Abstract

As the desire to satisfy one's knowledge and understanding of things grow, a large need for information arises. Infrastructures that keep this information need to be built and provide all the necessary materials. Schools and universities are built that all provide information that seems fit for a particular caliber of a person. Nowadays more schools and universities are built which provide different experiences to different students. With the advancement of technology, six of ALU computing students part of the group named Crackajacks intend to design and implement a website that captures the journey and experiences of each student in the group from the first time they heard about ALU, up until the end of their first year of attendance. The website will provide this information with a dynamic functionality on the client side and not on the server-side. This project will produce a visualization of the group member's background, their thoughts about ALU, their social life, career and expectations, and mostly the experience that they have encountered while studying in Mauritius.

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1.Introduction

1.1 concept

Living in a different country where everything is new, almost everyone is new and the environment differs from the one you have grown in brings in new challenges, both positive and negative more especially when it comes to studies. As different students of different norms come together to form new norms, new chapters and experiences arise and are shared. This report details the design, development, and implementation of the website in relation to the journey and experiences of each student in the group from the first point that they heard about ALU, up until the end of their first year of attendance.

1.2 Overview

Crackajacks is a group comprising of 6 students of all whom it was their first time being in Mauritius and studying at ALU. As a group, there is an intention of bringing together their journey as ALU computing students and the experience that they have had living in Mauritius. In order to do this, Crackajacks will design and implement a website that will have all

this information for easy access and navigation through the information. The website will have three pages that will give an insight about the group's information. HTML5, CSS and JavaScript will be used to create the website that will be responsive across a variety of devices.

1.3 Aims

This project aims to produce web-based visualization of the student's journey at ALU and their experience of Mauritius as an island. It will also contain the student's backgrounds and future endeavors.

2. Group Organization and Roles

Group Member	ROLE(S)	PURPOSE OF ROLE
Pacifique	• Moderator • Schedule manager	- responsible for organizing group meetings, assigning tasks and communicating with the facilitator and module lead. - in charge of managing the Gantt chart and reminding group members to log in diary inputs.
Noel Adja	• GitHub managers	- In charge of creating and managing the group's Github repository, as well as assisting members with pushing local changes to GitHub. - In charge of taking notes during group meetings
Emmanuel	• Secretary	In charge of collecting content for the website and managing the Trello

		boards.
Mussie	• UI/UX designer	Responsible for the design process and ensuring the user experience design is up to standard and meets the system requirements
Harry	• Analyst	Responsible for the documentation of the project from specifications to report

3. Project Management, Design & Development Tools

3.1 Project management tools

3.1.1 Google drive

Crackajacks team members were able to work on the same drive at the same time, share different resources thanks to Google Drive. This tool also made it easier to keep track of the progress of members as well as collecting resources for references. Members were all familiar with it, so it was the obvious option to go with. A member might be assigned parts of a job that can be done using a piece of code used by another member. Given this, Google Drive came in handy for the member to update or retrieve the resources pertaining to the task assigned.

3.1.2 Git/Github

Crackajacks utilized the combination Git/GitHub to keep records of various versions of our code and to keep track of what each team member was working on. It assisted the group in keeping track of personal effort of each person. The group also chose it since it is the most widely used version control system. GitHub makes it simple to work on a project as a group and share different versions of the

updated code that every team member can access, work on, and push updates if they are in alignment with the system requirements.

3.1.3 Trello

Individual tasks were assigned and tracked using Trello. It was quite helpful in coordinating group operations because Crackajacks had someone in control and Trello offered the possibility of assigning tasks and deadlines as well as notifications, which proved to be extremely useful. It was also simple to track the progress of each team member and set tasks for them.

3.1.4 Gantt Chart

A Gantt chart was implemented, in parallel with the Trello board to give everyone an overview of the tasks to be accomplished by the end of each week. This helped giving a direct visualization of the entire week and a progress in percentage for each task to be cleared.

