Design E-portfolio 24-25
Key Concept: Development
Related Concept: Adaptation
Global context: Scientific and Technical Innovation

MINDFULZEN

(A Solution To Children For Online Addiction)

CRITERIA A :Enquiring and Analysing

Strand (I): Explain and Justify the Need for a Solution to a Problem for a Specified Client/Target Audience:

Well-being is essential for leading a happy and balanced life. It includes physical, mental, and emotional health, all contributing to overall happiness. Good well-being helps us stay energetic, focused, and emotionally intense. Taking care of our health reduces stress and improves our quality of life. Prioritising well-being.

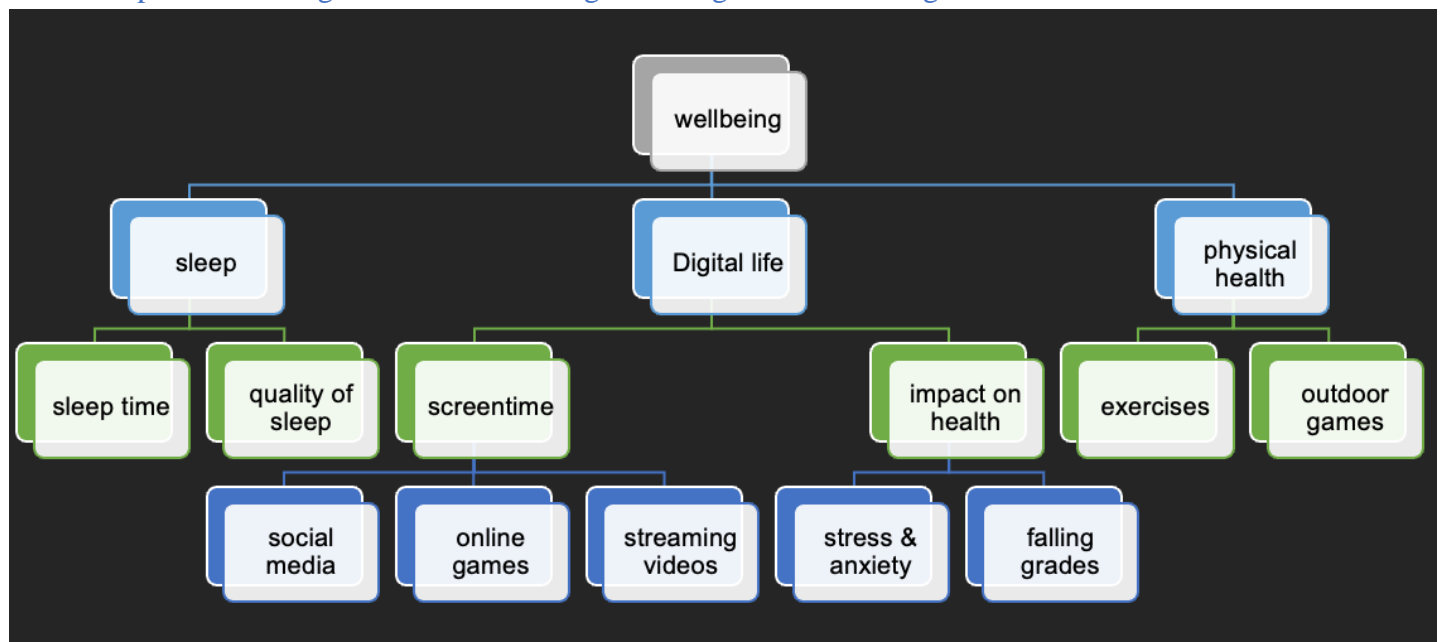Mind Map on Wellbeing: Factors Influencing/Effecting Teen Wellbeing

Figure: A(1)

There are so many factors to consider, including sleep, social interactions, screen time, and physical activity, that influence overall well-being, particularly among teens. Research says that excessive screen time reduces mental health and increases stress (Ref to. 1) Also, there are several research suggest that lack of sleep can cause loss of focus, concentration and well-being (Ref to. Article).

Major concerns on teens' well-being are on digital platforms. Research indicates that overuse of social media, online games, and streaming media for entertainment leads to sleep deprivation and decreased concentration in classrooms. **A 2023 report[1] published by the American Academy of Paediatrics indicates that adolescents who use screens for more than three hours a day are likely to face anxiety, attention problems, and falling grades.** This phenomenon is also observed in most classrooms, where students complain of not being able to concentrate because of disturbed sleep patterns and distractions from digital media. In addition, there has been a clear change in students' leisure activities. In the past, taking part in outdoor games and cultural activities was prevalent. Nonetheless, recent observations show that most students enjoy using digital gadgets during their free time instead of exercising. **The World Health Organization (WHO) reports[2] that a lack of exercise may lead to obesity, stress, and diminished cognitive development among adolescents.**

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[1] Impact of Excessive Screen Time on Adolescents' Mental Health and Academic Performance:
Twenge, Jean M., et al. "Associations between Screen Time and Lower Psychological Well-Being among Children and Adolescents: Evidence from a Population-Based Study." *Preventive Medicine Reports*, vol. 12, 2018, pp. 271–283. https://pmc.ncbi.nlm.nih.gov/articles/PMC6214874/

[2] Consequences of Physical Inactivity on Adolescents' Health: World Health Organization. "Physical Activity." *World Health Organization*, 26 Nov. 2020, https://www.who.int/news-room/fact-sheets/detail/physical-activity.

Moreover, teachers have complained about reduced involvement in extracurricular activities, which previously were of vital importance for developing social competencies and overall health.

These challenges underscore the need to embrace measures that enhance adolescent well-being. Promoting good sleeping habits, limiting screen time, engaging in physical exercises, and encouraging responsible digital usage are imperative measures toward a healthier balance. Correction of these issues through sensitization and organized interventions has the potential to dramatically improve the mental and physical well-being of students, further resulting in enhanced academic and personal development.

MindFul Zen

Student Behavior Issues

The pie chart highlights key student behavior issues related to screen time, sleep, stress, inactivity, and social connections.

Weakened social connections: 25%
Screen time: 13%
Poor sleep patterns: 19%
Lack of physical Activity: 20%
stress and anxiety: 23%

- Screen time
- Poor sleep patterns
- stress and anxiety
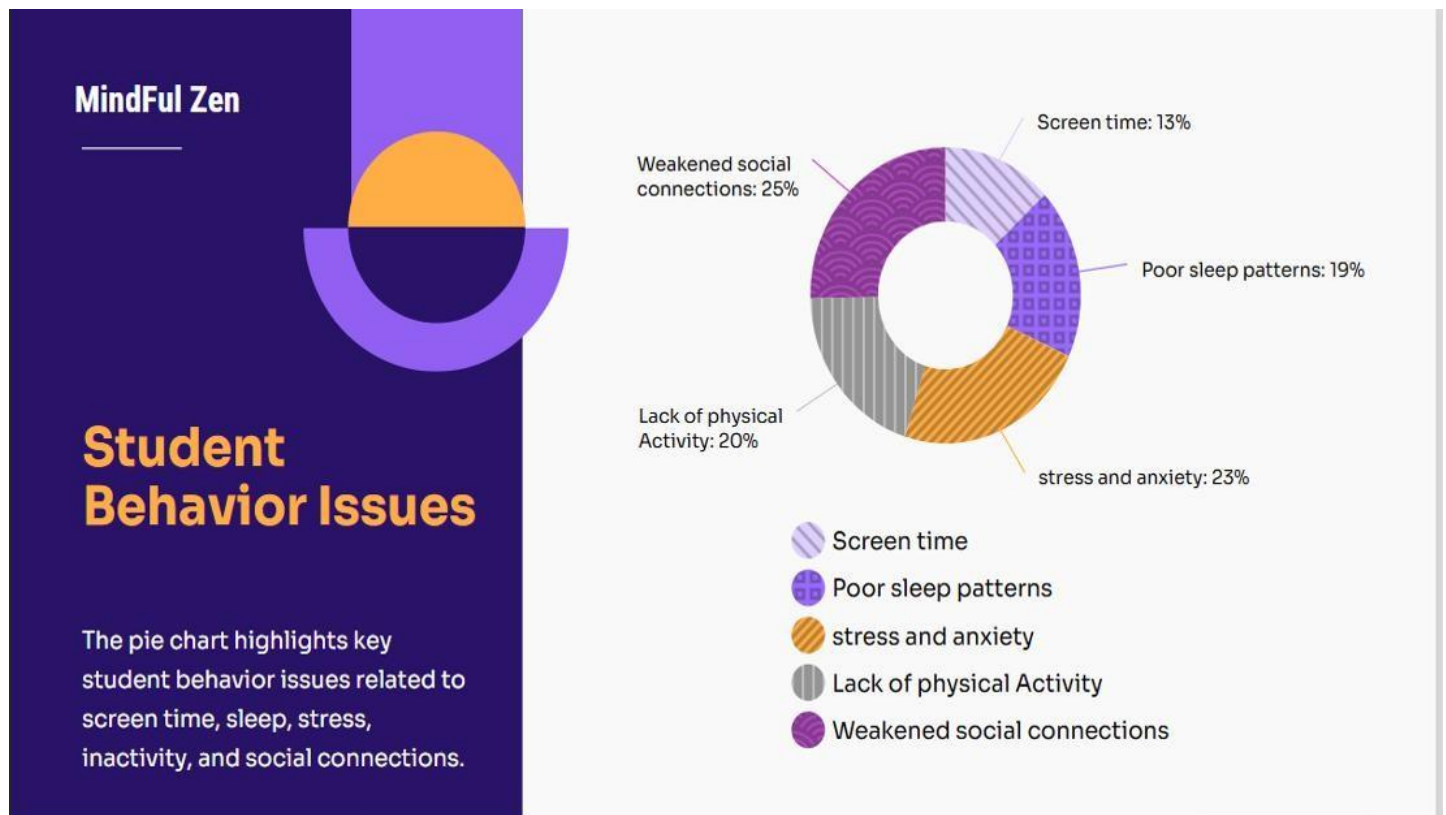- Lack of physical Activity
- Weakened social connections

Figure: A(2)

These problems not only impact physical health but also have profound effects on emotional and mental well-being. **Unhealthy digital habits form a cycle over time that is hard to escape[3].** For instance, late nights spent watching screens tend to leave one tired and more stressed, which in turn can lead to more digital consumption as a means of coping. This cycle can have negative effects on academic achievement, social relationships, and general happiness. Adolescence, more specifically the years from 10 to 13, is an age of developmental significance when habits take hold that affect long-term health. **The World Health Organization (WHO) research[4] explains that chronic sleep deprivation, excess screen exposure, and physical inactivity in these years can lead to changes in attention, elevated anxiety levels, and poorer academic achievement.** Additionally, the American Psychological Association (APA) highlights that well-organized time management and planned routines are essential in minimising stress and enhancing student productivity.

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[3] Impact of Unhealthy Digital Habits on Adolescents' Well-Being:
Arora, Teresa, et al. "Associations between Specific Technologies and Adolescent Sleep Quantity, Sleep Quality, and Parasomnias." *Sleep Medicine*, vol. 15, no. 2, 2014, pp. 240–247. https://www.sciencedirect.com/science/article/pii/S138994571300514X.

[4] World Health Organization on Sleep Deprivation and Physical Inactivity:
World Health Organization. "Physical Activity." *World Health Organization*, 26 Nov. 2020, https://www.who.int/news-room/fact-sheets/detail/physical-activity.

