RugBot – Project Proposal

Deliverable 1 - SP300 - 2018

W.P. RUGBY ACADEMY

RugBot Development Team
Group 2

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1 Group & Customer Information

The table below outlines, the group number, name and the members that make it up.

Group number:	2
Group name:	RugBot Development Team
Members:	**Student number:** XQ9X3WV31 **Name:** Matthew **Surname:** Van der Bijl
	Student number: MB2015-0023 **Name:** Tyler **Surname:** Gray
	Student number: PXHTJDCN5 **Name:** Stefanus **Surname:** Buys
	Student number: MB2014-0695 **Name:** Abongile **Surname:** Mdleleni

Customer:	**Full Name:** Angelo Nelson **Company:** WP Rugby Academy **Industry:** Sport Science

2 Project Introduction

We, the RugBot development team, have been tasked with the creation of a new and innovative system for Western Province Rugby Academy. This project will be delivered in eight deliverables. The document that follows outlines the Western Province Rugby Academy and the proposed system.

2.1 Background, Purpose & Scope

The sole purpose of the Western Province Rugby Academy is to facilitate the growth of young athlete so that they may reach their full potential. The Western Province Rugby Academy provides their athletes with an athlete development and high-performance rugby program to ensure that each individual athlete has the resources to complete successfully.

The rugby academy makes use of a functional strength and conditioning program with the purpose of transforming the young rugby boys into professional rugby men. This program which is implemented in their training is supported by a diet and an expert lifestyle management process.

The role of the Academy is to work on all athlete's skills, fitness progression, discipline on the field, coping with pressure and decision making. This is done to ensure that each individual athlete understands their role in the team as well as to develop them as well-rounded individuals.

The rugby academy works with Headstrong Consulting who provides their athletes with a sports psychology program which recognises the importance of providing structure, education and professional guidance.

The purpose of this project is to develop a new management application for the Western Province Rugby Academy. The system will include the creation of an application which will support mobile devices for management purposes. The application will allow the rugby coaches full control and easy communication over the day-to-day activities, training sessions, record keeping and management capabilities. The application system will include a section for the rugby players to view their weekly timetable, match fixtures and the teams which will be playing in the matches.

It is clear that the rugby academy would benefit from the development of the new management system. The new system would allow the coaches and management to apply full attention the athletes rather than struggling with an outdated paper-based system.

2.2 Aim & Objectives

The aim of this project is to develop and implement a Management System to support record keeping, access control, communication and management control. The primary objectives of the new system are:

1. Allow the user to manage their day-to-day administration;
2. Meet all user requirements; and;
3. Allow all users to create, read, update and delete records where appropriate.

It is vital that the users find the final system easy to use, useful and provides with a holistic experience.

RugBot has the potential to change how the Western Province Rugby Academy functions on a fundamental level.

3 High-level Requirements

According to Sommerville (2011), high-level requirements specify what the system must do, but does not provide detailed explanations on how implementation should be done. System requirements should seek to describe the behaviour a system in the simplest manor possible as well as outline the system's operational restraints (Sommerville, 2011).

3.1 Functional Requirements

According to Sommerville (2011), functional requirements state the services that the system must provide and how the system should react to specific inputs and situations.

Table 1 Functional Requirements

Identifier	Requirement Description
FR01	Users must use a one-time login to log in to the application for authorization purposes.
FR02	Coaches must be able to take an attendance list of students at practice.
FR03	Coaches must be able to view a backlog of student's attendance for past dates.
FR04	Coaches must be able to view a list of all their students and their availability for practise sessions and matches.
FR05	Coaches and students must have a calendar with a practise match dates and times.
FR06	The physiotherapist must be able to mark a student as injured and not able to practise or play matches.
FR07	The physiotherapist must be able to add an estimated date of when a student will be able to practise again.
FR08	If a student missed more than three practise sessions, the coach must receive a notification of the student's absence.
FR09	The coach must be able to see the total of boys at practice.
FR10	The coach must be able to assign jersey numbers to players on match dates.

It is key that users are able the create, read, update and delete all data that they insert into the program.

3.2 Non-functional Requirements

According to Sommerville (2011), non-functional requirements do not directly describe what the system must do. Non-functional requirements define the properties that a system must have, for instance, performance, security etc.

