

## CSC3003S Capstone Project — Stage One

### Goals (Scope) [21 Marks]

Project Abbreviation and Name	CBIB: A tool for managing research outputs
Client/Supervisor + email	Tommie Meyer, tmeyer@cs.uct.ac.za
Tutor + email	Takunda Chikondo, tkchikondo@gmail.com
Date	3 August 2018
Team Members	Student Number, First and Last Name, email
	DPLKYL002, Kyle Du Plessis, <a href="mailto:dplkyl002@myuct.ac.za">dplkyl002@myuct.ac.za</a>
	MBSSUZ001, Suzan Mabusi, mbssuz001@myuct.ac.za
	SBRDIY001, Diya Seeburrun, sbrdiy001@gmail.com
Overall purpose and stakeholders [5]	<p style="text-align: center;"><b><u>Overall purpose:</u></b></p> <p>The overall purpose of the project is to create a web-based tool for managing the research outputs produced by the Center of Artificial Intelligence Research (CAIR) members in South Africa. The Centre for Artificial Intelligence Research (CAIR) is a virtual centre, hosted at the Council for Scientific and Industrial Research (CSIR), with nodes at a number of South African universities. The tool should enable users to easily: add, modify, and delete entries corresponding to research outputs; search entries based on various criteria; produce various reports based on the stored information. This functionality would be provided with appropriate levels of security built-in. This web application aims to allow easy research paper management and access related to CAIR by various users. The web application aims to allow particular functionality and provide different views depending on user type - which includes Global Administrators, Node Administrators, CAIR members and Observers (general public or non-members). The high-quality and robust web application strives to follow good design principles, be visually appealing and easy to use and navigate by the user, with all key functionality and features outlined working optimally and as expected.</p> <p style="text-align: center;"><b><u>Stakeholders:</u></b></p> <p>CAIR, CAIR Members, Non-Members (general public or observers), Sponsors, Nodes (universities and organizations)</p>
SMART Goals [5]	<p style="text-align: center;"><b><u>Functions and features that will be available to users:</u></b></p> <ol style="list-style-type: none"> <li>1. All users should be able to filter papers according to author, node and year.</li> <li>2. Non-members (observers) should have the ability to only view research outputs and paper details (Title, type, author(s), year of publication, abstract and sample bibliography). They are limited to seeing basic information and cannot log-in.</li> <li>3. Global administrators, node administrators and CAIR members can</li> </ol>

	<p>log in.</p> <ol style="list-style-type: none"> <li>CAIR members can view and upload research outputs in pdf, txt, docx text formats.</li> <li>CAIR members can create, modify and delete research outputs of which they are a co-author.</li> <li>CAIR members can access and generate basic and detailed information of all the research outputs of which they are a co-author.</li> <li>Collaborated authors who are not members can view research outputs, and only modify their research outputs.</li> <li>CAIR members can modify details/work based on access control associated with their title. This as node administrator, local administrator or author.</li> <li>Global administrators authorizes who can be a CAIR member, can create accounts for CAIR members and node administrators, and can create new nodes. They can assume the role of any type of user.</li> <li>Node administrators can create, modify and delete research outputs for any CAIR members in the same node and generate basic and detailed reports related to their specific node.</li> <li>CAIR members and node administrators should be able to generate reports based on access control associated with their title. For example: a member who is an author can generate a list of research papers s/he had uploaded. Report can be generated a number of research papers or list of papers with details, organized per node or year.</li> </ol> <p><b><u>SMART goals:</u></b></p> <ol style="list-style-type: none"> <li>Web security best practices and tools should be used and incorporated during software development time into the web application to protect against web-based threats or sensitive information about members to be leaked and should be completed by 9h00 Friday 7th September 2018.</li> <li>The visually appealing web application with excellent design and layout should increase the web application traffic by 20% by the end of 2019.</li> <li>The novel features and functionality provided by the web application should increase the number of CAIR members utilizing it by approximately 10 new members per month by the end of 2018.</li> <li>The final product (report and software) including all client requirements and functionality described in this scope document should be delivered and submitted to client by 9h00 Friday 7th September 2018.</li> <li>The number of critical bugs / errors in the web application at delivery time (9h00 Friday 7th September) should be zero and less than 5 minor / trivial bugs.</li> <li>The number of security flaws in the web application at delivery time (9h00 Friday 7th September) should be zero.</li> <li>The odds of project schedule delays should be reduced to less than</li> </ol>
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	<p>20% closer to delivery time (9h00 Friday 7th September).</p> <ol style="list-style-type: none"> <li>The team's development speed should increase by 70% closer to delivery time (9h00 Friday 7th September).</li> <li>Project scope, roles and risks would be completed by 3rd August 2018.</li> <li>Project planning and modelling would be completed by 10th August 2018.</li> <li>Prototype &amp; progress reports would be completed by 17th August 2018.</li> <li>The final software product will be demonstrated to the client by 17th to 21st September 2018.</li> </ol>
Inputs, outputs and performance [5]	<p style="text-align: center;"><b><u>Inputs:</u></b></p> <ol style="list-style-type: none"> <li>CAIR members write research and upload to the website (as repository).</li> <li>Input research information / research paper details as text ie, title, type (journal, conference, thesis), author, year.</li> <li>Ability to upload different text formats. ie. pdf, txt, docx.</li> <li>Proof of peer review (pdf document).</li> <li>Member information for account creation.</li> </ol> <p style="text-align: center;"><b><u>Outputs:</u></b></p> <ol style="list-style-type: none"> <li>Access detailed information from the website.</li> <li>Filtered papers according to author, node and year.</li> <li>Research preview showing abstract and bibliography reference.</li> <li>Basic / detailed reports (pdf document) containing either number of research papers or list of papers with their details, organized per year or node.</li> <li>Basic / detailed information of research outputs.</li> <li>Verification of proof of peer review .</li> <li>Verification / notification of new member added.</li> </ol> <p style="text-align: center;"><b><u>Performance:</u></b></p> <ul style="list-style-type: none"> <li>- Fast browsing through the website with minimal bandwidth consumption.</li> <li>- Fast uploading, downloading, processing and generating of reports.</li> <li>- Speed loading of web page content.</li> <li>- Ideal real-time response to users inputs. This involving quick moving from input page to response page, or producing desirable output.</li> <li>- Fast loading of research documents for view.</li> <li>- Minimal clicks for user to complete actions on website.</li> </ul>
Resources and Constraints [3]	<p style="text-align: center;"><b><u>Resources:</u></b></p> <ol style="list-style-type: none"> <li>Version / Source Control System. eg GitHub, BitBucket</li> <li>Bootstrap</li> <li>File optimizer</li> <li>Integrated Development Environment</li> <li>Project Management tools. eg Asana, Slack</li> <li>Web browser. eg Google Chrome, Mozilla</li> <li>Microsoft Office</li> </ol> <p style="text-align: center;"><b><u>Limitations:</u></b></p>

