GSOC 2018 Project Proposal

PostgreSQL Performance Farm Web Application

1- Personal Details

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2- My Background And Experience

- Study Computer Science at University of Colombo School of Computing
- Studied many online and offline courses to learn software engineering, web designing & development, data science and UI/UX development.
- Developed a task management system using PostgreSQL and Laravel web framework. Link to the hosted task management system - www.easytasky.com
- Have participated and won many algorithmic programming competitions (I implement algorithms using python 3 in every algorithmic programming competition).
- Have participated many hackathons and have won some of them such as TADHack Sri Lanka 2016, TADHack Sri Lanka 2017, Game of Code 2016, etc.
- Worked as an intern web developer for 1 year at Aquire Global (PVT) Ltd.
- Volunteer project manager at Micro:bitSLUG
- Worked as HackerRank campus ambassador
- Worked as firefox student ambassador
- Open source contributor since October 2016

3- Project Summary

The PostgreSQL Performance Farm project is for PostgreSQL community to upload test results of code changes which are made to PostgreSQL, and to search and review uploaded results. The target of this project is to design and create a database for storing test results and to design and develop a functional web site for searching and reviewing the uploaded test results. The database will be created in PostgreSQL and a REST API will be developed to perform back-end functions using the Django web framework. The responsive front-end of the website will be designed using Angular 5 javascript framework.

4- Deliverables

Module 1 - Start a fresh project

1. Draw a use case diagram to identify all the functions, should be performed by the website.
2. Create a new project using Django web framework.
3. Install django-tastypie into the project to develop a REST API.
4. Start and configure a app.

Module 2 - Create the database

1. Figuring out and make a list of all the data and their actual data types related to the Performance Farm website.
2. Draw ER diagrams and design the scalable data models to work with data efficiently.
3. Create the database using PostgreSQL.
4. Writing migration files and migrate.
5. Write a documentation for the database and the migration files.

Module 3 - Develop the REST API

- Figuring out and make a list of all the CRUD operations that should have in the REST API.
- Write codes that can accept inputs in the form of JSON and flat files.
- Write functions for the API to perform all the identified CRUD operations.
- Write a documentation for the API including all the urls to access the API and their performance.

Module 4 - Design and develop the front-end

- Start and configure a new Angular 5 project.
- Design a responsive website.
- Simplify all the forms which the users have to engage with.
- Write javascript functions (including AJAX) to connect with developed REST API to perform all the related CRUD operations.

Module 5 - Testing and debugging

- Do unit testing and integrated testing.
- Fix all the detected bugs and test the whole system (system testing).

- Improve the UI and UX.
- Finish the documentation

5- Timeline

An approximate schedule for accomplishing important milestones is shown below. There is a long time period until the coding period starts (proposal selection period + community bonding period) and I plan to use to get more familiar with all the technologies relevant to this project, and to contribute for some ongoing projects in PostgreSQL to get familiar with https://git.postgresql.org and to practice the guidelines that should be followed when contributing to POstgreSQL. After this period, I can have a very clear understanding of how the project should be developed.

Dates	Work Planned
May 14th - May 21st (Week 1)	**Module 1 - Start a fresh project** ● Draw a use case diagram to identify all the functions, should be performed by the website. ● Create a new project using Django web framework. ● Install django-tastypie into the project to develop a REST API. ● Start and configure a app.
May 21st - May 28th (Week 2)	**Module 2 - Create the database** ● Figuring out and make a list of all the data and their actual data types related to the Performance Farm website. ● Draw ER diagrams and design the scalable data models to work with data efficiently. ● Create the database using PostgreSQL.
May 28th - June 4th (Week 3)	● Writing migration files and migrate. ● Write a documentation for the database and the migration files.

June 4th - June 11th (Week 4)	**Module 3 - Develop the REST API** ● Figuring out and make a list of all the CRUD operations that should have in the REST API.
June 11th - June 15th	**Phase 1 Evaluation** ● Deliver the current project and documents ● Evaluate the current status of the project ● Discuss about the next phase
June 15th - June 25th (Week 5 and 6)	**Module 3 - Develop the REST API** ● Write codes that can accept inputs in the form of JSON and flat files. ● Write functions for the API to perform all the identified CRUD operations.
June 25th - July 2nd (Week 7)	● Write a documentation for the API including all the urls to access the API and their performance.
July 2nd - July 9th (Week 8)	**Module 4 - Design and develop the front-end** ● Start and configure a new Angular 5 project. ● Design a responsive website. ● Simplify all the forms which the users have to engage with.
July 9th - July 13th	**Phase 2 Evaluation** ● Deliver the current project and documents ● Evaluate the current status of the project ● Discuss about the next phase
July 13th - July 23rd (Week 9 and 10)	**Module 4 - Design and develop the front-end** ● Write javascript functions (including AJAX) to connect with developed REST API to perform all the related CRUD operations.

July 23rd - July 30th (Week 11)	**Module 5 - Testing and debugging** ● Do unit testing and integrated testing. ● Fix all the detected bugs and test the whole system (system testing).
July 30th - August 6th (Week 12)	● Improve the UI and UX. ● Finish the documentation

After the GSOC 2018 is finished, I hope to continue my contribution to this project by improving the code base and UI/UX and adding more facilities to the PostgreSQL Performance Farm website.