
Drive Stats
by
Dynamic Visual Technologies
Proposed by
Vector Software Developers

A TENDER DOCUMENT FOR THE CONSIDERATION OF THE
DVT DRIVE STATS PROJECT

4 MAY 2015

EDITED BY

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*The University of Pretoria
Computer Science Department*

Summary



I am a very driven person with very clear goals in terms of my career as

well as my personal life. I believe in honesty above all else and making a valuable contribution towards society. In my opinion, one of the greatest injustices that can be done by man, is refusing to pass on what one has learnt and experienced, for without this happening there can be no progress. My dream is to be remembered for the feats that I had accomplished in my lifetime. I am extremely passionate about

technology, specifically software development, which is the reason why I chose to study Computer Science at a tertiary level. I am particularly fond of new challenges that test my abilities allowing for growth, self-improvement and the improvement of others. My family and friends are an extremely important factor in my life and I would see them proud of the man that I am, and want to be.

Experience

Barone, Budge & Dominick (Pty) Ltd

Bursar

BBD implements and maintains complex business systems. A customer with a requirement for custom software, which must fit into their business, and must meet the business goals approaches BBD with the goal in mind of obtaining a software solution thereof.

HOUGHTON ESTATE, JOHANNESBURG

Jan'15 – present

University of Pretoria, Computer Science Department

Teaching Assistant

As a teaching assistant for Data Structures and Algorithms, Netcentric Computer Systems and Software Modelling it is expected of one to have a good understanding of design patterns, general algorithm implementations and data structures in the Computer Science field as well as knowledge of web development and other networking related software development.

HATFIELD, PRETORIA

Jul'14 – present

Dynamic Visual Technologies

Junior Software Developer

DVT is a software development and related services business. They build, implement and support software, and provide those services that ensure business concepts are clear, that practical needs are met, and that software is written to specifications.

HYDE PARK, JOHANNESBURG

Nov '14 – Jan'15

Technical Skills

Technical expertise: Software design and implementation. Big fan of Agile methodologies. I regularly utilise Java/C++, yet flirt regularly with C#. Proper knowledge of web technologies: HTML+CSS, XML, REST, .NET, and JavaScript (including WebGL). Elementary knowledge of Artificial Intelligence related methods, such as optimisation problems.

Natural languages: Afrikaans (*mother tongue*), English (*full professional proficiency*), French (*elementary proficiency*).

Interests

Non-exhaustive: Online gaming, running, music, reading, travel, foreign cultures, most things French related, cooking, open source movements, software development.

Non - Technical Strengths

Social skills: I believe myself to be a rather "likeable" person, meaning I am very seldom found to be antagonistic towards others. I am a people person. I enjoy meeting and spending time with new and interesting people.

Professional skills: In a professional working environment I strive to be a very punctual, concise and informed individual. My approach towards professionalism relies on the concepts of honesty, determination, perseverance and most of all proper communication.

Why DVT Drive Stats?

Because: I am very interested in mobile development, particularly for Android devices. I feel this project is very applicable to modern day life and can actually make a difference in people's lives. As a result of my previous experience with DVT, I will always jump to the opportunity to engage with the people and company.

Michelle Swnepoel

February 1, 1994

Last update on May 4, 2015

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Summary



I see myself as a person who is invested in my personal growth in all aspects of my life. I am currently double majoring in Computer Science and still am deciding whether I want to do my honours degree next year or start working. When I feel everything around me is going to fast and that I need a getaway, I will most definitely grab the book I'm currently reading and enjoy a few pages. I also enjoy watching series, building puzzle and playing 30 Seconds with my mom and sister - and always a cup of coffee. One of my other passions in life is dogs and animals in general. Close friends and

family see me as a person who is diligent, respectful, sincere, modest and compassionate. I am an introvert, but enjoy observing and getting to know new people. I get my energy by accomplishing something that I had to work hard for and working with people.

Experience

University of Pretoria, Computer Science Department

Teaching Assistant

HATFIELD, PRETORIA

Feb'14 – Jul'14 and Feb'15 – present

I was a teaching assistant for a Introduction to Computer Science module, where it is needed to understand some basic concepts underlying computer science. I am now a teaching assistant for Data Structures and Algorithm, which requires the understanding of advanced data structures.

Technical Skills

Technical expertise: Java, C/C++, assembly, CSS, HTML, JavaScript (also WebGL), XML, PHP, AJAX and jQuery

Natural languages: Afrikaans (*home language*), English.