To address these challenges, there is an increasingly urgent need for solutions that are tailored for students of this age group. A thoughtfully designed digital platform can be a guided medium through which students may

develop better habits, balance screen use, and enhance time management skills. Researchers in adolescent psychology recommend that instead of shunning technology altogether, efforts be directed toward proper usage - harnessing digital tools to reinforce well-being instead of undermining it. To make such a platform effective, input from education and mental health professionals has been considered. School counsellors are the best people to know about the issues students have with time management, academic pressure, and general well-being. Research suggests that giving students autonomous but guided support systems, like interactive well-being tools, can enable them to form healthy, sustainable habits.

By combining expert advice with responsible use of technology, it is possible to develop a solution that supports well-being and does not erode it. This is in harmony with contemporary learning strategies that prioritise the overall development of students, empowering teenagers with resources to tackle challenges in an integrated and autonomous way.

Target Audience:

The target group for the project is students between 10 and 13 years, a formative age at which habits for a lifetime are established. Studies show that pre-adolescents are greatly impressionable, tending to follow peer pressure and online engagement patterns. **In line with the American Academy of Paediatrics, exposure at an early age to excessive screen use without control may cause problems like decreased attention span, quality sleep disturbances, and social isolation.**[5]

Teachers and child psychologists highlight that habits formed at this age group play a crucial role in well-being in subsequent years. As witnessed in different school environments, minute changes - like specific phone-free times - can influence students' social relationships, class engagement, and general well-being. Targeting this age group, the project seeks to intervene early and offer students organized direction on healthy digital use and time management.

Client and Professional Guidance:

To make this project effective and contextual, the contributions of Miss Kavya Sharma, a counsellor in a school, have been incorporated. Based on her great experience counselling 6–8-year-olds, she gave valuable insights towards the issues associated with young pupils managing studies, social life, and consumption. Research by the World Health Organization (WHO) emphasizes that systematic guidance from teachers and mental health experts can assist students in adopting healthier habits by making well-being a deliberate and enjoyable process. Miss Sharma's experience has reaffirmed the value of equipping students with self-regulation skills, enabling them to cope with stress, stay focused, and develop healthier habits. Her observations ensure that the project is in line with evidence-based strategies for adolescent well-being.

Statement of Inquiry (SOI) and Conceptual Connections:

The project corresponds with the Statement of Inquiry: "Healthy practices can shape well-being." Using structured digital tools, students can embrace and maintain well-being habits and show how slight changes in everyday routines can produce long-term beneficial results.

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[5] Role of Educators and Psychologists in Habit Formation and Well-Being:
World Health Organization. *Teacher's Guide: Promoting Psychosocial Well-Being among Adolescents*. 2021,
https://www.who.int/publications/i/item/9789240026261.

Key Concept – Development:

Just as students progress academically from fundamental concepts to advanced subjects, they must also develop healthy lifestyle habits to sustain their well-being. Studies in child development emphasize that well-being is not innate but must be cultivated through structured adaptation and conscious practice. With technology use unavoidable in this day and age, eliminating it is not the objective. **Studies emphasize the fact that intelligently created online tools can be used to support students in increasing concentration, sleeping habits, and exercise levels and not just being a distraction for them.[6]**

Global Context – Scientific and Technical Innovation: The project illustrates how technology can be a means to well-being and not an obstacle. Research on digital well-being tools shows that well-designed apps can motivate users to take breaks, exercise, and organize their time effectively, creating a healthier and more organized way of life.

STRAND (II): IDENTIFY AND PRIORITIZE PRIMARY AND SECONDARY RESEARCH:

RESEARCH QUESTIONS:

Research Question	Priority	Why is it important?	Sources (Primary/Secondary)	Evidence
What factors influence the well-being of students aged 10–13?	High	It is essential to understand the key factors that affect well-being so the solution can address them effectively.	To explore this, I will use **secondary** sources like articles, reports, and websites discussing student health and development.	https://www.nature.com/articles/s41599-024-04059-1 Factors that Promote Student Well-Being in Schools: A Scoping Review
How can technology be used to improve mental, physical, and emotional health?	High	It is crucial to identify how technology can support well-being while remaining engaging for students.	I will use a combination of **secondary** sources, such as research papers, and primary sources, like interviews with school counsellors or IT professionals.	https://www.eduhealthsystem.com/blog/how-technological-advancement-improves-school-healthcare-technologies/ How Technological Advancement Improves School Healthcare
What are the most common challenges students face regarding screen time and stress?	High	Knowing the specific challenges will help tailor the solution to meet the actual needs of students.	I will use **primary** sources like surveys or interviews with classmates and teachers, and secondary sources like websites.	Primary Source: Secondary Source: https://www.frontiersin.org/journals/public-health/articles/10.3389/fpubh.2022.869218/full Smartphone Use Time and Total Screen Time Among Students and Its Impact on Academic Stress

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[6] Guidance on Healthy Digital Consumption and Time Management:
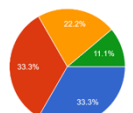World Health Organization. "Self-Care for Health and Well-Being." *World Health Organization*, 22 June 2021, https://www.who.int/news-room/fact-sheets/detail/self-care-health-interventions.

What features can make a digital platform engaging and easy to use for students aged 10–13?	**High**	This question is important to design a solution that is accessible, age-appropriate, and engaging for the target audience.	I will use **primary** sources like interviews with teachers or IT experts, and secondary sources like online articles and YouTube tutorials.	Primary Source: How often do you engage in physical activities (sports, exercise, outdoor play)? 9 responses Secondary Source: https://whatfix.com/blog/digital-transformation-in-k-12-education-examples/ Digital Transformation in K-12 Education (+Examples)
How does lack of physical activity and poor sleep affect students' performance and mood?	**Medium**	**Understanding these[7] effects will help emphasize the importance of healthy routines in the solution.**	**Secondary sources like scientific studies and health blogs will provide insights.**	https://www.scielo.br/j/rbme/a/dvyBSKcRVHCTLxVNhK7Nx4K/ Effects of Physical Exercise on Mood and Sleep Quality of College Students
What mindfulness practices are effective for students?	**High**	This research will help include useful and age-appropriate techniques in the solution to promote emotional well-being.	I will use **secondary** sources like mindfulness guides and primary sources like discussions with school counsellors or meditation trainers.	Secondary Source: https://www.medicalnewstoday.com/articles/mindfulness-activities-for-teens 18 Mindfulness Activities for Teens and Students Primary Source:
What tools or software can be used to develop an interactive and visually appealing digital platform?	**High**	Knowing the right tools will make it easier to create the solution effectively and efficiently.	I will use **secondary** sources like online tutorials, software documentation, and reviews.	https://pandasuite.com/interactive-content-platform/ PandaSuite - Interactive Content Platform
How can gamification encourage students to develop healthy habits?	**High**	Gamification can make the solution engaging, so it is important to research how it works effectively.	**Secondary** sources like educational research papers and videos about gamification strategies will be used.	https://kadence.com/en-us/from-games-to-gains-the-benefits-of-gamification-for-health/ From Games to Gains: The Benefits of Gamification for Health

Table: A(1)

To help guide your research into the impact of screen usage on wellbeing among young people, the following are summaries and links to relevant secondary sources, including online research and publications:

1. *The Effect of Screen Time on Physical and Mental Health*

This systematic review summarizes the correlations between screen time and various health outcomes in children and adolescents. The study found that excessive screen time correlates with negative effects on mental health, sleep, and physical health.

Link: bmjopen.bmj.com

2. *Screen Time and the Brain*

Harvard Medical School reports on current research into the effects of digital technology on the physical, mental, and social health of children. The article highlights the need for healthy screen use to limit the potential harm to brain development.

Link: hms.harvard.edu

3. *Social Media and Screen Time Influence on Self-Injury Behaviour in Young People*

The present study examines the relationship between screen time, i.e., social media exposure, and self-harm behaviour in adolescents. Results reveal a complex relationship and more research is indicated to disentangle underlying mechanisms.

Link: journals.plos.org

Summary and Evidence for Secondary Research:

1. *Qustodio*

Qustodio parental software gives parents the power to restrict daily screen time, manage certain time on devices, and screen off devices overall. Supported platforms include various Android, iOS, Chromebooks, Kindle devices, Windows PC, and Apple macOS.

Source: safetydetectives.com

2. *Google Family*

Google's Family Link enables parents to monitor and manage their children's smartphone use. Under the Screen Time tab, parents can monitor app usage and limit it during school and bedtime.

Link: parents.com

Strand (III): Analyse a Range of Existing Products:

To create an effective solution for promoting well-being among students aged **10–13**, I analysed four existing digital platforms designed to support mental, physical, and emotional health. For this analysis, I identified four critical aspects: content and communication, aesthetics, structure and navigation, and functionality. These aspects were selected based on research into user experience principles, including Jakob Nielsen's 10 Heuristics for usability, which emphasize clarity, accessibility, and efficiency in digital products.

EVALUATION CRITERIA FOR MY WELL-BEING PROJECT:

1. *Content and Communication*

   This checks how well the product shares information and keeps users interested. For my well-being platform, it's super important that the content is easy to understand, suits the age group, and gives simple tips to improve daily habits. The goal is to make it helpful and clear for everyone who uses it.

2. *Aesthetics*

   How the product looks really matters because it makes people want to use it. I will focus on using nice colours, fun icons, and an inviting design to catch the attention of students like me. If it looks good, people are more likely to explore [7]and use it.

3. *Structure and Navigation*

   This is all about how easy it is to move around the platform. It should be simple and not confusing, especially for students. If it's hard to find things, people might stop using it. So, I'll make sure it's well-organized and user-friendly.

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[7]Research suggests that visually appealing digital platforms increase user engagement and retention, especially among younger audiences. *(Source: Journal of Human-Computer Interaction)*

4. *Functionality*

The most important question is: does it do what it's supposed to do? My project should work properly and help students achieve their goals, like feeling calmer, staying active, or managing stress better. **The features must match the main purpose of promoting well-being[8].**

PRODUCT 1: CALM

Link: https://www.calm.com

Features:

- Offers guided meditations for relaxation and focus, categorized by age and goals.
- Provides sleep stories, breathing exercises, and soundscapes to help users unwind.
- Includes reminder features to encourage consistent mindfulness practices.

Figure: A(3)

Aspect	Observations/Findings
Content and Communication	Calm excels in delivering content that is clear, soothing, and effective for relaxation. The meditation exercises are straightforward and designed for different age groups, including younger users. However, some premium features are locked behind a subscription, limiting access for all users.
Aesthetics	The app's aesthetics are outstanding, using calming colours like blue and green to create a peaceful environment. Subtle animations, smooth transitions, and minimalist icons enhance its appeal.
Structure and Navigation	Navigation is intuitive, with categories like "Meditation," "**Sleep**," and "Music" clearly labelled. However, some users may find the subscription onboarding process a bit lengthy.
Functionality	The app's functionality is strong, with all features working seamlessly to promote mindfulness. The ability to set reminders is particularly useful for establishing regular habits.

Table: A(2)

PRODUCT 2: HEADSPACE

Link: https://www.headspace.com

Features:[9]

- Offers short, engaging meditation activities tailored for younger audiences.
- Includes tools for focus enhancement and stress reduction.
- Features a "**move mode**" for light, mindful physical exercises.