Table 2 Non-functional Requirements

Identifier	Requirement Description
Performance	
NFR01	Database response times must be very quick.
NR02	Quick response times in applications.
NFR03	GUI must be quick and responsive.
Design	
NR04	The GUI design must be minimalist and simple.
NFR05	Navigation of the application must be sensible and straight-forward.
Security	
NFR06	The database must only be accessible by authenticated users.
NR07	A user must be able to access only data specific to their authorization level.
Reliability	
NR08	The application should never crash and be bug-free.
NR09	The application must be able to operate even when connected to the database is lost.
NR10	The database must be able to have multiple users access it at the same time.
Scalability	
NR11	The system must be able to grow in terms of active users.

It is vital that the project conforms to the modern design and usability principles. Ultimately, the users need to be provided with the best experience possible.

3.3 Technical Requirements

The technical requirements specify what technologies will be used during the development of the system. This will include software that is used in development; languages and frameworks that will be used; and what platform the system will be developed for and tested on.

Table 3 Technical Requirements

Identifier	Requirement Description
TR01	Users will need a mobile device running either Android or iOS to use the application.
TR02	Users will need an internet connection to connect to the database.
TR03	Firebase will be used for the database needs.
TR04	The application will be developed on the Ionic framework.
TR05	HTML, Sass and TypeScript (a superset of JavaScript) are the languages that will be used for development.
TR06	Developers will need Android and iOS devices for testing.
TR07	WebStorm or any modern code editor with TypeScript support will be used for writing and editing code.

The project's technical requirements should adapt to new technology and market change. It is vital that the client is presented with a truly modern system.

4. Schedule

The Gantt charts below shows an outline for the first deliverable, their task and dependencies as well as task duration and allocated resources. Both charts were made using Microsoft Project and follow precedents set by Schwalbe (2012).

The project the project initiation date is the 5th of February 2018. The deliverables due dates are as indicated below:

1. Deliverable 1: 23/02/2018;
2. Deliverable 2: 11/04/2018;
3. Deliverable 3: 10/07/2018;
4. Deliverable 4: 07/09/2018;
5. Deliverable 5 (User manual): 12/10/018;
6. Deliverable 5 (Evaluation Report): 19/10/2018;
7. Deliverable 6: 02/11/2018; and;
8. Demonstration: 09/11/2018.

Each deliverable needs to be completed, reviewed and submitted before the submission dates. It is key that all components are completed on time. The Gantt chart should be updated for each submission.

The Gantt chart below presents the proposed schedule for the first deliverable of this project.