Interests

Non-exhaustive: I enjoy reading books, mostly fiction. Spending time with my family and friends is one of my favourite activities and also to go to new places to explore. The human way of living interests me and I enjoy reading up on it.

Non - Technical Strengths

I consider myself as someone with good communications skills, enjoying it to work with people. I will always be open to new experiences and opportunities. Honesty is important to me, thus I will always be be open and trustworthy. I am also someone who grasps a new topic quite quickly. These strengths are propagated throughout my social and professional life.

Why DVT Drive Stats?

Because: When I read the project proposal for the first time, the idea immediately jumped out to me. It sounds like a fun project to do as a team and something we can be proud of afterwards. Even though the project will challenge me and I will have to learn some new technologies and skills, it sounds still within in reach for us as a team to accomplish.

Kale-ab Tessera December 8,1994

Last update on May 4, 2015

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Summary



Ambitious programmer with strong

leadership and relationship skills. Fort zone. Adaptable and very open to learning new programming languages and methodologies, in order to build on previous knowledge. Hardworking yet still innovative. I try to live a life with as many experiences as possible because I believe we can only learn and grow from things that challenge us. I am uncomfortable in my com-

Experience

University of Pretoria, Computer Science Department

HATFIELD, PRETORIA

Teaching Assistant - COS 110

july14 – dec 14

As a teaching assistant for Program design and Programming techniques good knowledge of object-oriented (OO) programming. Concepts including inheritance and multiple inheritance, polymorphism, operator overloading, memory management (static and dynamic binding), interfaces and encapsulation.

University of Pretoria, Computer Science Department

HATFIELD, PRETORIA

Teaching Assistant - COS 212

feb 14 – present

As a teaching assistant for Data Structures and Algorithms it was crucial to identify and recognise all the classical data structures; implement them in different ways; know how to measure the efficiency of implementations and algorithms; and have further developed their programming skills, especially with recursion and polymorphism.

Boekenhout Res

HYDE PARK, JOHANNESBURG

House Committee Member, Secretary, Head of IT and Communications

aug 14 – present

Helped lead various res students and mentored those with difficulties. I was also expected to solve technical difficulties such as problems connecting to the internet and also managing of social media.

Technical Skills

Technical expertise: Proficient in Java, C++ and html. Experience with Assembly ,C, sql and delphi. Well-equipped in data structures and algorithms

Natural languages: English (*full professional proficiency*)

Interests

Non-exhaustive: Keeping fit, playing tennis and soccer, dancing, cooking, technology trends , music, foreign cultures, software development and application of artificial intelligence

Non - Technical Strengths

Social skills: I believe I am a born-leader and this has resulted in various leadership positions whether it be highschool, residence or the university. I am also quite easy to get along with due to my friendliness and communication skills.

Professional skills: In a professional working environment I am self-driven and willing to work as hard as is required. I also strive to be very respectful,punctual and diligent in anything that I do.

Why DVT Drive Stats?

Because: I am interested in incorporating various technologies together and this project allows me to do so. It also lets me invest more time in one of my passions -mobile development. I also trust this project, if done well, can make impact in society and the safety of our roads thereby creating a safer country.

Keagan Thompson April 16, 1994

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216 The Circuits • 1228 Prospect Street • Hatfield • Pretoria

Last update on May 4, 2015



I am first and foremost career-driven. My primary aspirations in life are reaching for the highest branches of my career and having a healthy family lifestyle. While enjoying all aspects of life as a student, I still strive to always consider my future suc-

cesses in society and the impact that any actions I commit may have on others as a result. Whilst acknowledging that it is necessary to help others to the best of my ability in advancing their own lives, I take a larger interest in ensuring a secure, comfortable lifestyle for myself. The technological environment has captivated my interest from a very young age and my fixation on developing technology that will help the human race in experiencing a more enjoyable life is a testament to that. It is through software development that I hope to leave my legacy in this world, since I see this as the most ef-

fective way for myself to leave this world in a better state than I found it. I am eager to tackle new challenges and pride myself on the fact that I am always able to find a solution to a problem. It is for this reason that I can describe my approach to programming using the expression "Where there is a will, there is a way". Although I am confident of my abilities as a software developer, I respect the fact that there are people who have a much broader knowledge of the field than I do and am willing to learn from these people in order to further my own experience.