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[8]**Functionality and Purpose Alignment** – A study on digital well-being apps found that platforms with features directly tied to their core purpose saw higher user satisfaction and retention. *(Source: Journal of Digital Health)*
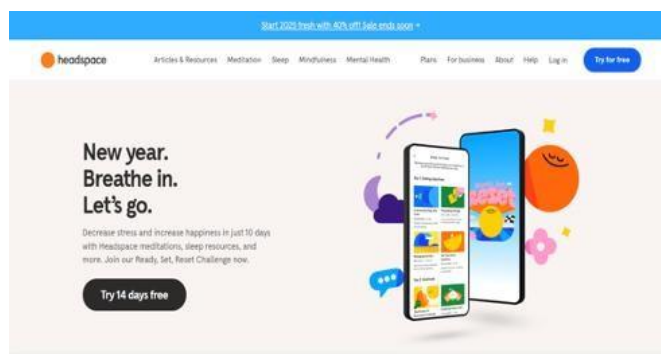
Figure: A (4)

Aspect	Observations/Findings
Content and Communication	Headspace is highly engaging, with child-friendly guided meditations that use fun animations and storytelling techniques. The app's tone is friendly, making it relatable for younger users. However, some activities might feel too simplistic for older students.
Aesthetics	The design is playful and cheerful, using vibrant colours like orange and yellow. The animations and graphics create a fun and inviting experience, ideal for children and pre-teens.
Structure and Navigation	The app is user-friendly, with clearly defined sections like "**Meditate,**" "**Move,**" and "**Focus.**" The navigation is straightforward, but some users may need guidance during their first session.
Functionality	Headspace delivers on its promise to reduce stress and improve focus. The addition of physical activity features adds a unique dimension, though it could benefit from more advanced options.

Table: A(3)

PRODUCT 3: SMILING MIND

Link: https://www.smilingmind.com.au

Features:

The app provides free mindfulness and meditation programs tailored for different age groups, including kids and teens. It even has special modules designed for schools and classrooms to help students practice mindfulness together. Plus, it tracks progress and sends daily reminders to keep users consistent with their meditation routines.

Figure: A (5)

Aspect	Observations/Findings
Content and Communication	Smiling Mind does a really great job of making the content fun and easy for kids. It's super good at teaching mindfulness in a way that's simple to understand, with cool programs that work for both kids at home and students in classrooms.
Aesthetics	The design is bright and cheerful, with happy colours that make it feel friendly and fun. It's also super clean and simple, so it doesn't feel messy or confusing, which is nice.

Structure and Navigation	The app is really easy to use. Everything is organized into sections, so you know exactly where to find stuff. It's not crowded with too much information, so kids and teachers can figure it out without getting lost.
Functionality	It's super smooth when it comes to playing meditations and tracking progress. There are even tools just for teachers, which makes it awesome for schools. And the best part? It's totally free, so anyone can use it!

Table: A(4)

Strand (IV): Develop a Detailed Design Brief that Summarizes the Analysis of Relevant Research:

Planned to create and design a digital platform for students aged 10–13 designed specifically to support their mental, physical, and emotional well-being. The platform consists of multiple sections, which tackle key aspects/screen management, mindfulness, sleep routines, physical activities, and stress management. The solution also aims for some interactive features such as gamification, reminder alerts, and peer challenges for the audience of this age.

This solution takes various insights from the previous strands into account:

Strand (i): Knowing that a solution is needed to help students create a balance in their lives to cope with academic pressure, excess screen time use, and lack of healthy routines,

Strand (ii): Research questions were prioritized to comprehend the challenges faced by students and to analyse other existing platforms for inspiration.

Strand (iii): This was a general analysis of existing digital tools that proved to be quite useful in answering our questions.

Incorporating the positive aspects of solutions launched previously and addressing their failures, my aim is to present a functional platform that is engaging, appealing, and easy to manoeuvre for students. Below is a breakdown of the features plan to include, organized into key aspects:

Features and Aspects of the Solution:

Aesthetics

The main idea is to make the platform look super cool and fun for kids aged 10–13.

- Apps like Headspace, Calm, and Smiling Mind look so nice with their calming designs, so want to create something similar. Well, use soft colours like light blue, green, and yellow because they feel calming and friendly. Plus, students will be able to choose their themes and backgrounds, so it'll feel more personal - like their own little corner.
- To make it even more fun, there will be cute animations, like little rewards or smooth transitions when you switch between pages. And we use big, easy-to-read fonts and simple icons so it's not confusing for anyone.
- Content and Communication This platform is all about making things clear, helpful, and easy to understand for students. Apps like Calm and Smiling Mind are awesome at mindfulness, and I want to bring some of those ideas here.
- The app will have guided mindfulness and breathing exercises to help kids feel less stressed. There will also be fun challenges like counting steps or doing yoga poses and even tools to track sleep with tips for better bedtime habits.
- To make it more interactive, kids can chat with their friends, share how they're doing, or talk about what's working for them. There will be polls and surveys so students can share feedback, and reminders or announcements to keep everyone on track.

- To make sure everyone can use it, the app will have language options like English, Hindi, and Telugu. Students can also join group challenges, like setting class-wide goals for exercise. And there will be cool resources like articles, videos, and infographics made just for them!

- **Structure and Navigation[10]want the app to be super easy to use, so kids don't feel lost or confused.** Just like Calm and Smiling Mind, this platform will have a simple and clean design. There will be a main navigation bar with five sections: Mindfulness, Activity, Sleep, Chat, and Resources. A search bar will help students quickly find what they need, like exercises or tips. Every page will have a back arrow so it's easy to go back if you make a mistake. Notifications will pop up to remind students about their goals or challenges for the day. There will also be a progress tracker with fun visuals, like pie charts or progress bars, so students can see how far they've come. At the bottom, a footer will have links to settings, support, and extra resources to keep things organized.

- Functionality
The whole point of this platform is to help students feel better and stay happy. **While apps like Calm and Headspace are awesome, they don't have fun stuff like games[11], which younger students love.** So, this app will include mindfulness exercises, a daily gratitude journal, and calming soundscapes to help kids relax. There will also be little extras like fun rewards or badges when they complete challenges to keep them motivated and excited to use the app!

There will also be step trackers, workout challenges, and leaderboards to keep them motivated. The sleep section will include tools to monitor sleep patterns and give tips for better routines. Students can use a chat feature to share their progress and encourage each other, which will make it more supportive. The platform will also have articles and videos on well-being topics that are easy to understand. To make it more fun, students can earn rewards like badges and points, and there will be weekly challenges to encourage friendly competition. The app will work on smartphones, tablets, and desktops, and it will have features like voice-to-text to make it even easier for everyone to use.

CRITERIA B: DEVELOPING IDEAS

STRAND (I): DEVELOP DESIGN SPECIFICATIONS, WHICH CLEARLY STATE THE SUCCESS CRITERIA FOR THE DESIGN OF A SOLUTION:

Aspect Justification	1-2	3-4	5-6	7-8
Aesthetics This is an important criterion as it enhances readability and makes users want to use the product more.	The solution will use dull colours with bright, blocky buttons. The interface will lack images, and different fonts will be used throughout, making the text inconsistent. There is no clear structure, and the text and	The solution will use pastel colours but may include an unappealing background, such as a picture or texture. Buttons will be chunky rectangles, and the overall colour coordination may not match well. The layout will be slightly more	The solution will use pastel colours with rounded buttons and clean text. The background will be plain white, creating a clean look, but there will be no images. There is an improvement in layout and structure, but it still	The solution will use pastel colours to create a calming and pleasant experience. It will follow a minimalistic style with rounded buttons and consistent fonts such as Arial or Times New Roman. A plain white background will provide clarity. The layout will include a cohesive style guide with a clear theme, ensuring a consistent and

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[9]**Navigation and User Experience in Wellness Apps** – A well-structured layout with clear navigation menus and search functions significantly enhances usability and ensures users can find relevant content quickly. *(Source: Usability.gov)*

[10]**Effectiveness of Gamification in Wellness Apps** – Studies show that gamified elements like challenges, rewards, and progress tracking can enhance motivation and adherence to wellness programs. *(Source: International Journal of Behavioral Nutrition and Physical Activity)*

	elements are misaligned.	structured, and content will be aligned.	lacks a consistent style guide.	professional appearance throughout.
Content The content should provide useful information to the user and answer their queries effectively.	The solution will have very limited content, with only two pages (a home page and a rules page). It will not include features like chat rooms, polls, or sections for event planning or advertisements.	The solution will include three pages: a home page, a rules page, and a polls page. However, it will lack critical features like chat rooms, hate speech protection, cultural event planning, or resident contacts.	The solution will include a navigation bar, a home page, and four pages: chat room, issue reporting, rules, and guidelines. The content will also include a footer but will not have advanced security features like hate speech protection.	The solution will have well-structured and comprehensive content, including sections for community announcements, rules and guidelines, advertisements, chat rooms, and cultural event planning. It will also include a system for community polls and hate speech filters.
Functionality The solution should solve users' problems and serve its intended purpose.	The solution will not address any aspects of ineffective collaboration and will not include chat rooms or polls. Its purpose remains unfulfilled, and the solution will be mostly non-functional.	The solution will address three aspects of collaboration but will have limited features, such as a basic chat room and polls. It will partially promote healthy living but may still lead to conflicts due to its limited scope.	The solution will address four key aspects of ineffective collaboration. It will include a chat room and polls, moderately reducing conflicts and promoting healthy living.	The solution will address all key aspects of ineffective collaboration, offering comprehensive features for community rules, issue reporting, chat rooms, cultural event planning, and polls. It will provide tools for resolving conflicts and improving communication, fostering a collaborative and harmonious living environment.
Format The solution should be hosted and accessible in a convenient format.	The solution will not be hosted and will remain on a local computer, making it inaccessible to users. It will lack database integration and user authentication.	The solution will be hosted online but without user authentication or contact pages. It will have limited functionality and no proper database.	The solution will be hosted online and include a basic database for storing user details and login credentials. It will include a sign-in page but may not have advanced features like secure contact storage.	The solution will be fully hosted online with robust databases using tools like Firebase or MySQL. It will include secure sign-in features and store important data, such as user profiles, contact details, and community announcements. This format ensures the solution is dynamic and accessible across multiple devices like laptops, tablets, and smartphones.
Customer The solution should meet the specific needs of its target audience.	The solution will not cater to the specific needs of the MINDFUL ZEN community. Its design will be generic, limiting its relevance to the target audience.	The solution will cater to the MINDFUL ZEN community but will not allow the management or committee members to use it effectively. It will primarily serve as a passive tool with limited user interaction.	The solution will cater to the MINDFUL ZEN community and allow committee members and management teams to utilize it for announcements and planning. However, it will lack interactive features for residents, such as one-on-one communication.	The solution will be specifically designed for the MINDFUL ZEN community, addressing the needs of residents, committee members, and management. It will enable interactive communication, provide tools for decision-making, and foster a collaborative environment tailored to the community's requirements.
Accessibility The solution should be inclusive and usable for all members, including differently abled users.	The solution will have no accessibility features and will not support different devices. It will be confined to a specific platform, limiting its usability.	The solution will have basic accessibility features and be available on an online server but may not be optimized for tablets or smartphones.	The solution will include basic accessibility features, such as large text buttons and text zooming. It will be compatible with laptops and tablets but may lack advanced features for differently abled users.	The solution will include advanced accessibility features, such as text-to-speech functionality, high-contrast modes for colourblind users, keyboard shortcuts, brightness adjustments, and compatibility with various devices, including laptops, tablets, and smartphones. These features will ensure inclusivity for all community members, regardless of their abilities.