3.1.5 Netlify

Netlify is an easy-to-use serverless platform that provide hosting for websites. It has limited functionality for free accounts but was an incredible choice for easy deployment. It made it incredibly simple for Crackajacks to host the website in a scalable and secure manner. Serverless functionality and easy deployment are principles used by Netlify to provide sites quicker that many hosting providers, without caring about too many configurations. This made it easy for IP group 9 to see the final outcome of the website that they created as well as having a possibility of collecting a maximum of 100 form submissions to their dashboard.

3.2 Project design tools & justification

3.2.1 Figma

Figma provides end-to-end collaboration and a space for designers to grow from ideation to execution while working remotely. As a team, Crackajacks members were able to keep on collaborating, iterating through different ideas from the start of the design stage. Every member was kept in loop until the final design showed a result. Because of its collaborative and easy-to-use tools, the group chose to use Figma for high-fidelity wireframing.

3.2 Project development tools

3.4.1 Visual Studio Code.

The IDE that was used by the team for the development of the website was VS Code. It is simple to use and has numerous features such as auto-completion suggestions, automatic indentation, intellisense, live preview and many more features and extensions that make the life of programmers easier. It is commonly used as a build and debug text editor, which made it simple to complete our project on time, saving us enough time to focus on next features. Visual Studio Code also incorporates Git and Github, saving the team from the stress of remembering-even if not funny-the process of pushing changes online. There are buttons available for add/commit/sync(push) changes right from the editor, which is incredibly wonderful.

3.4.2 Google Chrome

Chrome was used to render the website that was being run from Visual Studio Code. It showed the progress of the website with the possibility of testing how the website appears on a wide variety of devices and screen sizes. It was used for verification and validation. Google chrome also came in handy with its web development tools that allowed the team to diagnose problems faster, access certain CSS classes/IDs from plugins in order to customize them and build a better website.

4 HCI approach

4.1 General aspect

Given the scenario of coming up with a website, Crackajacks had a number of components that they took into mind in relation to human computer interaction. This was done so that, as a group, they might be able to come up with an engaging user interface. Thoughts about the user cognitive experience, behaviours and emotions were considered, the overall aim was to meet the HCI usability goals.

Feature	Description	Purpose	General looks and feel(image)
Set of hyperlinks	The website contains a number of clickable hyperlinks features on different sections	To achieve the ease to use goal. The links improves the navigation of a user when surfing through the website	
Carousels	Carousels have been incorporated to visualize some data and enhance user interactivity	In order to appeal to the user's emotions and cognitivity, the sliders have been used to increase how visually appealing the website looks based on the content	
Videos	Different videos were used to illustrate the kind of experience that the group have had	To keep the users engaged and capture their attention the videos were used.	

	through their journey		
Contact Form	A form included in the website to give the possibility of sending a message to the whole team	This form will be helpful to receive direct feedback and any other information from users right from the website instead of giving them a hard time to set up an email.	

4.2 General Page Layout

The page contains a consistent header and footer that are shared across all the pages to make the website have the same look and feel throughout the entire time a user navigates from a page to another.

4.2.1 Home page

The home page(landing page) is designed in a such way that it is appealing to the users. It is crafted in a way that they can want to continue on browsing and going through the website content. It has a number of links, and sliders all of which are there to improve interactivity and a friendly user experience. The features of the landing page are the basic foundation of the journey of group members as ALU computing students and their experiences of the island of Mauritius. Moreover, visitors have the possibility of leaving comments on the bottom of the landing page. The footer has links that gives easy access to some sites and other social media affiliated to Crackajacks.

4.2.2 Story page

The story page covers all the information about the the six developers in the team. It is the center of the whole aim of the system. The website is built to share the experience and journey of the members of the group

and the story pages outlines the story behind each member. It has arrows that will help users to navigate from one story to the other, and also different images of different group members. It also has tabular features that are aiding in putting enough detail in a minimal space for the user to have contended mindset of not going a very long scroll in order to gather data/read information. It pins location from a country of origin for every member of Crackajacks. Sliders are included to provide a smooth switch from one user content to the other. The last section of this page includes advice of each member to prospective students of the ALU.

