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| Rose-Hulman Institute of Technology- CSSE 333 |
| Rate My World Leader |
| Security and data integrity analysis |

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1. **Executive Summary**

This document’s purpose is to describe the security and data integrity through analysis. The analysis will specifically cover privacy, security, entity integrity, referential integrity, and business rule integrity analysis of the database.

1. **Analysis**
   1. Privacy Analysis

In our database, the user emails and passwords should only be visible to administrators, and not to other users. This will prevent other users or non-admins from accessing personal user information. There is not any other private information stored, because all other information should be public and visible to all users. Also, any person will be able to view the database and all ratings and leaders, but only users will be able to rate leaders.

* 1. Security Analysis

Regular users should not be able to add or edit Leaders, because they may compromise the data integrity by entering false data, thus invalidating any reviews and/or ratings. Non-Administrators should not have access to the emails or passwords of other users as stated in the Privacy Analysis, because this would compromise user privacy. Users should only be able to rate any leader once. Also, like many other websites, accounts would need to have a validated email to prevent users from making multiple accounts to rate a leader multiple times, as this would compromise data integrity and essentially invalidate the entire system. A final aspect of security analysis would be sql injection. This would be checked before data is in the database.

* 1. Entity Integrity Analysis

Entity integrity will include normal key constraints on keys declared in previous documentation. In addition to standard constraints, the startdate field in the tables Leads and LeaderMemberOfParty will need to be in will be required to be an earlier date than enddate field in both tables. Also, in some leaders might not have a middle or last name, so those world leader’s names would be valued at null. For instance, if a leader’s name was “John James” and John did not have a middle name, midint would be valued as NULL. Also, someone could have a name of “George”, in that case, the midint as well as the lname would be valued as NULL. Also, some information might not be available online. For example, population data might not be available for North Korea, so data would have to either be made up or created as NULL. Also, some data might not be reported or be easily found in public domain like the exact year a leader became a member of a political party.

* 1. Referential Integrity Analysis

This database will include normal foreign key constraints. In addition, the timeframe of an entry in the “Leads” table may not overlap with the same timeframe of another entry in the table for the same leader. This same time constraint applies to entries in the LeaderMemberOfParty table, with respect to other entries in the LeaderMemberOfParty. In addition to that constraint, the leader will also only be able to rule one location at a time. Also, if a leader rules a location, then they also rule any other location which uses that location as a superppID and any others under that. So, if you look under the United States, you will find Barack Obama under that location and under Ohio, but if you look for senators of Ohio you will only find them under Ohio not United States.

* 1. Business Rule Integrity Analysis

The only business rule integrity that needs to be enforced is leaders. Since they are managed by the administrators, the administrators would have to periodically add leaders to the system and change the status of other leaders as time goes on. Outside of that there is not any other business rule constraints, since that is the only thing the database is being used for.

1. **References**

"RateMyProfessors.com – Find and Rate Your Professor or Campus." Rate My Professors. Web. 3 Apr. 2015. <http://www.ratemyprofessors.com/>.

1. **Appendix**

N/A at this time

1. **Index**

N/A at this time

1. **Glossary**

Entity Relationship (ER) Diagram ­ A diagram that represents the relationships between the various entities in the database in an abstract and visual manner