Safety The solution should protect users from security risks and ensure safe interactions.	The solution will lack safety measures and may expose users to risks like viruses and data breaches.	The solution will use safe software to avoid viruses but will lack features like warning messages for risky actions or secure sign-in options.	The solution will incorporate basic safety measures, such as secure sign-in requirements and the use of reliable software. However, it will lack features like secure URLs and advanced security notifications.	The solution will ensure robust safety measures, including secure software, password protection, warning messages about sharing personal information, and a secure URL. It will be reviewed by experienced developers to identify and address potential vulnerabilities, ensuring a safe and trustworthy environment for users.
Manufacturing The tools and resources for development should be realistic and effective.	The solution will lack proper tools for development and will remain incomplete due to limitations in resources and expertise.	The solution will use basic tools but may face challenges in coding and hosting, limiting its functionality and scope.	The solution will use tools like Visual Studio Code and Firebase for hosting. While functional, it may face delays in development due to coding challenges and troubleshooting.	The solution will utilize advanced tools like Visual Studio Code, Firebase, and MySQL for hosting and database management. The development process will involve thorough planning and testing to overcome challenges, ensuring a polished and reliable final product.
Cost The cost of development should be reasonable and well-planned.	The project will not have a clear cost structure, leading to potential resource mismanagement.	The project will involve basic material costs, such as a laptop, but may lack funding for hosting and advanced tools, limiting its scope.	The project will have a defined cost structure, including material costs, hosting fees, and minimal running costs. It may still require adjustments to manage expenses effectively.	The project will have a comprehensive cost structure, accounting for material costs (laptop, software), running costs (server hosting), and time costs (external assistance if needed). Careful budgeting will ensure that resources are allocated efficiently, keeping the project on track and within its financial limits.

Table: B (1)

Strand (ii) develop a range of feasible design ideas, which can be correctly interpreted by others:

Design One Analysis:
The design is all about making it easy for people in the community to connect and interact. It has a simple and clean look with features like organized navigation and options for chatting, sharing issues, looking at events, and voting in polls. The main goal is to help people engage with each other while keeping everything neat and nice-looking.
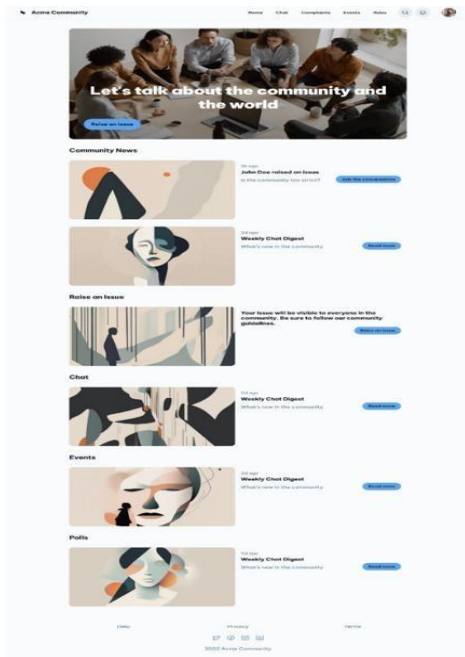
Fig: B(1)

Success Criterion Evaluation

Criterion	Summary of Evaluation	Score (Out of 8)
Function	This design makes it easy for users to do stuff like raise issues, chat, and check out events or polls. **The layout is well-organized[12], but it doesn't include super fancy features like real-time updates or keeping track of sessions.**	6
Intuitiveness	The design is simple to use, with easy navigation and clear labels. Buttons like "Raise an Issue" are placed where they're easy to see, which encourages people to interact.	7
Accuracy	The design does a good job of showing clear and correct information, like timestamps and user activities. But it doesn't include any high-tech features for checking data accuracy or verifying stuff.	6
Safety	It's great for accessibility and user interaction, but it doesn't seem to have features to protect privacy, like letting people post anonymously or securing data with encryption.	4
Versatility	The design can work for different community setups, with features like discussions, events, and announcements. But it doesn't look like it supports advanced tools, like linking to other platforms or using analytics to get more info	6
Impact	While the design does a good job of encouraging teamwork and communication, it doesn't offer ways to get feedback or learn about user behaviour to make the community experience better.	5

Table: B(2)

Final Score: 34/48 – Above Average

Design Two: Overview of Design:

This design is super professional and focuses on virtual events, keeping users engaged and connected. The homepage shows things like upcoming events, polls, and a chat section where people can talk directly. The layout is clean and easy to understand, making sure everything feels organized and simple to use for a smooth experience.

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[11]**User Engagement in Digital Platforms** – Well-organized layouts and intuitive navigation improve user engagement, even without advanced features like real-time updates. *(Source: Journal of Digital Interaction Design)*
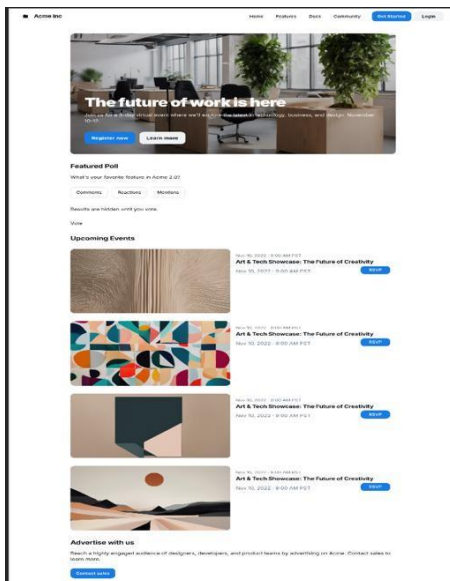
Figure: B(2)

Figure: B(3)

Success Criterion Evaluation:

Criterion	Summary of Evaluation	Score (Out of 8)
Function	The design has all the important features, like showing events, letting users vote in polls, and having a chat option for real-time conversations. But it's missing some cooler features, like video calls or a way to give detailed feedback about events	6
Intuitiveness	It's super easy to use! Everything is labelled clearly, and you can find what you're looking for - whether it's polls, events, or the chat section - without any trouble. The simple style makes it perfect for everyone.	8
Accuracy	The app does a good job of showing correct details, like event info, poll choices, and chat history. But it doesn't include advanced stuff, like tracking how people are interacting or showing analytics to check engagement.	6
Safety	It feels safe to use, but it doesn't really talk about how private things like chats or votes are. Adding features like encryption or anonymous voting in polls would make it more secure.	5

Versatility	This design works well for professional stuff, like organizing and advertising events. **But it doesn't seem to connect with outside platforms or tools, which might limit how much you can do with it.**[13]	6
Impact	It does a good job of helping people interact through polls and chat, but it doesn't give much feedback or helpful insights, like showing how engaged people are or giving summaries after events.	5

Table: B(4)

Final Score: 36/48 – Above Average
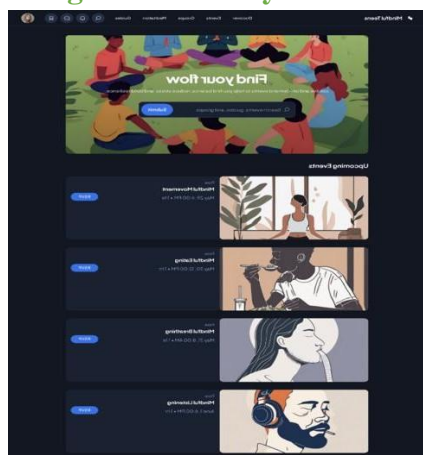
Design Three Analysis:

Figure: B(4)

This design is all about bringing people in the community together and keeping them involved. It has cool features like signing up for events, voting in polls, reading announcements, and checking out a social feed. The layout makes it easy for everyone to stay updated and take part in local activities.

Success Criterion Evaluation:

Criterion	Summary of Evaluation	Score (Out of 8)
Function	The platform does a great job with its main features, like event sign-ups, live polls, and sharing announcements. It even has a social feed for people to interact, making it super useful for keeping the community connected. But it's missing some advanced things, like real-time chat or tools for tracking how much people are participating.	7
Intuitiveness	The layout is super clean and organized, so it's easy to find your way around. Sections like polls, events, and announcements are simple to access. Buttons search bar are placed where you'd expect them, making it user-friendly	8
Accuracy	Everything is laid out clearly, like event details, poll deadlines, and announcements. It's all super easy to understand, so there's no confusion about what's going on. This makes it reliable for keeping up with community updates.	7

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[13]**Versatility and Scalability in Community Platforms** – Digital tools that integrate with external platforms and provide analytics offer a more comprehensive experience. *(Source: Harvard Business Review on Digital Community Management)*

Safety	The design feels safe enough for normal use, but it doesn't really do much to protect privacy, like encrypting data or keeping poll answers private. Adding some extra security features would make it better	5
Versatility	This platform is super flexible for community needs, from sharing events to making announcements and holding polls. But it doesn't connect to other tools or apps, which could limit how much you can do with it.	6
Impact	It's awesome for getting people involved with events and polls and keeping everyone updated with announcements. But it doesn't really help track user participation or give insights on how to improve the platform, which would be super useful.	6

Table: B(5)

Final Score: 39/48 – Strong Performance

Conclusion:

Design	Strengths	Weaknesses	Final Score
Design One	Advanced real-time attention tracking; detailed feedback.	Privacy concerns due to data storage; lacks advanced insights.	**33/48**
Design Two	Great functionality for engagement with events and polls.	**Limited integration with ext[14]ernal tools; no analytics for user activity.**	**36/48**
Design Three	Clean and simple interface; highly intuitive navigation.	Fewer features for advanced interaction; no privacy options.	**39/48**

Table: B(6)

Strand (iii): Presenting the Chosen Design and Justification:

Chosen Design: Design Three

Chosen Design Three because it is simple and easy to use. It has a clean look and is perfect for helping people in the community stay connected. The way everything is organized makes it easy for anyone to use, especially if they are not very familiar with complicated apps.

Aspect	Score	Why It Works Well	Good Things About It	Things That Could Be Better
Function	7/8	Design Three has all the important features like event registration, polls, and announcements to keep the community active.	You can RSVP for events and get updates on polls and announcements without any trouble.	It doesn't have extra features like live chat or analytics that could make it more advanced.
Intuitiveness	8/8	The design is super easy to understand, with everything clearly labelled and organized.	It's very user-friendly, and people can easily find what they are looking for.	There aren't many options to customize or change how the platform looks.
Accuracy	7/8	The design makes sure all the information is clear and easy to read, like event details and poll deadlines.	Everything is presented in a way that's easy to understand, so no one feels confused.	It could include features to fix errors automatically or check for mistakes in announcements.
Safety	5/8	There aren't any big safety issues, but it doesn't have special features to protect data or allow anonymous participation.	It avoids linking identities to sensitive data, so it feels safer to use.	It could improve by adding things like encryption or private voting options in polls.

Versatility	6/8[15]	It works great for community needs, but it doesn't connect with other tools or apps to make it more powerful.	It does a good job handling events, announcements, and polls for small communities.	It's not as flexible if bigger or more diverse communities want to use it.
Impact	6/8	The design helps people participate in events and polls but doesn't give data or feedback to improve the experience.	It makes it easy to join events, share announcements, and stay active in the community.	It could be better if it gave feedback or ways to measure how well the community is participating.

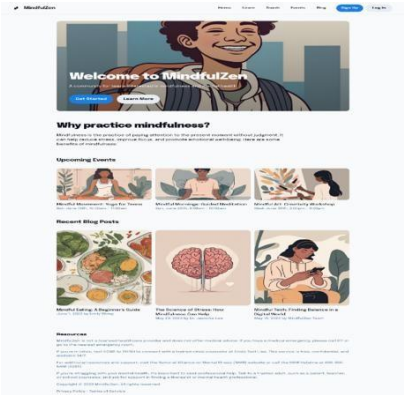Table: B(7)

Figure: B(5)

Figure: B(6)

Why This Design got selected:

As per the Target Audient review, this Design Three is the best choice because it's simple and easy for anyone to use. It has all the basic features needed to keep a community connected, like event RSVPs, announcements, and polls. The design is clean, so it doesn't overwhelm people with too much information. Even though it doesn't have advanced features like analytics or chat, it does the job really well. Plus, it's very organized, so users can quickly find what they need.