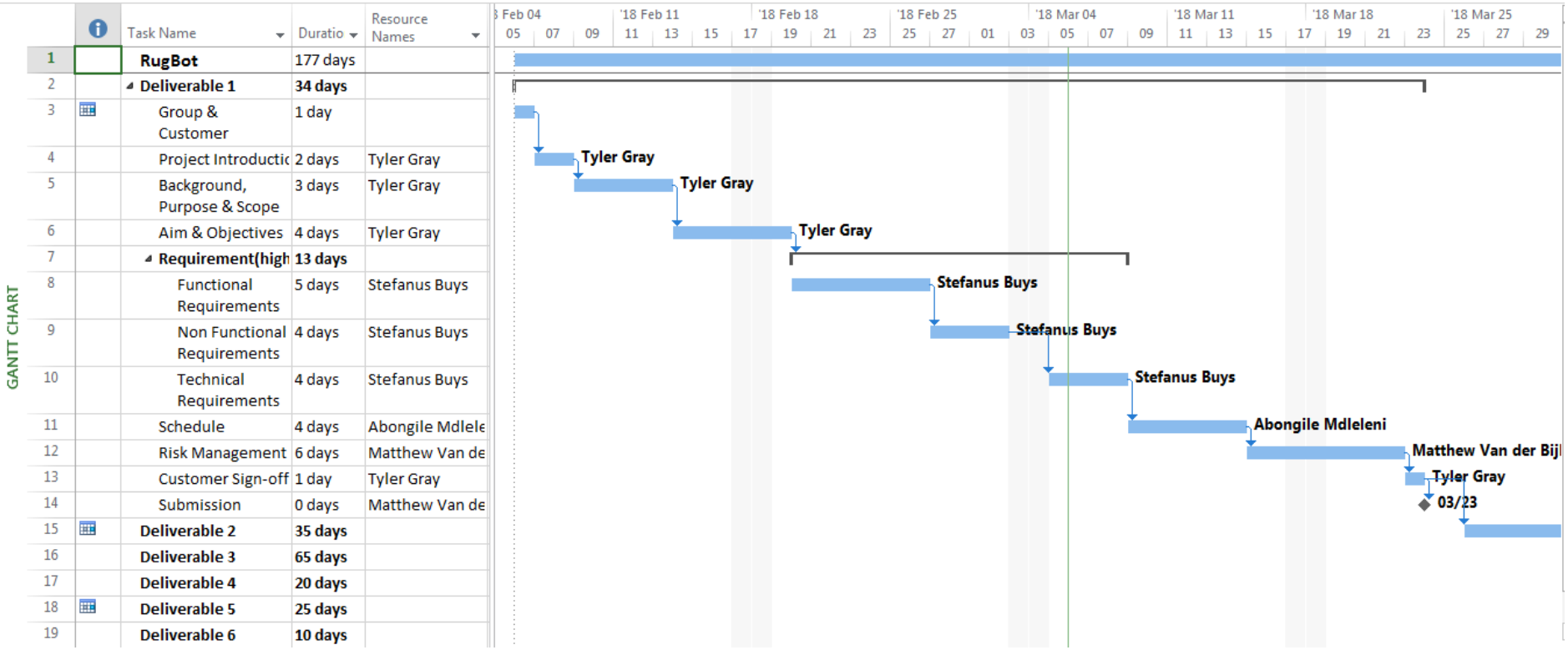

Figure 1 Gantt Chart showing Deliverable 1

As seen above, the project has been broken down into several logical chunks each with time allocated to them.

5 Risk Management

Risk concerns future happenings (Pressman & Maxim, 2015). Schwalbe (2012) defined a risk as the possibility for a future loss or injury to occur. The effective management of risks is paramount to the success of a project as highlighted by the appearance of risk management in the nine knowledge areas of project management proposed by Project Management Institute (2013). According to Buttrick (2009), actively monitoring risks is vital to good project management.

Project risk management is the process of identifying, analysing and accounting for risks during a project's lifecycle to ultimately ensure that the goals of the project are met (Schwalbe, 2012). Schwalbe (2012) states that the true importance of project risk management is often misunderstood. It is vital that project managers understand the nine knowledge areas to increase project success (Schwalbe, 2012). Unresolved risks may lead to late system delivery, budget depletion and other project problems (Sommerville, 2011).

However, it is important to note that Project Management Institute (2013) states that if a risk occurs it may have a positive impact on a given project. Botha and Musengi (2012) note that the ability to calculate and take risks may lead to greater finical success. As stated by Drucker (1975), though it is an act of futility to try and eliminate all risks is it essential that efforts are made to help mitigate them.

Risk identification is the ongoing process of spotting and documenting potential risks to a project (Project Management Institute, 2013; Pressman & Maxim, 2015). According to Schwalbe (2012) risks can be placed in one of five categories, namely:

1. People
2. Technological
3. Market
4. Financial
5. Structural

Buttrick (2009) states that risks need to be identified and evaluated in a consistent manner throughout the project's lifecycle. Pressman and Maxim (2015) suggest the construction of a risk management plan. All members of a project's team, including stakeholders, needs to actively participate in risk management (Pressman & Maxim, 2015).

Once a potential risk has been identified a response needs to be formulated. Project Management Institute (2013) defined risk response as the process of developing actions and options to combat a risk. Schwalbe (2012) outlined four basic responses to negative risks, namely:

1. Acceptance;
2. Mitigation;
3. Avoidance; and;
4. Transference.

Risk management is needed from the onset of any project (Buttrick, 2009). It is important to focus on the risks with the greatest probability of occurring and those with the greatest impact (Buttrick, 2009).

With effective risk management, any project can be completed successfully. The ongoing identification of risks ensures that the entire project team is aware of the project's status. The effective management of risks is project management. Ultimately, risk management ensures that the projects are delivered.

Risk management refers to the identification, analysis, and prevent potential issues that may occur with a project.

Table 4 Risk register for RugBot

No.	Rank	Risk	Description	Category	Root Cause	Triggers	Potential Responses	Risk owner	Probability	Impact	Status
R13	1	**Poor project control**	Poor project control may lead to late project delivery or failure to deliver any system.	People	Poor team management.	Failing to monitor the overall status of the project.	Meet with the client. Consult objectives, requirements and scope.	RugBot Team	High	High	RugBot Team members will continue to monitor and control the project.
R14	2	**Impossible targets**	The deadlines of deliverables and milestones are unattainable.	People	Poorly established requirements.	Failing to understand what the client requires.	Reevaluate project targets.	RugBot Team	High	High	RugBot Team will need to evaluate the project and set reasonable goals.