4.2.3 Contact us page

The contact us contains a form that prompts the users to input their information and the message that they would love to communicate to the group. There are also some information such as linkedin, github, twitter and instagram handles of all Crackajacks members that is provided for the user to contact check the contact the members individually.

5. SOFTWARE CREATION

5.1 Development Technologies

Technology	Purpose	Why it was used
GITHUB	A platform for collaboration and version control. It enables remote collaboration on projects between developers.	We had our product on GitHub, worked together and helped one another during the development phase. Very convenient for progress tracking.

HTML	HTML is a markup language whose components instruct a web browser as to how to render contents after the web browser has interpreted it.	HTML was used for marking up the contents so that they can be displayed onto the browser. Given that the website did not have too much complexity, it was obvious for us to go with the easiest and quickest of technologies to reduce the time we spend on learning Frontend frameworks. This is mainly because many of the team members were not comfortable with ReactJs and the energy to learn could be concentrated on delivering a better product with the skills they could all contribute with.
CSS	CSS is a style sheet language that was used to beautify the content of the document (color, fonts and layout)	CSS was used to style the document by giving it the look it required to be a good product. Some people go for Bootstrap. Some for tailwind or even Material UI. But why a framework if we are able to write understandable code in a more structured way? We chose CSS because of the ease with which every member of the team can locate a specific style and modify it as much as he wants. The advantage: we have shorter and cleaner classnames. Style sheets also help us import other style sheets inside them, which helps to separate the HTML from some CSS that are not very

		helpful in the markup head.
JAVASCRIPT	JavaScript a client-side scripting language used for creating dynamic web pages processed by the web browser. Slides, rollovers ,Tooltips and etc. can be achieved with the aid of JavaScript.	JavaScript helped in creating the slides and some of the rollovers over the website. Sliders were made using plugins to make them quicker and avoid to reinvent the wheel. Although we used mostly plugins for development, vanilla JavaScript was crucial in making the website a dynamic one.
Figma	Figma is a user interface design tool used in designing wireframes.	Members had a general notion of what the finished product should look like thanks to the Figma wireframes that were generated to serve as a reference during the design process. This tool allows to create high-fidelity wireframes that provided a look of the product the group intended to build.

5.1.1 Technology Diagrams

Technology	Diagram
GITHUB	
HTML	
CSS	
JavaScript	
Figma	

5.2 Developing the Application

5.2.1 Planning Stage

The planning stage involved formulating the requirements both functional and non-functional requirements. Identification of different personnel and role assignments was done in the planning the stage. The technologies to be used were also identified after the discussion and understanding of the Requirements Analysis and Specifications Document.

5.2.2 Designing stage

The look and feel of the application were discussed in the design stage where with the aid of different technologies and research, the group managed to achieve the structure and layout of the web contents.

i) Wireframe Design:
Using Figma, wireframes were created depicting how the contents of the website will be structured and laid out on the actual website.

ii) Web Page Design:
The pattern of the design followed the trend from the wireframes making it easy for the development. The table below shows different components embedded in different web pages.

Page	Component	Technologies Used	Creation process/result
Shared	Navigation Bar	HTML, CSS	The navigation bar was created with HTML and provided it with the hyperlink function and CSS helped to position it, color it and give it a meaningful font.
	footer	HTML, CSS	The hyperlinking of various elements within the footer, the marking up of other content went through the use of HTML and the styling was achieved using CSS.
	Image content	HTML, CSS	Most of the effects of the images were achieved through the use of HTML and the styling of it and the behaviors were achieved through the use of CSS
Home	Slides	HTML, CSS, JAVASCRIPT	HTML marked the content for display, Styling was done using CSS, JavaScript enabled the changes from one slide to the other.
	arrows	HTML, CSS	The arrows were marked and displayed using HTML. CSS helped to apply a wide range of styling to it.
Stories Page	General design	HTML, CSS	Most of the page's content were created and styled through the use of HTML and CSS.
	Slides	HTML, CSS, JAVASCRIPT	HTML marked the content for display, Styling was done using CSS, JavaScript enabled the changes from one slide to the other.
	Table	HTML, CSS	Most of the page's content were created and styled through the use of HTML and CSS.