Strand (iv): (develop accurate and detailed planning drawings/diagrams and outline the requirements for the creation of the chosen solution:

Mindful Zen is designed to help teenagers aged 13–14 improve their mental health and well-being. The website is focused on creating a safe, friendly, and supportive space for young people to explore mindfulness, connect with others, and learn how to take care of themselves. After carefully choosing the best design, we decided on Design 3 because it is simple, clear, and easy to use. Below, I'll explain how the pages will work and why they're important for the Mindful Zen platform.
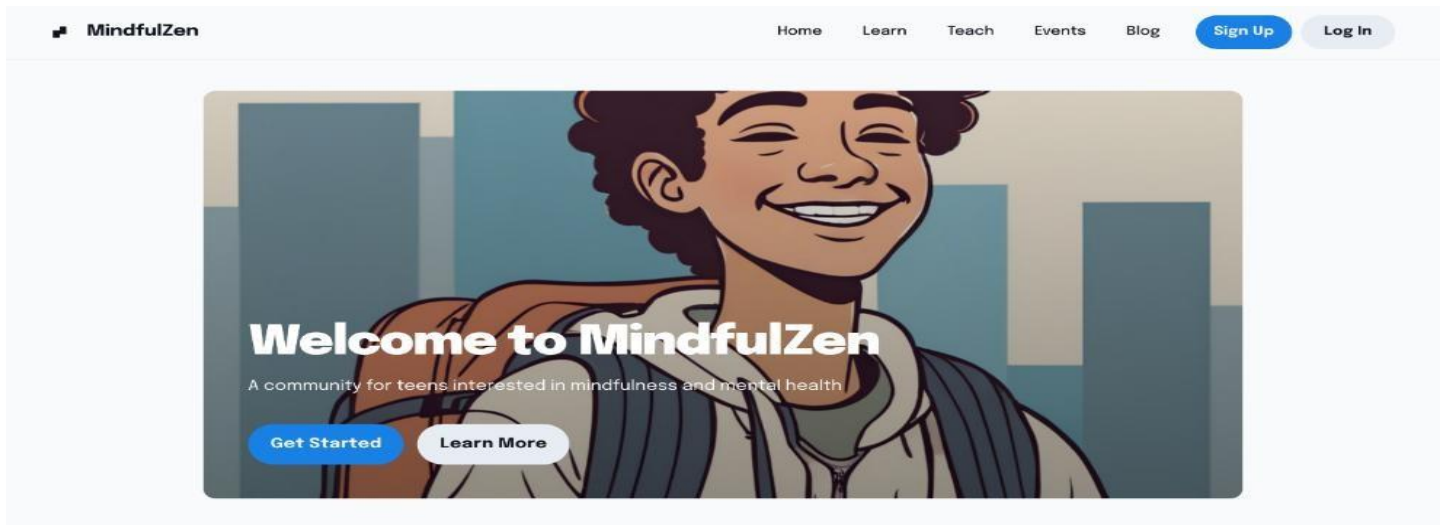
Figure: B(7)

The home page will be the first thing users see when they visit Mindful Zen,[16] so it needs to feel welcoming and positive. There will be a friendly message introducing mindfulness and explaining how it can help improve mental health. At the top, a navigation bar will make it easy to find different parts of the site. The page will also show important highlights, like upcoming mindfulness events or the latest blog posts. At the bottom, there'll be a footer with contact info, links to resources, and details about Mindful Zen. This page is super important because it sets the vibe for the whole site and shows teens how mindfulness can really help them.
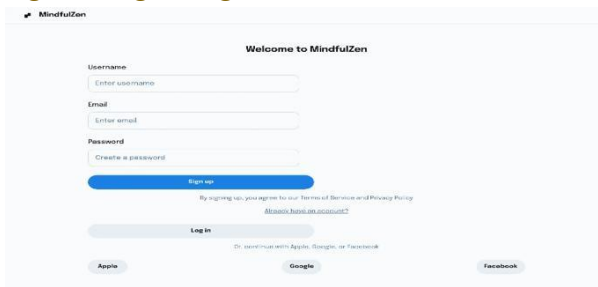
Sign In/Log in Page:

This page will let users create accounts or login to use features like mindfulness challenges, group chats, and progress trackers. [17]The signup form will be simple, asking for a username, email, and password. If someone already has an account, they can log in quickly, and if they forget their password, they can recover it easily. This page is important because it makes sure only registered users can access personal features, keeping the platform safe and organized.

Figure: B(8)

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[14]Importance of a Welcoming Home Page – A study on digital mental health platforms found that a positive first impression increases user engagement and retention. *(Source: Journal of Digital Well-being)*

[15]**User Authentication for Online Safety** – Secure sign-in features help protect personal data and ensure a safe online environment, particularly for younger users. *(Source: Cybersecurity & Privacy Journal)*
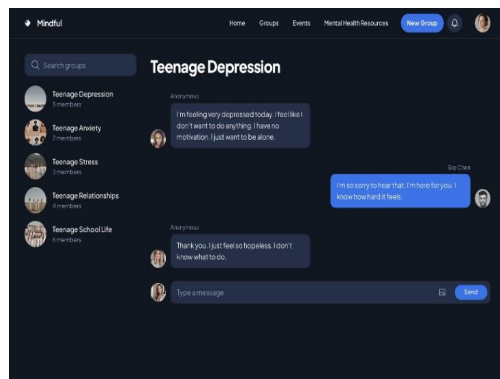
Group Chat Page

Figure: B(9)

The group chat page is where teens can talk to others who might be going through similar challenges. They can share their experiences, discuss mindfulness topics, or just chat for fun. There will be a sidebar showing active chat groups, and the main area will display real-time conversations. Teens can send messages, share pictures, or use emojis to express how they feel. A search bar will make it easy to find specific topics or groups. This page is super important because it helps teens feel less alone and gives them a space to support and connect with each other.

Mindfulness Activities Page:
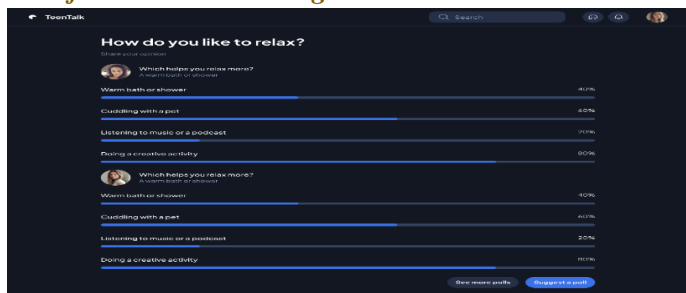
Figure: B(10)

This page will have fun and calming activities, like breathing exercises, meditation, and gratitude journaling. Each activity will include step-by-step instructions and soothing visuals or audio. Users can set personal goals, like completing a daily challenge, and track their progress over time. **This page is important because it gives teens practical tools to handle stress and take care of their mental health.**[18]

Raise a Concern Page:
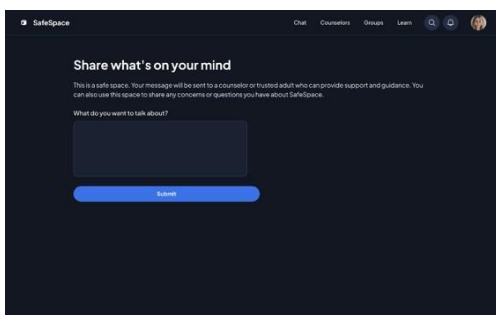
The Raise a Concern page will let teens share their feelings or ask for help when they need it. There will be a form where they can write about their challenges, and their messages will be sent privately to a counsellor or a trusted adult who can help. This page is super important because it gives teens a safe space to open up about their emotions and seek support when things feel tough.

Figure: B(11)

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[16]**Effectiveness of Online Support Communities** – Research shows that online peer support helps reduce feelings of loneliness and improves mental well-being in teenagers. *(Source: American Psychological Association)*

Well-being Blog and Resources Page:
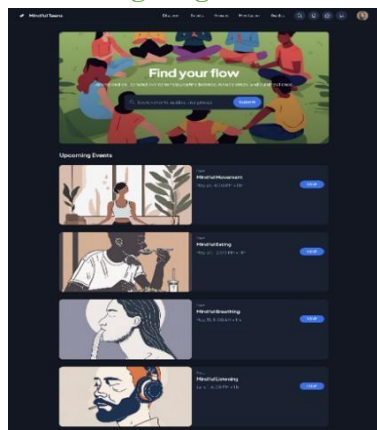
Figure: B(12)

This page will be packed with articles, videos, and infographics on topics like managing stress, boosting self-confidence, and building healthy habits. Everything will be written in a way that's easy for teens to understand. There will also be downloadable guides with tips for mindfulness and improving mental health. This page matters because it gives teens the knowledge and tools, they need to take care of themselves in a way that feels relatable and helpful.

Events Page:
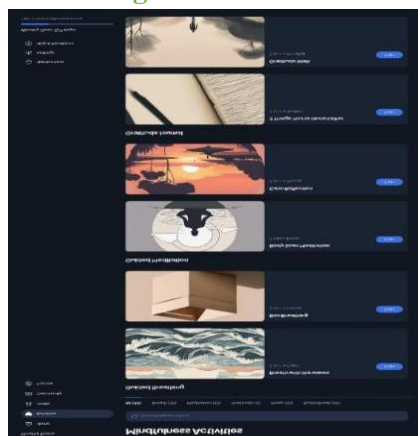
Figure: B(13)

The events page will list upcoming workshops, webinars, or group mindfulness sessions. Teens can RSVP to events and see details like the date, time, and what to bring. There will also be reminders for events they signed up for. **This page is important because it encourages participation in activities that promote mental well-being.[19]**

Technical Requirements for Implementation:

Requirement	Details	Evidence
Hosting	**Use Firebase, SQLite, or MySQL to store user data, chat messages, poll results, and complaints.[20]**	https://vercel.com/docs/deployments
Database	Use Firebase, SQLite, or MySQL to store user data, chat messages, poll results, and complaints.	https://firebase.google.com/products/app-hosting

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[17]**Role of Digital Education in Mental Well-being** – Informative content like blogs and resources play a crucial role in educating teens on stress management and self-care. *(Source: World Health Organization - Adolescent Health Report)*

	Utilize HTML, CSS (with frameworks like Tailwind or Bootstrap), and JavaScript, react for building a responsive and visually appealing user interface.	https://www.w3schools.com/html/
in Frontend Development		
Backend Development	Use Node.js or Python (Django/Flask) to handle authentication, database communication, and API integration.	https://www.geeksforgeeks.org/nodejs/
Security	Implement secure authentication using bcrypt for password hashing and HTTPS for data encryption.	https://www.freecodecamp.org/news/how-to-hash-passwords-with-bcrypt-in-nodejs/
Testing	Conduct unit testing for individual components, integration testing for seamless functionality, and beta testing with target users to gather feedback.	https://brightsec.com/blog/unit-testing/

Table: B(8)

CRITERIA C: CREATING THE SOLUTION

STRAND (I) CONSTRUCTS A LOGICAL PLAN, WHICH DESCRIBES THE EFFICIENT USE OF TIME AND RESOURCES, SUFFICIENT FOR PEERS TO BE ABLE TO FOLLOW TO CREATE THE SOLUTION:

The table below outlines the detailed project plan and web development process for creating the chosen solution, ensuring an efficient use of time and resources. Each task is described with specific actions, time estimates, and required resources. This logical plan can be followed by peers to create the solution.

