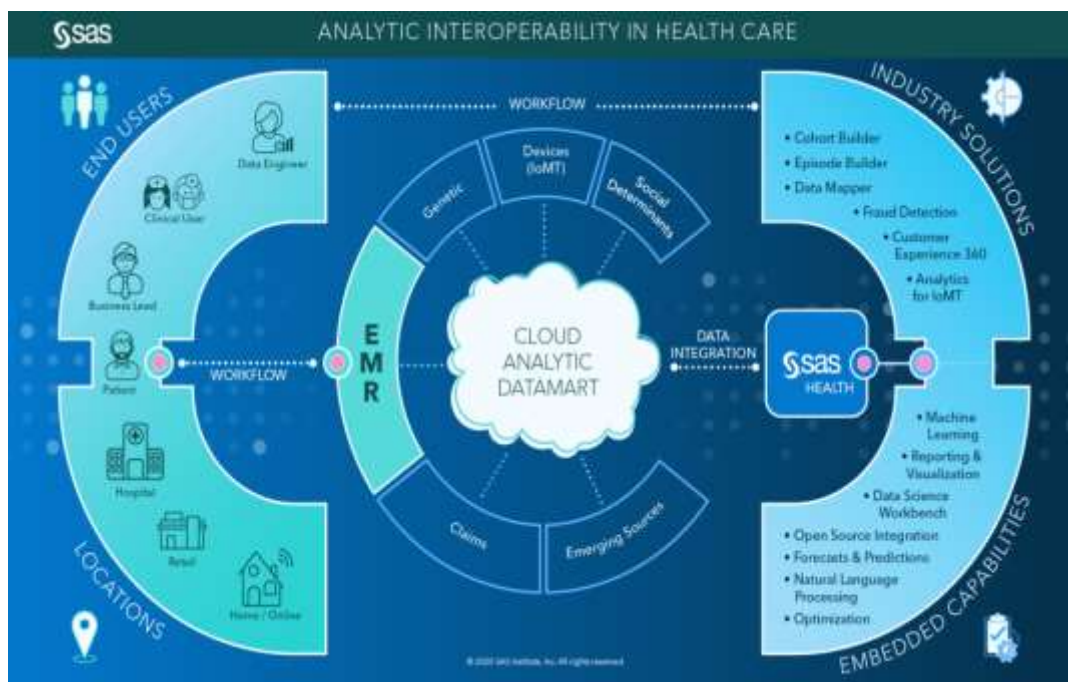
2. Description of the Concept

As the transition of healthcare into the digital age moves along, some tools play a crucial role in facilitating the analysis of the creation of the new wave of data.

Statistical analysis systems (SAS) are one of those tools that has far-reaching advantages for the healthcare industry, from insurers to doctors and, of course, the patients themselves.

Why SAS is chosen for healthcare analytics?

Analytical insights which drive healthcare based on value. Embedded Artificial Intelligence (AI), machine learning and image analytics. Integrated data for improved decision taking in the clinic. SAS accelerates the time to value with deep industry experience and health care analytics tools designed to interoperability.



Today, SAS is pushing health care analytics to new frontiers, improving outcomes across the care spectrum, from how health care providers measure performance to health outcomes, and patient safety. SAS also plays a role in helping to understand disease states and identify strategies to commercialize treatments, according to the institute.

3. Working of SAS in healthcare application

Through SAS programs, healthcare firms can develop more total, accurate and reliable cleaner data. It also brings new ways of reporting and visualizing data.

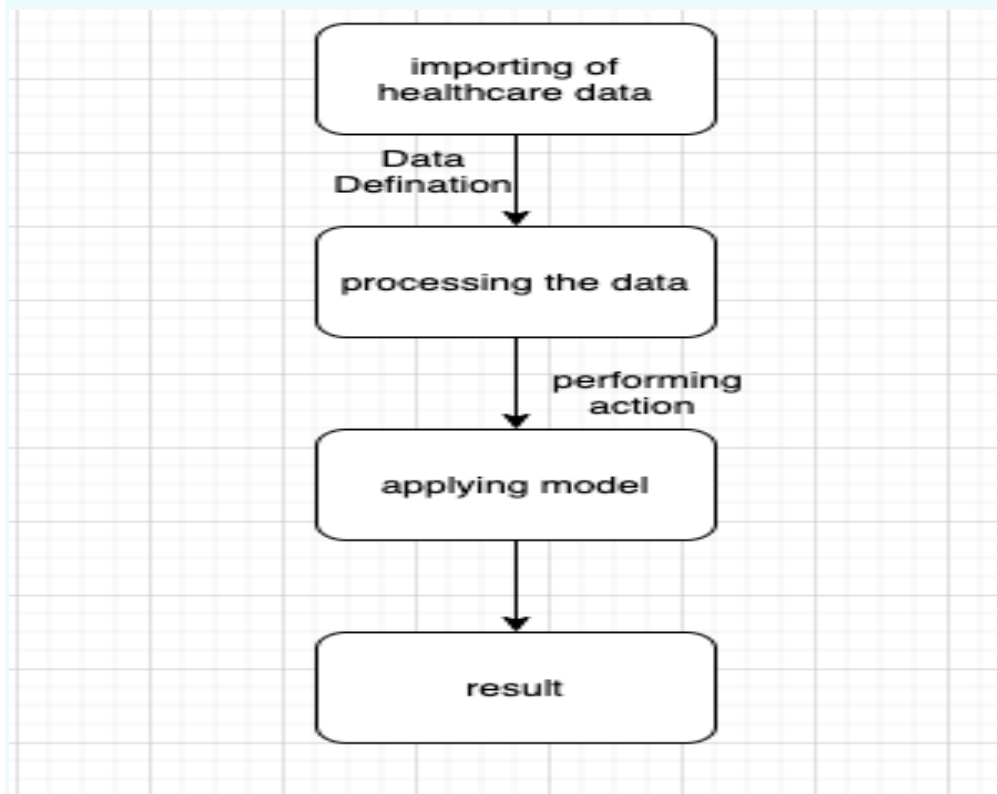
For clinicians, some of the major benefits of SAS programs include the ability to measure the effectiveness of treatment and develop clinical profiles that can reveal insight into the practice patterns of a doctor and compare it to those of other doctors and industry standards. The advantages of implementing SAS systems are immense. They provide better cost management and production of revenue, as well as allowing the consumer the opportunity to evaluate health outcomes and increase patient care.

