**Syracuse Football Targeted Advertising Database Management System**

**Bug Report/ Solutions and Lessons Learned**

**IST659 M005 Fall 2020**

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***Bugs and Solutions:***

1. **Bug** – With many of the attributes we have within a few of our entities, we’ve added CHECK constraints into the SQL code to make sure only a few values can be put into these attributes. Going through the building on the project, we found that a few of these are not extensive enough (they don’t cover every possible option in reality).

**Solution** – Survey those who would be using the service (i.e. customer, businesses, advertising agencies, etc.), compile any and all possible option and add them to the base code.

1. **Bug** – While we might be able to figure out overall impression, we have no way of seeing what specific ads are working on specific customers. We just know whether or not they work overall.

**Solution** – Create a table that links the IP Address of a device in use to the impressions on an ad. This will not only inadvertently connect each impression to the individual users but will also make sure the business rule we have in place about three devices per user intact.

1. **Bug** – Navigating between forms and reports, while not completely impossible, has proven difficult mostly because the reports and forms (because of the way we had to piece the project together) are on separate databases.

**Solution** – Create a ‘central hub area’ that links all created forms and reports, no matter where they reside, together as best as possible.

1. **Bug** – In the same vein as the second bug mentioned above, we have a way if seeing if the advertisements worked in terms of interaction/impression, but since there’s no Age variable in the customers field, there’s no way of knowing if the ad worked on its intended audience.

**Solution** – Add the variable to the ‘Customers’ table. Along with the solution to the other bug mentioned, we will be able to connect individuals to specific impressions while also seeing if the ad did it’s intended job based on target age demographics.

1. **Bug** – While the metrics we did include in this very basis structure are, we believe, necessary information for the people who would be using this system, we have come to the conclusion that what we have could be expanded upon even more to give the businesses we work with more. This will, hopefully, allow businesses to cater their advertisements and campaigns more specifically to users.

**Solution** – Add new variables such as click-through rate (when it comes to ads that fall under the ‘Graphic w/ a QR Code’ category), conversions, and bounce rate to the impressions entity, or create an entirely separate entity to track all metrics needed/we see fit.

***Lessons/Things We Learned***

1. How to utilize Microsoft Visio, MySQL, and Microsoft Access to be able to build both basic and complex database systems for basically any use. More than the basics, however, we learned how to be able to use these systems (and their many different functions) to be able to get them to ‘bend to our will’, for lack of a better term, and return any and all results we could possibly want/need from our data.
2. The importance of Entity Relationship Database’s when creating these systems and how Microsoft Visio gives any and all tools needed to be able to give show all necessary parts within a physical model.
3. The intricacies of many systems that we use every day. Everything from ATMs to online shopping and even content streaming services use the types of systems (albeit probably more complex) we learned about/how to create in this class.
4. Above all else, we learned how difficult targeted advertising really is to implement and how specific you really need to be when creating profiles on individual users for the ads to really work.