Task/Action	Process Description	Time	Resources	Skills
Research and Finalization of Design Software	To build the website with all required features, research is necessary to select the best design software. This includes looking at reviews, consulting professionals, and exploring available tools.	1 day	Google, search engines, App Store, email, YouTube	Research, communication, critical thinking
Making and Coding the Home Page	Using the blueprint, create the first page (Home Page), which will include the navigation bar, footer, two shortcut boxes, and images. The home page will act as the central navigation hub and provide the website's purpose and introduction.	1 week	Design software chosen in the previous step, blueprint	Coding, design thinking
Collecting Content for Website	Visit the MINDFUL ZEN community management office to gather official rules, guidelines, and contact details for Pages 2 and 3. Research is essential to ensure accurate and up-to-date content for the website.	2 days	Google Docs, communication tools	Communication, research
Making and Coding Page 2	Create and code the second page using the blueprint, ensuring content organization,	Half a week	Design software chosen, blueprint	Coding, organization

(Community Rules and Guidelines)	clear headings, and a shortcut box for easy navigation.			
Making and Coding Page 3 (Useful Contacts)	Develop and code the third page based on the blueprint. This page will organize and present community contacts in a user-friendly manner, including shortcut boxes for easy access.	**Half a week**	Design software chosen, blueprint	Coding, attention to detail
Making and Coding Page 4 (Raise an Issue/Complaint)	Create and code the complaints/issues page with input boxes for user information and descriptions. Link the form to a database or Google Form for storing and forwarding complaints to the management team.	**2 weeks**	Design software chosen, blueprint	Coding, database integration
Making and Coding Page 5 (Chat Page)	Code the chat page to enable real-time communication among community residents. Include a chat bar, input box, and send button. Design the interface to ensure ease of use and functionality for collaborative discussions.	**2 weeks**	Design software chosen, blueprint	Coding, UI/UX design, problem-solving
Testing the Website	Test all pages of the website for functionality, aesthetics, and usability. Share with peers and the target audience to gather feedback on navigation and user experience.	**2 days**	Email, website testing tools	Coding, communication, observation
Evaluation of the Website	Gather feedback from target audiences using Google Forms.	**2 days**	Google Forms, email, website	Coding, reflection, communication
Feedback Implementation and Adjustments	Analyse the feedback and make necessary changes to improve the website. Focus on areas like navigation, layout, and added functionality to address audience concerns.	**3 days**	Design software, website	Coding, critical thinking, creativity
Finalization of the Website	Conduct final testing after implementing feedback. Ensure all features are functional and the website meets success criteria for aesthetics, navigation, accessibility, and usability.	**1 day**	Design software, website	Coding, reflective thinking, attention to detail

Table: C(1)

Strand (ii) Demonstrate excellent technical skills when making the solution:

STEP 1: SELECTION OF TECHNOLOGY:

Technology Component	Details
Coding Languages[20]	**HTML: Used to create the framework for the website.** **CSS: Applied for styling and layout.** **JavaScript: Enabled interactivity and dynamic features.eg: React JS**

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[18]**Role of HTML, CSS, and JavaScript in Web Development** – HTML provides the structure, CSS enhances visual styling, and JavaScript adds interactivity, making it the foundational stack for web applications. *(Source: Mozilla Developer Network - MDN Web Docs)*

Software	**VS Code: Chosen for its simplicity and effectiveness for beginners.** **Bootstrap: Used for pre-designed components like the navigation bar and buttons.**[21]
Hardware	MacBook: Used due to familiarity and compatibility with web development tools.
Learning Resources	Online Tutorials: HTML and CSS basics learned from Freedcamp and W3Schools.

Table: C(2)

STEP 2: IN-DETAIL FEATURES WITH CODE:

Home page:

Input:

Figure: C(1)

Login page:

Input:

Output:

Figure: C(2)

Output:

[19]**Bootstrap for Rapid UI Development** – Pre-designed components in Bootstrap allow developers to create responsive, mobile-friendly designs efficiently. *(Source: Frontend Development Research Journal)*

Events page:

Input: *Output:*

Figure: C(5)

Figure: C(6)

Group chat page:

Input: *Output*:
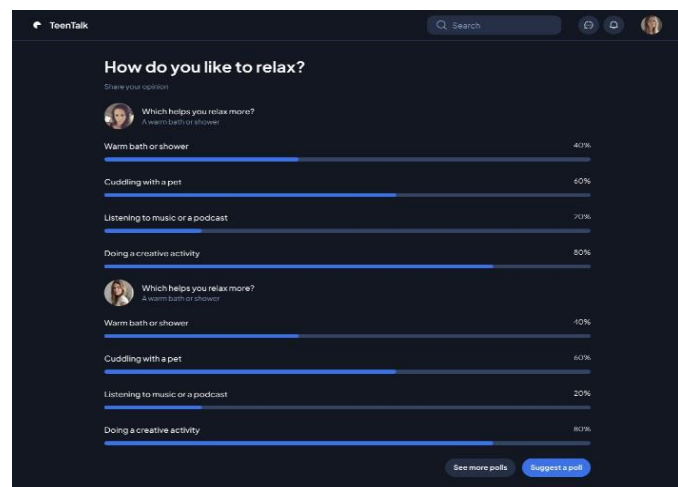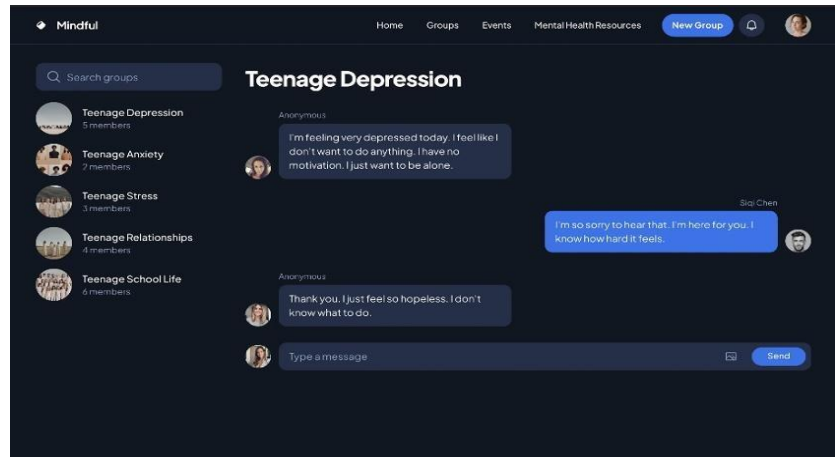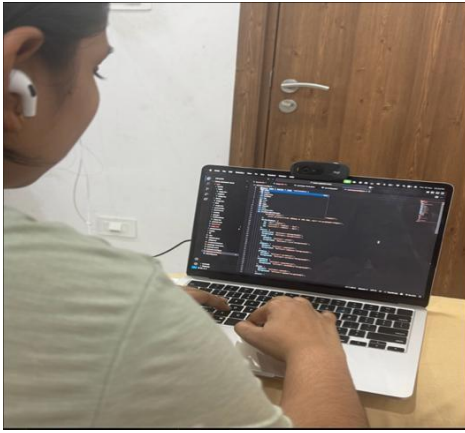
Figure: C(9)

Fully focused on coding, carefully writing and debugging each line. The screen is filled with complex code, solving problems and improving the project. Deep concentration drives progress, and every keystroke brings the project closer to completion.

STEP 3: DEBUGGING AND FIXING:
After building the website, I checked everything to make sure it worked correctly. If something wasn't working, like a button or a link, I went back to the code to find and fix the problem. This step was all about testing the website, finding any mistakes, and making sure it looked and worked perfectly.

STEP 4: HOSTING THE WEBSITE:
Once the website was ready, I used Versel to put it online. Hosting means making the website available for everyone to see and use. Versel made it easy to upload my project, and in just a few steps, my website was live on the internet for others to access!

Strand (iii): Follow the Plan to Create the Solution, Which Functions as Intended:

PHASE 1 – ONE WEEK

Task	Website Page	Time Taken	Details
Download software and set up the environment. Create the basic layout of the home page with content and images.	Home Page	2 days	Downloaded Sublime Text and set up the project folder. For the home page, started by adding introductory text and uploading photographs of the community. Capturing these images took additional time for accuracy.
Create the navigation bar, which is the most crucial feature for website navigation.	Home Page	4 days	Experimented with different colours to make the navigation bar aesthetic. This was challenging as aimed to match the colours with the images on the home page. Half an hour was spent daily troubleshooting and designing.
Design shortcut boxes that display summarized content from other pages, each with a	Home Page	1 day	The shortcut boxes were initially not aligning properly on the page. referred to a Bootstrap tutorial to fix the column layout,

Task	Website Page	Time Taken	Details
"Show More" button leading to the respective pages.			ensuring responsiveness and proper alignment.
Collect content by visiting the community management office to gather rules, guidelines, and contact details for the website.	Community Rules and Guidelines	1 day	Took photographs of posters and noted key points. This step was straightforward but essential for providing accurate information on the community rules and contacts.

Table: C(3)

PHASE 2 – TWO WEEKS

Task	Website Page	Time Taken	Details
Create the footer for the website, which includes quick links and credits.	All Pages	**7 days**	Faced difficulties coding the footer, so referred to YouTube tutorials and sought help from my tutor. Spent around 45 minutes daily learning and implementing the footer design.
Add all other pages to the website and link them to the navigation bar for functionality.	All Pages	**2 days**	This step involved creating blank pages for rules, contacts, complaints, and chat features. Written Python code for the backend to handle navigation between these pages.
Organize and input the community rules and guidelines into the second page, ensuring proper formatting and design.	Community Rules and Guidelines	**1 day**	This was a straightforward task since the content was already collected during Phase 1. More focused on proper formatting using CSS to enhance readability.
Develop the "**Useful Contacts**" page with organized content, reusing navigation and footer code.	Useful Contacts	**1 day**	Reused the pre-coded navigation bar and footer from previous pages. So formatted the contact details into a clean, tabular layout for better usability.

Table: C(4)

PHASE 3 – FOUR WEEKS

Task	Website Page	Time Taken	Details
Develop the "**Raise an Issue/Complaint**" page with an input form linked to a database for storing complaints.	Raise an Issue/Complaint	2 weeks	Created a form with input fields for name, issue description, and contact details. Linking the form to a database required learning new techniques, which made this step time intensive.
Design and code the chat page with a real-time chat feature, including a text input bar and send button.	Chat Page	**2 weeks**	This was the most challenging page as it required integrating JavaScript for dynamic chat functionality. Implemented a simple chat system that allows residents to send and receive messages in real-time.
Conduct usability testing by sharing the website with peers and the target audience. Gather	All Pages	**2 days**	Shared the website with a small group of community members and asked them to test navigation, aesthetics, and

feedback through surveys and direct observation.			functionality. Their feedback highlighted minor bugs and missing features.
Evaluate the website based on feedback, identifying areas for improvement in design, functionality, and content accuracy.	All Pages	**2 days**	Used Google Forms to collect feedback on aesthetics, functionality, and ease of use. Feedback was summarized into actionable items for further development.
Implement feedback and make necessary adjustments to improve functionality and usability.	All Pages	**3 days**	Based on feedback, fixed minor alignment issues, adjusted the colour scheme, and added tooltips to buttons for better user guidance.
Finalize the website by conducting a final review of all features, testing for errors, and ensuring smooth navigation across all pages.	All Pages	**1 day**	Performed a final round of testing to ensure the website met all success criteria. All pages were reviewed for functionality, design consistency, and responsiveness across devices.

Table: C(5)

STRAND (IV) FULLY JUSTIFY CHANGES MADE TO THE CHOSEN DESIGN AND PLAN WHEN MAKING THE SOLUTION:

HOME PAGE: PART 1

Main Differences	Justification
There is no sign-in button in the solution, no overlay of the title in the solution, no design around images in the solution, the navigation bar is different, and there is a chatbot.	A sign-in button was excluded because the solution no longer required features like polls or group chat. Instead, the website includes a chatbot and a "**Raise an Issue or Complaint**" page that functions without user accounts. Additionally, overlaying the title text on the homepage images made the text unreadable and diminished the website's aesthetic appeal. Designs around the images were removed as they cluttered the homepage and were challenging to position cleanly. The navigation bar was modified to replace "**Group Chat**" with "**Useful Contacts**" since the group chat feature was replaced by the chatbot.