Contact US Page	General Design	HTML, CSS	Most of the page's content were created and styled through the use of HTML and CSS.
	Form for data input	HTML, CSS	HTML, CSS were used to create the form with form tags incorporated with styling
	Card slides	HTML, CSS, JavaScript	HTML marked the content for display, Styling was done using CSS, JavaScript enabled the changes from one slide to the other

5.2.3 Development and Testing Stage

5.2.3.1 Interface coding
Using multiple technologies, Crackajacks populated the text editors with multiple lines of codes that helped to come up with working interfaces of different linked web pages.

5.2.3.2-unit testing
Each page was tested against the requirements upon its completion to check if it was meeting the requirements specified in the planning stage. The home page, stories page and contact us page were tested individually

5.2.3.3 Integration testing
Different components of the websites were tested in pairs to see if they can work together in order to meet the requirements that were set against them.

5.2.3.3 system testing
The entire system was tested against all the requirements set, latency, performance and other functional and non-functional requirements that were meant to be met at the end of the whole software development process.

5.2.3.4 Acceptance testing

The system was taken to some users who had to test it on the looks and feel of it, the ease to use, latency, availability and a number of criteria were put in place for them to go through with the test.

Functional Testing

User requirements gathered in the planning were tested through different stages and different phases but this part of the report talks more of the user acceptance testing where some users tested the systems requirements to see if the final product met what was expected.

6. Review of Final Deliverable

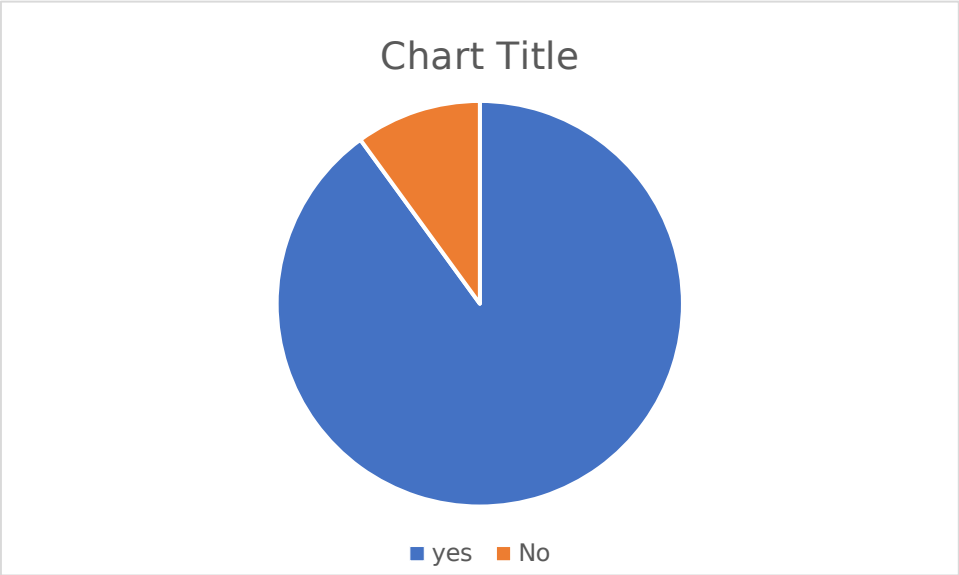
A google form was created to accompany the working and final software during the testing phase so we can do a user acceptance test on the system. A number of questions were given to the user through the google form and the following statistics were collected from the users based on their perspective on the system.

The google form was sent to about 20 people who had to use the system and answered giving us the following statistics.

1. Page Latency

Were you pleased with the loading and responding time of the page?

