Project Tender

Project: Name
Client: Client

Team: Valknut Solutions

- 13054903 - Charl Jansen van Vuuren
- 10297902 - Bernhard Schuld
- 13044924 - Kevin Heritage
- - Quinton Weenink

Department of Computer Science, University of Pretoria

Date

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1 The team

1.1 Charl Jansen van Vuuren

Charl Jansen van Vuuren BSc Information Technology

1.1.1 My interests include:

- Computer Science
- Music - Open to new and different genres
- Skillful instrumental demonstrations
- New technologies (Raspberry Pi, Google Hololens, Bitcoin)
- Casual PC gaming
- Mobile and web development
- Network management and networks in general
- Action/Sci-fi movies and television shows

1.1.2 Technical Skills:

- High level languages(Java, C++, C)
- Web based languages(HTML, PHP, Javascript, Ajax, Jquery, CSS)
- LateX, Javadoc - Documentation languages
- SQL (MySQL, PostgreSQL)
- Database management systems(Postgre, Microsoft SQL Server)
- Version control systems (Git)
- Unix proficiency(Linux, bash)
- Limited knowledge in Cyberlaw(ECT Act,POPI), Commercial law(Contractual) and Criminology(Theories)

1.1.3 Past experience:

I am a teaching assistant for Informatics 214 (Database systems), which is mainly SQL based. I am comfortable to work on database systems and queries as I mark practicals each week based on SQL.
The majority of our BSc I.T modules provides proficiency with regards to the aforementioned Technical skills.

1.1.4 Non-technical strengths

- I play some Guitar in my free time.

1.1.5 What makes you want to do the project

EPI-USE one:

I find the concept of Bitcoin and the implementation of Blockchain fascinating. The possibilities with regards to this concept is endless and I look forward to learning more about the implementation of software based on Blockchain and the use of peer-to-peer implementations in general.

Insurance blah blah:

Social media has seen a huge growth in the last 5 years and developing a system based on this form of media is fascinating and can lead to some interesting application.

Crop:

Agriculture contributes significantly to our daily lives and the ability to predict scenarios that might allow us to foresee damages will in the end result in a sustainable future. I believe the development of these stress-testing algorithms can combat unforeseen damages.

1.2 Bernhard Schuld

Bernhard Schuld
BSc Information Technology

1.2.1 My interests include:

- Programming - High level languages
- Web development
- Jiu-Jitsu
- Music - Mostly Heavy Metal, but a lot of different genres appeal to me
- Drumming - Jazz and hard rock drumming
- Technology
- Computer Gaming

1.2.2 Technical Skills:

- High level languages (Java)
- Web development languages (PHP, Javascript, Angular JS, Ajax, jQuery)
- SQL
- Git

1.2.3 Past experience:

I recently started working at Consulta Research as an intern in their IT department. So far I have worked exclusively on web solutions for them.

1.2.4 Non-technical strengths

- Hard working
- Fairly proficient drummer
- Extremely vast random general knowledge facts

1.2.5 What makes you want to do the project

Electronic Voting:
The Electronic Voting project is the project that had the most appeal to me. It seems like the project that would challenge me the most and the the project where I would learn the most. I have heard only good things about Epi-Use and as such would like to do this project for the company.

Insurance Profiling:
The Insurance Profiling project is one of only a couple of projects that interested me. It seems like a challenge that I would enjoy.

BVG Crop Sim:
The Crop Sim project interested me because it would solve a real world problem as South Africa has an extremely large farming community.

1.3 Kevin David Heritage

1.3.1 My interests include:

- Simplifying my life in general using technology - especially networking.
- Computer gaming - including the assembling of all the components of the machine.
- Customization of my current Linux operating system.
- Mobile technology - especially regarding the Android operating system.
- Traveling from time to time.
- Playing guitar casually.
- Finding/making the best cup of coffee.
- Android app development.
- Exploring by playing with different technologies.
- Creating simplistic applications with high functionality.

1.3.2 Technical Skills:

- High level languages
  - Java
  - C++
  - C
  - Pascal/Delphi
  - C#
- Web development languages
  - HTML5
  - PHP
  - Javascript
  - jQuery

  - Bootstrap
- Documentation
  - Javadoc
  - LaTeX
- SQL & database management systems
  - MySQL
  - Microsoft SQL Server
- Version Control
  - Git
- Unix proficiency
  - Ubuntu, Archlinux
  - prefer to use CLI
  - bash scripting
- Mobile development
  - Phonegap
  - Android Studio - Preferred
  - Xamarin

1.3.3 Past experience:

- Worked for Paradigm Data creating applications over 2014 June holiday. Used a biometric scanner withinn a C# application. Validated ID numbers using the control digit.
- Created an Android application for this years Mini Project of the COS 301 course.