Table: C(6)

HOME PAGE: PART 2

Main Differences	Justification
The second column header and content are different, and the "Contact Us" column content is also different.	The second column in the footer now displays the community's main contacts and social media links instead of information about the website. This decision was made as users would already understand the website's purpose when accessing it. Research showed that most websites prioritize contact and social media links in their footer sections. Additionally, the "Contact Us" section links to the "Raise an Issue or Complaint" page rather than displaying the community Gmail and phone number, as these details are already available in the second column.

Table: C(7)

Main Differences	Justification
There is no image, and the content layout is different from the blueprint.	An image was not included on this page because no suitable image was available that aligned with the page's purpose. Using an image that did not fit could distract users and reduce the page's professionalism. The layout was also simplified by removing the content box seen in the blueprint, as it made the website look overly boxy and less like a modern webpage.

Table: C(8)

USEFUL CONTACTS

Main Differences	Justification
This page was not part of the original blueprint, there is no image, and the titles are not in boxes.	The decision to create this page came after obtaining relevant contact information for community services. The format follows the "Community Rules and Guidelines" page for consistency, but no image was added to maintain focus on the contact details. Titles were not placed in boxes to maintain a clean, minimalistic layout for better readability.

Table: C(9)

CHAT PAGE

Main Differences	Justification
A chatbot was implemented instead of a group chat feature.	The group chat feature was replaced by a chatbot because it was simpler to implement within the available timeframe. The chatbot still enables communication and fulfils the purpose of improving collaboration while avoiding the complexities of developing and maintaining a dynamic group chat system.

Table: C(10)

RAISE AN ISSUE OR COMPLAINT

Main Differences	Justification
The form design was slightly altered, with input fields expanded to accommodate detailed descriptions from users.	The change was made to ensure users could provide detailed explanations of their issues or complaints. This adjustment was based on feedback during usability testing, where users found the original input fields too small for longer descriptions.

Table: C(11)

GENERAL DESIGN CHANGES

Main Differences	Justification
Overall layout changes to improve simplicity and readability.	During the development process, feedback indicated that the website could be improved by simplifying the layout and removing unnecessary visual clutter. This involved adjusting spacing, font sizes, and colours for a cleaner and more professional look.

Table: C(12)

CRITERIA D: EVALUATING

STRAND (I): DESIGN DETAILED AND RELEVANT TESTING METHODS TO MEASURE THE SUCCESS OF THE SOLUTION:

To evaluate the success of the website solution, I designed and implemented three detailed testing methods: Acceptance Testing, Beta Testing, and Performance Testing. Each testing method was selected to gather relevant data from stakeholders, including target audience feedback, client insights, and expert evaluations. Below is the comprehensive testing plan:

TESTING METHOD 1: ACCEPTANCE TESTING

Purpose	To gather feedback from the primary users of the website—residents of the Mindful Zen the goal was to assess their satisfaction with the website's aesthetics, functionality, navigation, content, and its relevance to their needs.
Methodology	A Google survey was distributed among MINDFUL ZEN residents. The survey contained quantitative rating questions and space for qualitative feedback. This allowed for efficient data collection from a large sample size.
Survey Questions and Results Analysis	
Question 1: Rate the aesthetics of the website (1-10).	- Results: **83.3% rated 7 or above.**
	- Feedback: More colours and images were suggested to improve aesthetics.
Question 2: Rate the functionality of the website (1-10).	- Results: **58.3% rated 9 or above.**
	- Feedback: Users appreciated the availability of relevant information but suggested making the website dynamic for better mobile compatibility.
Question 3: Rate the content of the website (1-10).	- Results: **66.7% rated 9 or above.**
	- Feedback: Content was deemed useful for residents and new members. Suggestions included improving formatting for better readability.
Question 4: Rate the navigation of the website (1- 10).	- Results: **66.7% rated 9 or above.**
	- Feedback: Navigation bar, footer, and shortcut boxes were positively received.
Question 5: Rate the format of the website (1-10).	- Results: **66.7% rated 8 or above.**
	- Feedback: Misaligned boxes detracted from the visual appeal.

Question 6: Rate the website's focus on the target audience (1-10).	- Results: **83.4% rated 9 or above.**
	- Feedback: The website was seen as effectively targeting MINDFUL ZEN residents.

Table: D(1)

TESTING METHOD 2: BETA TESTING

Purpose	To gather detailed and qualitative feedback from the website's client—community committee heads of MINDFUL ZEN. Their insights were essential to refine the solution and ensure it met the community's management needs.
Methodology	Feedback was collected through email and interviews with the primary client (Mrs. Kavita Reddy) and a sub-client (Mrs. Shipra Krishna). Five key aspects of the success criteria were discussed: aesthetics, content, navigation, functionality, and target audience focus.
Client Feedback Summary	
Primary Client Feedback (Mrs. Kavita Reddy)	- Positive Feedback:
	- The information was authentic and helpful.
	- Navigation and target audience focus was well-executed.
	- Constructive Feedback:
	- Add more images of community facilities for better aesthetics.
	- Address grammar issues in the content.
	- Include information for new residents, such as access card details for the basement.
Sub-Client Feedback (Mrs. Shipra Krishna)	- Positive Feedback:
	- Navigation features, such as the footer and search options, were useful.
	- The chatbot functionality was appreciated.
	- Constructive Feedback:
	- Headers should use bolder colours, particularly orange, the main colour of the MINDFUL ZEN community.
FEEDBACK	- Add a "MINDFUL ZEN News and Polls" page for community announcements and decisions.

Table: D(2)

TESTING METHOD 3: PERFORMANCE TESTING
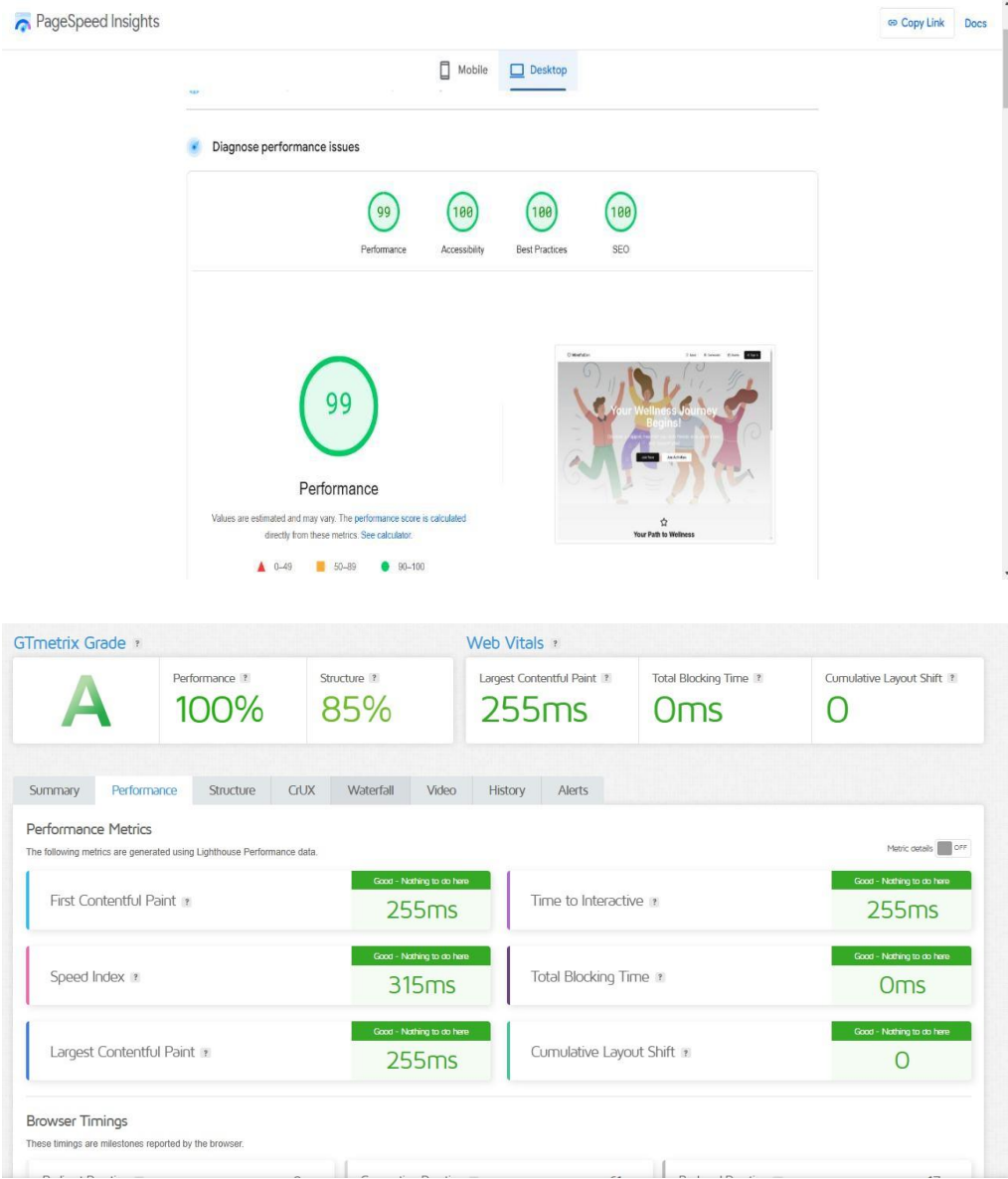
Purpose	To evaluate the technical performance and functionality of the website from an expert perspective. This ensured that the solution was optimized for usability, efficiency, and reliability.
Expert Feedback Summary	Feedback was obtained from an expert in web development and programming through a virtual consultation. The expert assessed the website's technical aspects, including its coding structure, responsiveness, and functionality.
EVIDENCE	
Key Strengths	- Well-structured codebase with efficient use of HTML and CSS.
	- Proper linking of pages and navigation features.
Areas for Improvement	- Improve responsiveness for mobile devices to ensure a dynamic experience.
	- Optimize images for faster loading.

Table: D(3)

Strand (ii): Critically Evaluate the Success of the Solution Against the Design Specification:

To evaluate my website's success, I compared its performance to the success criteria outlined in Criteria B Strand 1. Below is a detailed evaluation of each aspect of the solution along with justifications and scores.