20 responses

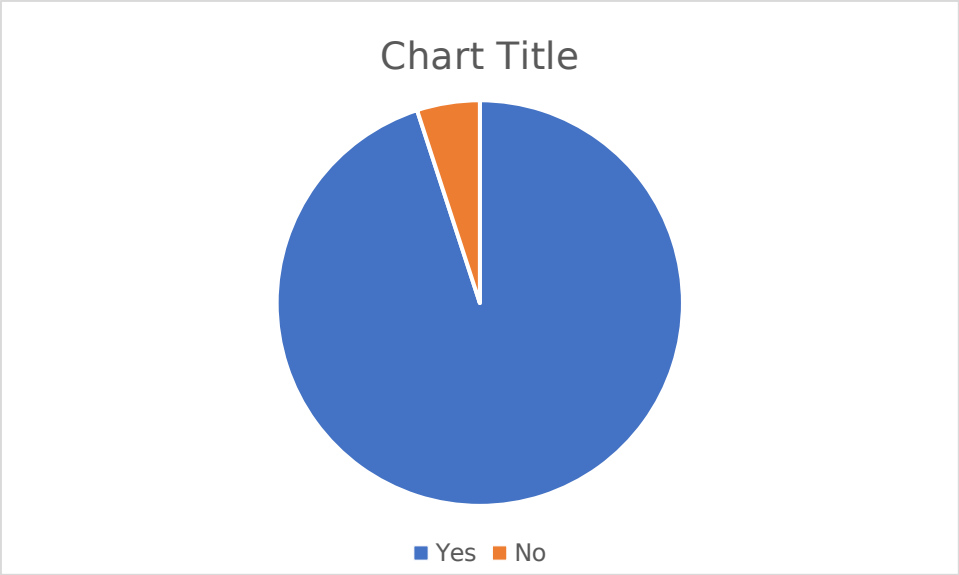


About 90% of the users loved the way the response time was while 10% did not like the response time. We resolved to keep things the way they are since the problem the 10% were experiencing was more likely an internet connectivity issue.

2. Color Scheme

Were the colors Consistent?

20 responses

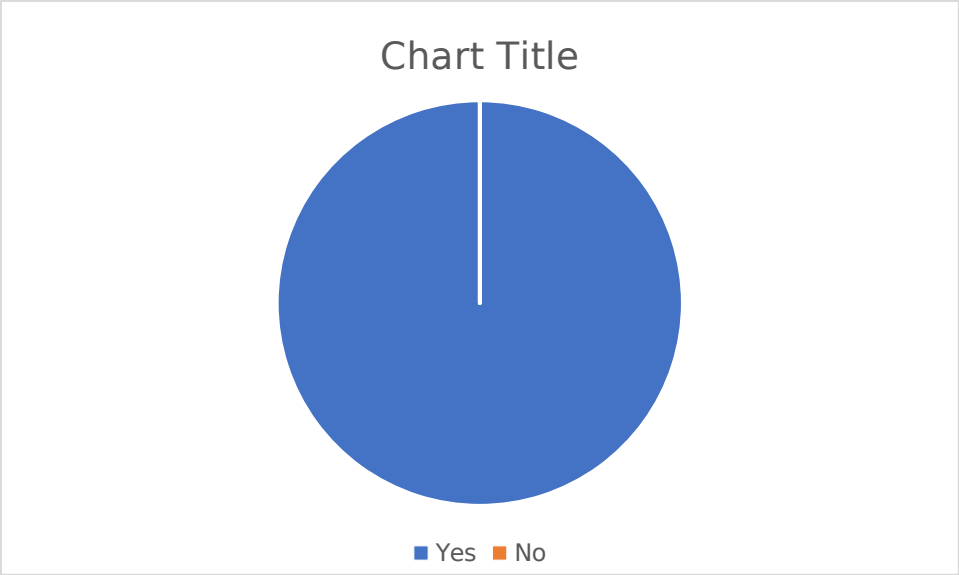


About 95% of the users said that the colors were consistent while 5% said that the color was not consistent.