	<ol style="list-style-type: none"> <li>1. Web development tools at best / full functionality require payment, hence limited to low quality and quantity of resources and tools to make use of.</li> <li>2. Efficient project management tools are limited to payment, unless used on low features.</li> <li>3. Some programs require purchase of software licenses.</li> </ol> <p style="text-align: center;"><b><u>Challenges:</u></b></p> <ol style="list-style-type: none"> <li>1. Integration of the back end and front end system.</li> <li>2. Incorporating appropriate levels of security built-in to prevent security threats on vital information such as user contact details, passwords and other confidential data.</li> <li>3. Scalability, load balancing between the servers, hence, when the load increases (i.e. more traffic on the page)</li> <li>4. Designing the application to perform well even with limited Internet speed / performance and low memory on machine.</li> </ol>
Feasibility [3]	<p><b><u>Economic Feasibility:</u></b></p> <p>The project does not require a financial budget. Hence no funds are available to cover any development costs that may arise during the project time. Therefore this is not entirely feasible to maximize quality of the product (eg. purchasing software licenses), but still possible to complete the project on time and with all features and functionality required by the client without a set project budget or outside funding.</p> <p><b><u>Time/Schedule Feasibility:</u></b></p> <p>Time set to reach scope is realistic on following the set stages of the development process, and using the allocated time to complete the requirements of the client (ie. number of days to complete task and produce artefacts). The client's deadlines are realistic for the project to be completed successfully, allowing sufficient time for various deliverables to be submitted.</p> <p><b><u>Technical Feasibility:</u></b></p> <p>To a good extent the given technology support client requirements and that the goals of the project are technically possible. The hardware and software resources available are sufficient for all project work during the development and demonstration periods, and there is outside support available if any problems are encountered. The final software developed would be able to run with ease on the machines available and used during development.</p>

## 1. Instructions:

1. Replace any text on the right-hand-side column with information about your project.
2. Notice that there is no indication of how the inputs are transformed into outputs. There is no schedule either. That would be too much detail at this stage. We want only the "what", not the "how" or the "when" just yet.
3. If something is not applicable to your project, state this and explain why and provide some other relevant and appropriate information. Don't leave any blanks.
4. Submission is on Vula. Remove these instructions from your submission.

## 2. Follow-up

1. Bring this document to your next meeting with your client (or email it to them beforehand) and ask if it adequately represents the project. The “overall purpose” and “goals” sections are most important in this regard.
2. Resolve and note the solutions to any issues you might have about feasibility.
3. If the client is satisfied then please **ask them to sign off on this**. Otherwise arrange a revision and time to meet to sort out the issues.
4. *Note that your mark will be determined by your first submission.*