No.	Rank	Risk	Description	Category	Root Cause	Triggers	Potential Responses	Risk owner	Probability	Impact	Status
R0D	3	**Scope creep**	The client requests additional features, to increase the scope after the scope has been established and development has begun.	People	Poorly established requirements.	Failing to manage the project and understand what the client requires.	Meet with the client. Consult objectives, requirements and scope.	RugBot Team	High	Medium	RugBot Team will need to consult the requirements of the project.
R0E	4	**Unreliable operation**	The system does not operate as intended dues to logical errors and bugs in the system.	Technological	Poorly constructed system.	Falling to effectively test the project.	Perform thought project testing and rectify any errors that occur.	RugBot Team	High	Medium	The projects need to be thoroughly tested and bugs corrected.

No.	Rank	Risk	Description	Category	Root Cause	Triggers	Potential Responses	Risk owner	Probability	Impact	Status
R11	5	**Operational issues**	The system does not operate as intended and thus does not meet the client's business needs.	Technological	Poorly constructed system.	Falling to effectively test the project.	Meet with the client. Consult objectives, requirements and scope.	RugBot Team	High	Medium	Team members will communicate with the client and make corrects where necessary.
R12	6	**Poor response time**		People	Poor team coordination.	Failing to operate together as a team.	Perform thought project testing and rectify any errors that occur as they occur.	RugBot Team	High	Low	Team members are meeting regularly.

No.	Rank	Risk	Description	Category	Root Cause	Triggers	Potential Responses	Risk owner	Probability	Impact	Status
R03	7	**Overall quality of the project is not up to standard**	The quality of the final product to the client is not acceptable resulting the client refusing to use the product.	People	Poorly constructed system.	Falling to understand and effective test the project.	Perform thorough usability testing and make corrections where needed.	RugBot Team	Medium	High	Team members are working hard to ensure that their development skills are second to none.
R05	8	**No clear vision of final project**	Dues to poor requirement analysis, poor scope establishment or the complete misunderstanding the client's needs to final product delivered does not meet the client's needs.	People	Poorly established requirements.	Failing to establish project requirements and understand what the client requires.	Meet with the client. Consult objectives, requirements and scope.	RugBot Team	Medium	High	Team members are meeting regularly. The client is being consulted on a regular basis.

No.	Rank	Risk	Description	Category	Root Cause	Triggers	Potential Responses	Risk owner	Probability	Impact	Status
R08	9	**Risks are ignored**	Ignoring critical risk will lead to the failure of the project.	People	Poor team coordination.	Failing to manage the project and project team.	Review the project and team structure. Make rectifications where needed.	RugBot Team	Medium	High	The status of the project is being continuously evaluated and any risks identified are being resolved.
R09	10	**The client does not accept the final product**	If the final product does not meet the client's needs the client, the client won't accept it. Ultimately, the project will fail.	People	Poorly established requirements and poorly constructed system.	Failing to manage the project and understand what the client requires.	Meet with the client. Consult objectives, requirements and scope.	RugBot Team	Medium	High	The client is being consulted on a regular basis.

No.	Rank	Risk	Description	Category	Root Cause	Triggers	Potential Responses	Risk owner	Probability	Impact	Status
R0A	11	**Poor interface design**	Poorly design interfaces will have a detrimental effect on the use of the product.	Technological	Poorly constructed system.	Failure to effectively develops and testing the system.	Meet with client and evaluate prototypes. Refer to design principles proposed by Preece, *et. al.* (2015)	RugBot Team	Medium	High	The project is being continuously evaluated
R0C	12	**Unfeasibly implementation**	The product required by the client cannot be created because of insurmountable technical challenges.	Technological	Poorly established requirements.	Failing to manage the project and understand what the client requires.	Reevaluate the project and make necessary corrections. The client may need to be involved in the process.	RugBot Team	Medium	High	The project is being continuously evaluated

No.	Rank	Risk	Description	Category	Root Cause	Triggers	Potential Responses	Risk owner	Probability	Impact	Status
R10	13	**Users change their mind**	The client decides that the system is no longer needed. This may be caused by changes in the external environment.	People	Poor client management.	Failure to understand what the client requires.	Meet with the client. Consult objectives, requirements and scope.	RugBot Team	Medium	High	The client is being consulted on a regular basis.