More data is available in healthcare system than ever before. How can patients, payers and health care providers really benefit from this? Analytics can help medical scientists to exploit health care data. Explore information indirectly on the health records of specific patients, classify successful therapies and Best practices: safer and more reliable healthcare facilities for patients. So, we are working on the SAS framework to demonstrate the process of data integration and discovery and create predictive models to identify previously unknown patterns and trends in order to provide the best results for healthcare queries. It also provides applications for analytics in critical healthcare fields.

Figure 1.2 shows the SAS workflow in healthcare data, i.e. the data set containing thousands of patient information that is imported into SAS for processing, SAS selects the following suitable process of three types: a simple data step is used for processing small data sets and a simple clear task is also performed. Secondly, the Proc SQL stage that functions the same as SQL, which not only produces the result but also provides a table and variable for SAS. Thirdly, Macros that enables us to avoid repetitive parts of code and use them over and over when needed. This also helps build dynamic variables within the code which can take different values of the same code for different instances of run. Macros can also be declared for blocks of code that will be repeated several times in a manner similar to macro variables. Macro

s were ideally adapted because they are used for data processing. Next, the modeling part handles the best suited algorithm to work on the data used to provide the best results for calculating average patient data or calculating patient status levels to provide a performance, predicting the outcomes of the patient health and also calculating the cost which can help both the clinical department and the patients to have in providing cost control etc. Therefore, we use logistical regression which gives users optimum results. Finally the result will be provided in a particular file which is in .CSV format.

Block Diagram to show a simple processing of the healthcare data in SAS



Although SAS programs are used in several industries, they are becoming pervasive in healthcare use. Jobs analyzing data are proliferating in health insurance, pharmacy, service providers, billing, and government agencies and, increasingly, an understanding of SAS programming is required. Developing nations across the world are facing the potential of healthcare analytics due to the issues they face surrounding the of cost medicine. High quality, cost-effective services are a byproduct of health care analytics and it is anticipated that the demand for analytics services and solutions will expands globally.

Advantage of using SAS :

- Ease of learning:
 - SAS syntax can be learned very quickly. It can easily be learned by someone without any programming skills. Coding is in the form of basic declarations. It is like instructing what to do on a computer.
- Ability to handle large database
- Extending the above argument completely secures data in SAS. We can not extract without a warrant, in the case of office usage. Information protection prohibits messing with become famous in the corporate world. For many major companies SAS is a primary device. Being a similar source, here data from the organization is confidential. Use R just to freelancers.
- SAS GUI :
 - SAS is one such language that has made mathematical computation simpler for users not interested in programming. It has a beautiful GUI (Graphical User Interface). SAS user interface has a range of resources, including graphs, maps, and a very powerful library.

Limitations of SAS :

- One major downside to SAS is its expense. This is a full program in itself, being in a closed environment. Without a proper license an individual can not use any of its applications.
- R has more openness to sophisticated graphics. The presentation of the graphics is much more vibrant and consistent than SAS. This has more maps, graphs, and diagrams descriptive of it.

Conclusion and Future work:

SAS analytical tools will achieve healthcare market goals linked to cost management, revenue generation and Managing Strategic Results. SAS analytical instruments are used to evaluate clinical outcomes and risk tolerances Enhance overall level of care for patients.

In implementing best practices, the healthcare system will provide improved control for patient safety and a clean dataset will be maintained to predict the best clinical treatment results.

Providing a visualization aspect of the work so that in visual presentation each patient performance data can be presented and will easily keep track of patient safety.

Providing privacy of patient data, since exchanging data across healthcare platforms is not easy.

References :

- [1]. Salkind, Neil (2010). Encyclopedia of Research Design Encyclopedia of research Design.
- [2]. Zoubida Alaoui Mdaghri ; Mourad El Yadari (2016). Study and analysis of data mining on healthcare.
- [3]. Aipenova Aziza(2018). The Analysis of Indexes Quality of a Healthcare in Kazakhstan
- [4]. Larry Kerschberg(2017). Standardizing the Crowdsourcing of Healthcare Data.
- [5]. Choudhury Pratiksha, Medarametla Sarath, Sreenath Akhil(2017). SAS: A Secure Data Aggregation Scheme
- [6]. Lumin Shen(2014). Healthcare Data Manipulation and Analytics Using SAS.