Experience

Barone, Budge & Dominick (Pty) Ltd

Bursar

BBD implements and maintains complex business systems. A customer with a requirement for custom software, which must fit into their business, and must meet the business goals approaches BBD with the goal in mind of obtaining a software solution thereof.

HOUGHTON ESTATE, JOHANNESBURG
Jan'13 – present

Technical Skills

Technical expertise: Software development aspects including software design patterns, data algorithms and programming fundamentals (Novice). I have experience in Delphi (4 years), Java (3 years), C# (3 years), C++ (1 year) and SQL (2 years). I also have a wealth of experience with web technologies such as HTML, XML, and JavaScript (Angular, NodeJS, BootStrap, jQuery). Additionally, I have a moderate knowledge of various Artificial Intelligence concepts and an extensive experience in Information System modelling.

Natural languages: English (*mother tongue*), Afrikaans (*full professional proficiency*), Greek (*elementary proficiency*).

Interests

Non-exhaustive: Technology, Sports (Rugby), Socialising, Outdoors, Gaming, Travelling

Non - Technical Strengths

Social skills: I am a person who has a witty sense of humour. I see myself as the forerunner of my group of friends and am always keen to organise a get-together at my place of residence. In terms of meeting new people, I portray my true self because I believe in always being who I am, and I have been in contact with many different kinds of people so I have a good understanding of communication with most people.

Professional skills: I always try my best to be punctual and to have work completed by the deadline as this is the only way a group will be able to complete a project effectively and I like to consider actions carefully in conflict situations rather than force my own ideas upon others.

Why DVT Drive Stats?

Because: This project has an element of mobile development and benefit to our community. I feel that driving in South Africa is a dangerous daily task and a system that rates drivers will improve awareness of safe driving. This project falls in line with the kind of work I would like to do one day and so am ready to tackle this new venture.

1 Project Execution

1.1 Ideas and Technologies

1.1.1 Technologies to be Used

After due consideration and taking into account the received requirements, the following technologies will be used:

ASP.NET MVC 5

This will be used to develop the back-end of the system, using Microsoft's Visual Studio IDE.

ASP.NET Web API

This will form the back-bone of the API with which the rest system will interact (possibly hosted in the cloud).

C#

Will be used in conjunction with .NET development.

MySQL

This is the relation database which will be used.

Xamarin or Android Studio

The decision has yet to be made on whether the C# Xamarin approach will be used or the traditional Java in Android Studio approach, to develop an Android application. One of these two will however reign supreme.

1.1.2 Implementation Ideas

In order to develop the back end of the system [API]:

- One could do hosting in the cloud with the Microsoft Azure hosting platform - As students we would have access to many Microsoft products by registering at www.dreamspark.com

The Repository Pattern as well as IoC (Inversion of Control) can be implemented. Another possible pattern that could be investigated is the Unit of Work pattern.

Open authentication using Gmail or Facebook, can be used to login and compare driving scores or results, either on the website or a social network.

There are various Android Wear APIs which form part of the Android Support Library and Google Play services. When using these libraries, hand-held devices running Android 4.3 or later can communicate with wearables. These APIs can handle synced notifications, voice actions and sending data between the hand-held devices and wearables devices.

1.1.3 Project Extension Ideas

The following was considered as possible future extensions on the current project specifications:

- Driving Tips
Tips could be given by the app on to improve a certain individuals driving e.g. brake slower, as to increase his score.
- Android watch notification sister-application
The idea behind this is that while the main app is tracking the user's travelling speed, if it is the case that a user is travelling at a rate which is greater than the speed limit in his vicinity the user will be made aware of this fact. This alert can take place in the form of vibrations or sound emitted by the watch as to not interfere with the user's driving.
- Voice Recognition
CMUSphinx can be used as the speech recognition software. It is open source and it also provides good Java integration and demo applications. The alerts from the sister-application could be dismissed by speaking a certain phrase as an example.

- Game mode for non-business purposes

By providing a "game-mode", it could do a lot for the popularity of the app if users could challenge their friends to see who is the better driver.

- Social media

The app could be linked to social media â€¢ where users compare driving ratings with other members in their friend list.

1.2 Deliverables

1. Source Code
2. Unit Tests
3. Technical Specifications
4. User Requirements Specifications
5. Architecture Design
6. Build and Deployment Scripts or Instructions
7. Release Notes