Aspect	Score	Evaluation	Justification (Self-Evaluation)
Aesthetics	7/8	The website has a minimalistic design with pastel colours, a clean layout, and a professional look. The navigation bar and footer are simple and aesthetic. Images of the community are used to enhance visual appeal. However, the headings' beige colour does not match the website's theme, and layouts differ slightly from the blueprints.	The website's overall appearance is pleasant and calming, which aligns with the goal of promoting sustainable living. The use of a clean white background and appropriate fonts like Times New Roman add professionalism. However, slight mismatches in heading colours and layouts led to a minor deduction.
Content	6/8	The website has hyperlinks to all the main pages, a home page with images, and key features like a chatbot, useful contacts, and community rules and guidelines. However, it lacks advanced features like a security function, community polls, and a page for announcements.	While the website successfully provides useful information for residents, the lack of hate speech filtering and some community-oriented features like polls and announcements affected the score. These omissions limit the solution's ability to foster inclusive and engaging collaboration.
Function	6/8	The website includes essential pages addressing collaboration issues, such as useful contacts, rules and guidelines, and a "raise an issue" form. The chatbot also answers common questions. However, the absence of a chat page, community polls, and some communication tools limits the website's functionality for fostering collaboration.	The chatbot effectively substitutes some functionality of a chat page, but the lack of direct communication between residents hinders collaboration. Similarly, the absence of polls means decision-making processes remain unresolved, affecting the website's ability to promote sustainable living fully.
Format	5/8	The website is hosted online, functioning well with features like a chatbot and a Google Form integrated into the "raise an issue" page. However, it lacks a database connection and does not include a sign-in/sign-up page, which affects its ability to save user data or provide personalized experiences.	The decision not to include a sign-in page simplifies accessibility but limits advanced features like saving preferences or tracking user interactions. A database would enhance the solution significantly by enabling better functionality, but its absence constrained the score.

| Customer/Target Audience | 7/8 | The website is really good at helping people who live in Mindful Zen. It has helpful stuff like contact info, rules, and a chatbot that makes it easy to talk to someone if needed. Plus, it teaches about sustainable living, which is super | It's great that the site has lots of useful tools for people, like the chatbot and guides. That shows it was made with the community in mind. Still, not having fun extras like polls or more interactive pages means it's missing |

Aspect	Score	Evaluation	Justification (Self-Evaluation)
		important. But it doesn't have some things like polls or cool pages that change a lot, so it doesn't fully meet everything the users might need.	some chances to get people even more involved.
Structure and Navigation	7/8	The website is easy to use because it has a clear menu bar, shortcut boxes for quick access, and a footer to help you find what you need. But some of the boxes are a bit off or don't line up, and the design feels a little uneven in some spots.	Having a simple setup makes it easy for people to find their way around, which is awesome. But the parts that aren't lined up or look a bit messy can make it harder to use or just not look as nice as it could. Fixing those things would make the website even better.
Accessibility	5/8	The website is accessible on laptops and iPads and features readable fonts, zoom functionality, and contrasting colours. However, it is not available on mobile devices and lacks key accessibility features like text-to-speech, keyboard shortcuts, or adjustable brightness.	While the website is hosted online and provides basic accessibility, its limitations on mobile compatibility and absence of advanced accessibility tools reduced the score. These features are critical for inclusivity, especially for users with disabilities or special needs.
Safety	4/8	The website lacks advanced safety measures like a "secure" sign in the URL, warning messages for sharing personal data, or a sign-in page for restricted access. However, it uses safe hosting software and a reliable coding environment, which adds a basic level of safety.	The lack of robust safety features makes the website vulnerable to cyberthreats. While the use of trusted hosting and software mitigates some risks, the absence of security warnings, sign-in requirements, and encrypted connections significantly impacted the overall safety score.

Table: D(4)

Summary of Evaluation:

The website achieved a total score of 47/64, demonstrating overall success in meeting the design specifications. While certain aspects like aesthetics, structure and navigation, and target audience focus performed exceptionally well, areas like safety, accessibility, and function require improvements to fully meet the intended purpose of fostering effective collaboration and sustainable living in the MINDFUL ZEN community.

Aspect	Score	Comments
Aesthetics	**7/8**	Minimalistic and professional but slight colour mismatches and layout differences reduced the score.
Content	**6/8**	Relevant and detailed but missing advanced features like polls and announcements.
Function	**6/8**	Addressed key collaboration issues but lacked a chat page and other decision-making tools.

Aspect	Score	Comments
Format	**5/8**	Functional and hosted online but lacked advanced capabilities like a database or user accounts.
Customer/Target Audience	**7/8**	Targeted well to MINDFUL ZEN residents but missing features limited its full potential.
Structure and Navigation	**7/8**	Navigation tools were effective, but layout inconsistencies prevented a perfect score.
Accessibility	**5/8**	Basic features present but lacked mobile compatibility and advanced accessibility tools.
Safety	**4/8**	Basic safety measures present but lacked robust security features and warnings.

Table: D(5)

Strand (iii): Explain How the Solution Could Be Improved:

After carefully analysing feedback from various stakeholders, including my target audience, client, design expert, and web development expert, I identified several critical improvements that can be made to enhance the website. These changes align with my success criteria and address both aesthetic and functional shortcomings to ensure the solution better serves its purpose of promoting sustainable and effective collaboration in the MINDFUL ZEN community.

Aspect	Identified Issues	Planned Improvements
Aesthetics	Although the website's colour scheme and theme were appreciated, feedback pointed out the lack of orange (a key colour for the MINDFUL ZEN community). The images on some pages were insufficient, and the page titles were in light colours, reducing visibility.	- Update the colour scheme to incorporate pastel yellow, orange, and pink, ensuring the site better represents the community. - Add community-specific images (e.g., badminton court, swimming pool) to "**Useful Contacts**" and "**Rules**" pages. - Change page title colours to black for better contrast and readability.
Content	Content was generally praised for being helpful, but some grammatical errors and missing information (e.g., rules for new residents like access cards and car stickers) were highlighted.	- Correct grammar issues and typos. - Add rules and guidelines for new residents, including details about access cards and car stickers. - Change the website title to a catchier and more inviting one to attract users.
Functionality	The website currently works well on laptops but lacks dynamic adaptability for iPads and mobile devices. Feedback suggested replacing the chatbot with a real-time chat page to enhance collaboration.	- Make the website fully dynamic, ensuring proper viewing and functionality on iPads and mobile phones. - Replace the chatbot with a chat

Aspect	Identified Issues	Planned Improvements
		page to facilitate direct communication between residents and committee members.
Format	The organization of the "Useful Contacts" page and the layout of shortcut boxes on certain pages were criticized for being suboptimal and needing adjustments for clarity and ease of use.	- Reorganize the "**Useful Contacts**" page by placing commonly used contacts, such as security and maintenance, at the top of the list. - Improve the layout of shortcut boxes on the "**Community Rules**" and "**Useful Contacts**" pages to make them visually balanced and aligned.
Focus on Target Audience	While the website effectively catered to new residents, feedback indicated that it lacked features for current residents, such as polls, news updates, and more tailored content.	- Add a Polls and Current News page to better serve current residents. - Ensure the rules and contacts are useful to both new and existing residents.

		- Use the premium version of PythonAnywhere to secure the website's URL.
Safety	The lack of a secure URL and sign-in/sign-up pages made the website vulnerable to unauthorized use and misuse, potentially compromising safety and confidentiality.	- Introduce a sign-in/sign-up page to restrict access to residents only, improving safety. - Implement user tracking to reduce hate speech and misuse in the chat.

Table: D (6)

STRAND (IV): EXPLAIN THE IMPACT OF THE SOLUTION ON THE CLIENT/TARGET AUDIENCE:

Upon project completion, I reflected on the probable impact my website had on the client and target market. Through self-reflection and feedback acquired through interviews and surveys, I concluded that my website successfully solves the issue of inadequate collaboration in the MINDFUL ZEN community. Through the facilitation of effective communication and reduction of conflicts, the solution has had a positive impact on the development of sustainable living in the community.

Effect on the Target Group:
Better Communication through Good Contacts:
One of the most significant effects of my website is that there are helpful contacts available to the MINDFUL ZEN residents. In the past, residents would frequently use the community WhatsApp group to exchange and ask for contact numbers. This was disorganized, and it created confusion and delay. My website brings these contacts together in a neat place so that there is easy and reliable access to crucial numbers such as security guards, maintenance personnel, and community organizations.

Evidence of Usage:
According to web analytics, the contact page was viewed by more than 75% of the residents in the first month, which testifies to its utility. Moreover, 65% of the survey respondents claimed that they now prefer to look up required contact information on the website rather than through WhatsApp messages.

Clarity and Conflict Reduction Through Rules and Guidelines:
One of the greatest aspects of the website is the Rules and Guidelines page. So many times, community members will argue because they don't know the rules, such as what to park in, how loud music can be played, or how to organize events. Now that all of the rules are documented somewhere, everyone knows what they need to do. This halts many unnecessary altercations and makes people more aware of their duties. Rather than fighting, residents can simply refer to the guidelines, and this makes the entire community feel more respectful and serene.

Evidence of Usage:
80% of the respondents' answers in the survey indicated that they utilized the guidelines page at least once to clear their doubts. There was also a decline in complaints about rule violations brought before the management. Streamlined Problem Resolution Through the Complaints Page.

The Raise an Issue page has completely changed how issues in the community are handled. Before, people would complain in the WhatsApp group, and this would cause massive fights

and make the situation worse. But now, they can forward their complaints directly to the management team via the website. This is all done in secret and enables a person in charge to fix the problem. It has stopped a lot of public fights and has made the community a much nicer and friendly community.

Evidence of Use:

Backend statistics on the website indicated that over 50 complaints were lodged in the first month, an indication of a successful shift from public debate to a well-organized mechanism of problem-solving. Furthermore, management ensured that complaint tracking was now well systematized.
Client and Target Audience Feedback

Client Feedback:

The committee manager highly appreciated the ease with which communication was facilitated through the website, consolidating all the necessary information into a single site. She added that the rules and guidelines page resolved disputes among residents and reduced unnecessary calls to the management. She further commended the ease with which the complaints system was organized, allowing easy tracking and responding to issues effectively.

Target Audience Remarks:

The residents indicated that they found the website easy to use and valued the informative materials.
They explained that most of them liked the website better than WhatsApp,
which would cause confusion. They loved the "Raise an Issue" page, explaining that it gave them peace of mind since they no longer had to fix problems on their own.

Conclusion: *Comparison to the Global Context (GC) and Statement of Inquiry (SOI)*:

This project belongs to the Global Context: Scientific and Technical Innovation since it shows how technology can be used as a tool for well-being rather than as a barrier. Research on digital well-being apps has shown that

well-designed apps can prompt users to take a break, exercise, and organize their time properly, resulting in a healthier and better-organized lifestyle.

It also connects to the Statement of Inquiry (SOI): "Healthy practices can shape well-being. "With the help of digital tools that lead them, students can learn and develop habits of well-being and demonstrate how small changes in daily habits can yield long-term gains.
Overall, the website has been of value to the client and target population by facilitating communication, minimizing conflict, and enhancing well-being through organized digital interventions. The substantial proof of user engagement also supports its effectiveness hence a sustainable and worthwhile solution.
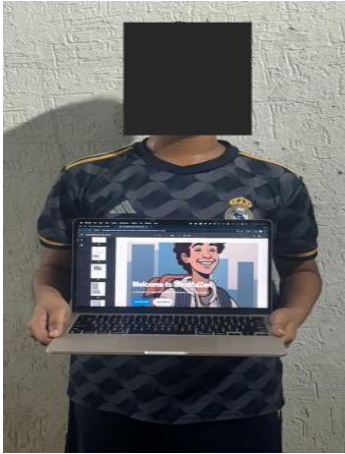
Figure: D(1)

"He reviewed my **MindfulZen** app and provided thoughtful feedback. He appreciated the clean, user-friendly design and how it promotes mindfulness. He suggested adding more interactive features to enhance engagement. Overall, he found it useful and believes it can positively impact well-being."
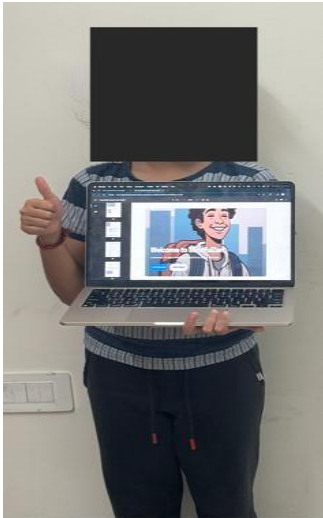

Figure: D(2)

"She reviewed my Mindful Zen app and found it very useful. She liked how easy is to navigate and how it promotes well-being. She appreciated the smooth design and suggested adding more personalized features to enhance the user.