No.	Rank	Risk	Description	Category	Root Cause	Triggers	Potential Responses	Risk owner	Probability	Impact	Status
R04	14	**Unresolved personal disagreements**	Intergroup conflict which affects the productivity of the group. This may lead to the late delivery of the project, have a detrimental impact on the quality of the project and ultimately lead to the failure of the project.	People	Poor team coordination	Failing to manage the project and project team.	Elect a member of the group to mediate conflict during a group meeting. Go for some coffee.	RugBot Team	Medium	Medium	Team members are meeting regularly.

No.	Rank	Risk	Description	Category	Root Cause	Triggers	Potential Responses	Risk owner	Probability	Impact	Status
R06	15	**Poor team coordination**	Poor team communication and coordination will have a detrimental effect the productivity of the team.	People	Poor team coordination	Failing to manage the project and project team.	Meet as a team and work.	RugBot Team	Medium	Medium	Team members are meeting regularly.
R07	16	**Poor integration management**	Poor integration management of final product may lead to the client rejecting it.	Operation	Poor client management.	Failure to understand what the client requires.	Consult the client and make correction where needed.	RugBot Team	Medium	Medium	Team members are meeting regularly.

No.	Rank	Risk	Description	Category	Root Cause	Triggers	Potential Responses	Risk owner	Probability	Impact	Status
R00x	17	**Incorrect requirements analyzed**	The user's requirements are poorly analyzed or misunderstood. This may result in the wrong problem being addressed	People	Poorly established requirements.	Failure to understand what the client requires.	Review project objectives and reanalyze project objectives. The scope of the project may need to be adjusted.	RugBot Team	Low	High	Team members are meeting regularly. The client is being consulted on a regular basis.

No.	Rank	Risk	Description	Category	Root Cause	Triggers	Potential Responses	Risk owner	Probability	Impact	Status
R0B	18	**Failure to deliver the system**	Due to unforeseen consequences or the investable failure of the project, the project gets terminated before the delivery of the final product.	People	Poor team coordination	Failure to understand what the client requires as well as failing to manage the project and project team.	Consult the client and make correction where needed to ensure that the final system is delivered.	RugBot Team	Low	High	Team members are meeting regularly. The client is being consulted on a regular basis.
R00	19	**Poorly defined scope**	The scope of the project is poorly established resulting in the wrong problem being addressed.	People	Poor team coordination and client management.	Failing to manage the project and project team.	Review project objectives, reanalyze requirements and amend project scope.	RugBot Team	Low	Medium	Team members are meeting regularly. The client is being consulted on a regular basis.

No.	Rank	Risk	Description	Category	Root Cause	Triggers	Potential Responses	Risk owner	Probability	Impact	Status
R01	20	**Poorly defined scheduled**	The deadlines for key deliverables and project milestones are poorly established. This may result in late deliverable delivery.	Schedule	Poorly established requirements.	Failing to manage the project and project team.	Review project objectives and scope. Reconstruct schedule accordingly.	RugBot Team	Low	Medium	Team members are meeting regularly. The client is being consulted on a regular basis.
R02	21	**Poorly estimated budget**	The overall budget for the project is poorly established or misunderstood. This may lead to the misappropriate of funds.	Financial	Poorly established requirements.	Failing to manage the project and project team.	Review project objectives, requirements and scope. Reconstruct budget accordingly.	RugBot Team	Low	Low	Team members are meeting regularly. The client is being consulted on a regular basis.

No.	Rank	Risk	Description	Category	Root Cause	Triggers	Potential Responses	Risk owner	Probability	Impact	Status
R0F	22	**Poor maintenances of documentation**	Poor documentation is developed and maintained for the duration of the project's lifecycle.	People	Poor team coordination.	Failing to manage the project and project team.	Meet as a team and get the work done.	RugBot Team	Low	Low	Team members are meeting regularly to work on the documentation.

As seen in the table above, though there are many risks the RugBot the impact of all risks can be mitigated through effective risk management.

6 Customer Sign-off

Customer name and surname	**Customer signature**	**Date**
Group leader name and surname	**Group leader signature**	**Date**

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