

The research paper which I have chosen is MYSQL spatial and POSTGIS- implementations of spatial data standards written by Adam Piorkowski. Spatial data is the type of data which is used to represent a geographical area or location and a spatial database is the enhancement of a general-purpose database to include spatial data. The author here is trying to bring to light the fact that there are very few sophisticated spatial databases present in the world. The author starts off the research paper by pointing out that there is no standardization of major spatial databases. Then the focus is shifted towards OPENGIS and SQL/MM which are two spatial data standards. OPENGIS includes features such as objects, format of recording and indexing etc. It does not solve the problem of more than 2D planar objects. The standard SQL/MM provides features such as curves, dimensions of data and is better integrated than the older OPENGIS. The naming conventions for OPENGIS and SQL/MM is different because the older OPENGIS used many standard function names which often used to overlap with the database functions, which was rectified in newer SQL/MM. This development leads us towards the spatial extensions (libraries) for relational databases: POSTGRE SQL and MYSQL which use POSTGIS and MYSQL Spatial respectively. Both have their own merits and demerits. The installation of MYSQL spatial is easy and in some cases, it even comes in the base bundle of the MYSQL database. The installation of POSTGIS into POSTGRE SQL is often slow and cumbersome as it is an external library. There are benefits and drawback of both these libraries. When it comes to the implementation of these spatial databases and tables, it is quite evident that creating and altering the table containing spatial columns is easier in the MYSQL spatial. In POSTGIS, it is difficult to create a spatial column in an existing table (as it is a 2-step operation). POSTGIS provides two ways to create the spatial columns. The two ways described for creating tables containing spatial columns for POSTGRE are: -1) using a combination of create and select statement and 2) The use of plpgsql language scripts. But this is where the advantage of MYSQL spatial ends. The usage of functions such as length and glength yield same results as they work on singular rows, but, when functions working on objects and spatial data are encountered, then there are some wrong results being published by MYSQL spatial which points towards potential bugs and glitches in the spatial library of MYSQL. This is also illustrated in the research paper by examples which are using functions “intersects” and “disjoint”. These functions produce wrong results for MYSQL but correct for POSTGRE SQL. Although, developments are being made to improve these functionalities of MYSQL spatial functions and library (using MBRs which are minimum bounding rectangles and are used to find the maximum extents of a 2-D object), POSTGIS just handles spatial data functions better. The better functionality of POSTGIS is further highlighted by the explanations given for reduction functions (where the accuracy of POSTGRE POSTGIS is more than the MYSQL spatial), aggregation of data (where POSTGRE allows use of arrays, unions, and other data collection structures whereas MYSQL does not have support for any of these data structures) and availability of spatial operators in POSTGRE POSTGIS (convex hull, Difference etc). At the end, after careful observations, it is concluded that while portability and unification are maintained by both OGC and SQL/MM spatial, the level of integration and implementation is quite different for both. While MYSQL spatial is better integrated than POSTGRE’s POSTGIS, it does not work well after 2 dimensions whereas POSTGIS, which initially did not work well with more than 2-Dimensional objects has gradually improved and is now providing a better reference set for spatial objects than the MYSQL Spatial. Overall, both have their shortcomings and advantages, and this comparison only strengthens the argument that there is still a lot of work that needs to be done in the standardization of both these spatial databases.