1.3.4 What makes you want to do the project

- EpiUse (Electronic Voting):
  This project seems extremely interesting to me as it has to be secure. Security has always interested me and by using the block chain method to prevent tampering sounds like a great challenge that i look forward to.
- Retro Rabit (Insurance Profiling):
  Most people are extremely active on their social media (especially on Facebook). This project seemed particularly interesting as it gathers information from a source where the customer willingly gives all of this information without feeling obligated to do so.
- BVG Crop thing:
  Would like to work on algorithms to crunch existing data to predict future data. The agricultural community is currently struggling because of the drought and most produce has to be imported. Shops like spar apologized for the produce not being up to standard but they would like to still support local farmers

1.4 Team member name

2 Project Execution

2.1 Project Electronic Voting

2.1.1 Development Methodology

We intend to follow the Agile Development strategy. Agile allows incremental integration and development, to foresee any problems which might arise. The developmental cycle of the methodology is divided into "sprints", at the end of each sprint a working model is expected. Through iterative revision for each life-cycle (Planning, Development, Testing, Deploying), any problems or changes to the direction of the project can be implemented in the next sprint. An example includes a bi-weekly meetings with the client, the overall goal might change, as a result agile caters for the future implementation and changes.

2.1.2 How you are going to keep the client informed about the status of your project.

We will have meetings with the client to every two weeks (client schedule permitting.) These meetings will provide progress updates to the client and give insight on what is expected at the end of our next sprint and what goals need be achieved.

2.1.3 Technologies

As per the client's request, we will utilize Bitcoin's Blockchain to keep track of the votes cast. As for the front end, we will make use of the usual web development tools to create the web site (HTML, CSS, PHP, Javascript, AngularJS (or EmberJS) etc). For the mobile side of the project we would prefer to use native Android development but this means that the iOS & Windows phones are not supported. The other option will be to use hybrid development where Adobe Phonegap will come in handy as it uses web languages such as HTML5, Javascript & CSS. One can then import jQuery to make AJAX calls to the backend. Another option for mobile is to use Xamarin to develop a hybrid application using C#. The most basic option is to make sure that the web front end is responsive. We will make sure to create a secure platform as it is a necessity for the system to work properly. We will ensure that proper UX design is used to make the system as simple as possible to use.

2.1.4 Client will receive

- Documented source code
- Test code and scripts
- Architectural designs
- A user manual
- Build and deploy scripts

Any deliverables required that is not mentioned in the project proposal will be provided as per request.
We look forward to developing a project for Epi-Use Advance.

2.2 Project InsuranceProfiling

2.2.1 Development Methodology

We intend to follow the Agile Development strategy as recommended by the client. Agile allows incremental integration and development, to foresee any problems which might arise. The developmental cycle of the

methodology is divided into "sprints", at the end of each sprint a working model is expected. Through iterative revision for each lifecycle (Planning, Development, Testing, Deploying), any problems or changes to the direction of the project can be implemented in the next sprint. An example includes a bi-weekly meetings with the client, the overall goal might change, as a result agile caters for the future implementation and changes.

2.2.2 How you are going to keep the client informed about the status of your project.

As per the client project proposal weekly or bi-weekly meetings will be held to "promote good and healthy software engineering practices". These meetings will provide progress updates to the client and give insight on what is expected at the end of our next sprint and what goals need be achieved.

2.2.3 Possibly any initial ideas you have around solving some of the technical challenges.

As a starting point we will research the Facebook API which is used for data gathering, as this forms a critical part of the project. We will meet with the client's expert to establish what qualitative information might further be used in the fine-tuning of a risk profile.

2.2.4 Technologies

Since the project requires a front-end, Facebook scraper and engine, we will use a variety of web based languages and technologies including (but not limited to): PHP, Javascript, HTML5, AngularJS (or EmberJS) or possibly a larger framework such as Django. Depending on the web-framework used we will determine the database system to use.

2.2.5 Client will receive

As per the project proposal document the client will receive:

- Documented source code
- Test code and scripts
- Architectural designs
- A user manual
- Build and deploy scripts

Any deliverables required that is not mentioned in the project proposal will be provided as per request.

We look forward to developing a project for Retro Rabbit as this is a great opportunity to further our careers in the technology industry.

2.3 Project