3. Device Compatibility

Were the contents compatible with the device you used?

20 responses

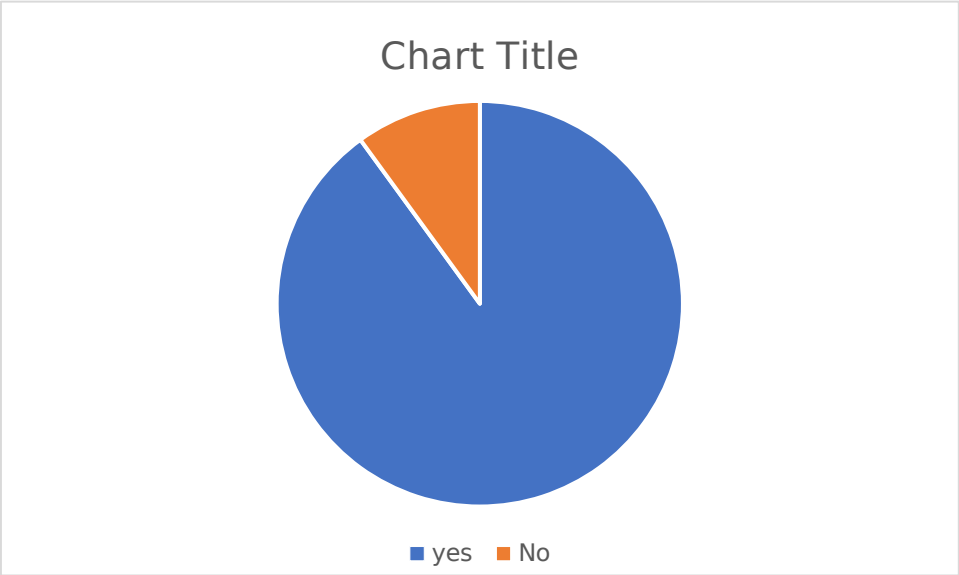


100% of the users said that the application was compatible with the device that they were using

4.Font Choice

Did you have any problem with font used?

20 responses

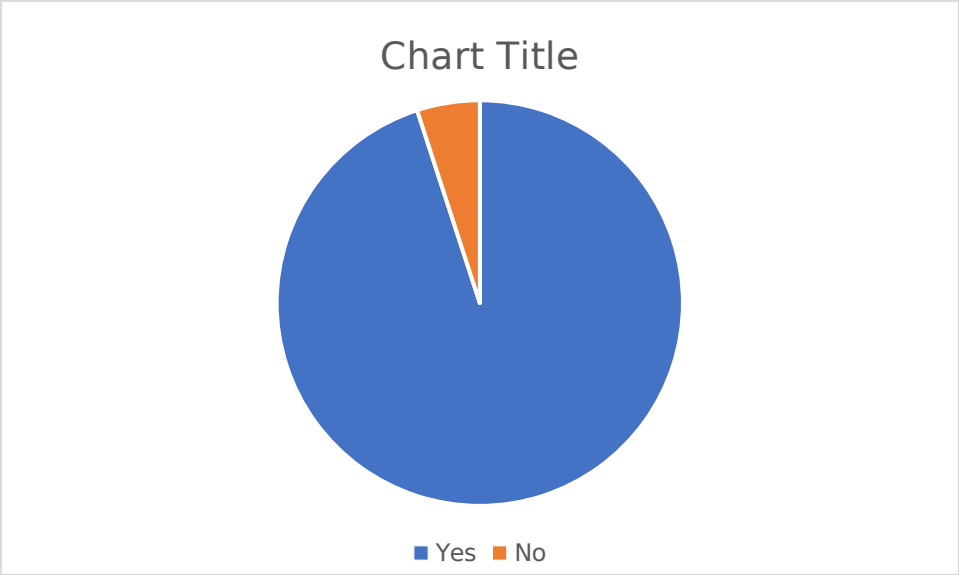


About 90% of the users said they had no problem with the website while the other 10% of users said they had a problem with the font.

