

Proposal for Research and Education Projects

BHAVI 2016 Summer Education Program

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7/1/2016

1 Primary Research Project

Project Title: Using MySQL with MeanStack in an Alternate Implementation of PDS

Project Authors: Jason Liu, Daniel Yang, Adam Craig, Dr. Carl Taswell, MD, PhD

For researchers, primary research is only the first stepping stone to proving or disproving a theory. One successful experiment proves little to nothing in the grand scheme of the scientific community. However, the weakness of a single experiment is covered by the power of the meta-analysis, usually completed by a third party. Meta-analysis requires researchers to analyze results from multiple primary articles and assess whether or not the result is accurate, show if the hypothesis presented are proven or d...(line truncated)...

In order to support PORTAL registries and DOORS directories, a database is necessary in order to support the data. In order to take full advantage of a tried and true framework, Meanstack serves as the ideal system. However, the 'M,' standing for MongoDB is a NoSQL database. Although NoSQL may offer certain benefits, a relational database may continue to be the reliable solution for the semantic web.

The implementation of a database in a semantic web solution must:

- be a network of registries and directories for resource metadata organized by content rather than technological format
- encourage interoperability and compatibility with other specialized communities (ie connecting clinical neuroscience with cognitive neuroscience)
- be of hybridized architecture able to handle XML Schemas, RDF triples and OWL ontologies in order to bridge the transition between semantic web and original web smoothly.
- have logical hierarchical authorities and generally understood identifiers to prevent conflictions with names when identifying resources
- have the potential for greater expansion and adoption by the global scientific and public community.

In order to achieve these goals, numerous tools are necessary. At the core of the project, MySQL will be the primary server implementation. MySQL will be the relational database alternative for the current noSQL solution in Meanstack (MongoDB, Express, AngularJS, NodeJS). By taking advantage of this system, the project can take full advantage of all four tools under one language. However, in order to replace MongoDB with MySQL, some ORM (Object Relational Mapper) will be needed, possibly Telerik, Sequelize...(line truncated)...

Timeline:

- Week 1-2: Create read/write MySQL database from MicrosoftSQL
- Week 3-4: Set up PORTAL system for database
- Week 5-6: Set up DOORS system for database
- Week 7-8: Connect with other modules
- Week 9-10: Test reliability, accuracy, full extent of analysis

2 Secondary Research Project

Project Title: Using MEAN Stack to Develop a Web App that Performs Meta-Analysis

Project Authors: Daniel Yang, Jason Liu, Adam Craig, Dr. Carl Taswell, MD, PhD

The project plans to use MEAN stack to develop a website that uses meta-analysis to reach an answer to an user inputted question after searching through all the relevant articles in a database (in this project MySQL). After reaching a general consensus, the algorithm will return the solution as a simplified paragraph that the user can read. The goal of this project is to enable researchers to be able to create reliable meta analyses without the typical time consumption and inaccuracy. My role is to simply ...(line truncated)...

3 Software Education Project

- SQL: Used for personal projects through c9.io
- HTML5, CSS3 and JavaScript: Used for Web App Development (class) and personal projects
- XML: Used for Android projects through AndroidStudio in Mobile App Development (class) and personal projects

4 References

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