5. Page Surfing

Was it easy to navigate through the website?

20 responses



About 95 % of the users said it was easy for them to navigate through the website while 5 % said they had problems navigating through the website

Conclusion

Discuss the project process and describe which aspects went as expected and which didn't.

The project started with a group meeting that laid the foundation of every aspect of the software development life cycle. A couple of meetings were held that involved assigning roles, breaking down the tasks, creating a time frame, gathering requirements. discussing the wireframes and understanding the technologies that were to be used in the long run of the lifecycle. Then a creation of GitHub repository, Gantt Chart, logbook, google drive folder and Trello for task tracking was done. After creating everything the team started providing the requirements that were gathered at first so that the designers could come up the wireframes. Every wireframe was brought to a meeting for further collection or acceptance before it served as the blueprint for the team assigned to code that particular page. The coding team

developped the page and brought it to the next meeting and group would test it and give their recommendations. Once a page was tested a new wireframe for the following page was given to a new team to code and the same process would be repeated until all the pages were created. During the entire process of creating and testing the pages, some members would work on the Gantt chart, logbook and google drive for all the resources to be recorded and kept. Trello kept the group accountable as it kept reminding the work and progress that the team had to accomplish. After creating all the pages, the team started testing the system as a whole with all the pages working together. Google forms were then created and passed to a number of users accompanied by the link to the website for user acceptance test. The acceptance test was done on a website hosted on Netlify.

- **Explain what you would do differently if you had to undertake the project again.**

Having to spend more and enough time in the requirement gathering and Planning stage is something that Crackajacks would do differently if the project was undertaken again. Some of the requirements that were though of at the beginning had to be refined in the long run of the project thereby causing some inconveniences. The other thing would be releasing a prototype that can be used to verify and validate the system with the users. The prototype would have helped to achieve a 99.9 acceptance from the users in terms of every criteria that was set for user acceptance testing. Yes, the end product has been well accepted but taking this into account would help to make it even better.

Provide three items of advice that you would pass on to students undertaking IP1 in the future.

1. Team player is the spirit, the IP1 is a project that encounters students carrying out the project in teams. If you are not a good team player you will bring your team down. Understanding each

other as a team and knowing oneself helps to provide a room for the team to progress.

2. Communication is the center of the project. Every part of the project depends on good communication, you might be someone who knows best on how to do some but if you cannot communicate then whatever that is will not work for the team. If you have a problem, if you feel like something should change or be improved or if you need something it all comes down to communication. Reach out to team members and see how as a group you can be able to achieve something

3. Time management. the whole process falls if you are not able to manage your time. IP1 needs good time management because of the things that also happens while undergoing it. you need to balance your internship time with IP1 as long as you learn to balance them then you will be able to come up with a good system.

APPENDIX 1 PRODUCT SCREENSHOTS

Home Page Screenshot

Stories Page Screenshot

ContactUs Page Screenshot

APPENDIX 2 DESIGN WIREFRAMES AND HIGH-FIDELITY EXAMPLES

Home Page Screenshot

Stories Page Screenshot

ContactUs Page Screenshot

APPENDIX 3 ACCEPTANCE TEST

Functional Requirement	User Stories	Acceptance	Tested and Working (Yes/ partially/ No)
1. Allow users to access team Information .	As a user I want to be able to see the experience and journey of the Crackajacks team.	• Opens the landing page • Surf around the page • Clicks on different links and surf different pages	Yes
2. Provides easy navigation	As a user I want to be able to click on a link to be taken to a related content after the name	• Clicks on a selected link • Opens a new page • Surfs the page	Yes

3. Provides further information on professional and social platforms	As a user I want to follow and see Crackajacks team professional and social information on their professional and social media platforms	• Clicks on professional/social medial link • Redirected to professional/social media platform	Yes
4. Provide a contact means to users	As user I want to be able to contact the team if need be for some information	• Opens the website • Click on contact us menu item • Sends message or extract an email for personal contacting	Yes

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