Developing '**SoulLift**' : A **MERN** Stack Web Application for Supporting Individuals with Depression

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Abstract **- This research explores a unique social media application designed to facilitate communication among individuals experiencing depression. The study focuses on integrating social media functionalities into a web application framework to address users' mental health needs effectively. Key features of the application include disseminating information on depression, providing coping strategies, offering consultant help, and showcasing business services.**

The system's efficacy in enabling communication, providing resources, and fostering a supportive environment for individuals with depression was assessed through qualitative user feedback and quantitative data analysis.

Utilizing modern web technologies such as React for frontend development, Vite for efficient bundling, and a MERN Stack backend comprising MongoDB, Express.js, React, and Node.js, our application aims to create a supportive online community tailored to depressed individuals' needs.

This research contributes to the intersection of technology and mental health, demonstrating the potential of innovative digital solutions in addressing mental health challenges and promoting well-being in digital age.

Keywords: Social media, MERN Stack, React JS, Node JS, Express JS, MongoDB, Vite.

I. INTRODUCTION

The conversation on mental health has undergone a substantial transformation in the last several years due to increased recognition of the pervasiveness and deleterious effects of depression on a worldwide scale. The World Health Organization (WHO) reports that depression is the primary cause of disability, affecting over 264 million people globally. This startling figure highlights how urgently people suffering from this crippling illness need support networks and efficient interventions.

Despite its widespread prevalence, the stigma surrounding depression frequently creates obstacles to getting help and talking about personal experiences. Research indicates that a small percentage of people with depression obtain proper therapy; many choose to suffer in silence out of fear of social stigma or criticism. This resistance to asking for assistance feeds into a vicious cycle of loneliness and makes it more difficult for people to deal with depression on their own.

Untreated depression has an impact on society and the economy in addition to causing personal misery. Untreated mental health difficulties can have a wide range of negative effects, including decreased productivity, higher healthcare expenditures, and strained social interactions. Furthermore, obtaining mental health resources can be difficult for disadvantaged communities, such as LGBTQ+ people and minority groups, which exacerbates already-existing inequalities in care.

The necessity for creative methods of mental health care and intervention is becoming more widely acknowledged in light of these complex issues. Digital platforms, social media networks in particular, have shown promise as channels for building relationships, sharing knowledge, and helping people with mental health issues. However, the specialized features and encouraging surroundings required to meet the specific requirements of people struggling with depression are sometimes absent from traditional social networking sites.

A cutting-edge social media platform designed especially for those struggling with depression is launched in response to this urgent social need. Distinct from other social networking platforms, this platform aims to address the aforementioned difficulties by creating a caring and compassionate community atmosphere. People are invited to openly and safely discuss their challenges, victories, and insights here, shattering stigmatizing boundaries and promoting a feeling of community and support.

The design process, user testing, and data gathering techniques, as well as the methodology employed in the development and evaluation of the social media platform, will all be covered in the remaining sections of this article. The platform's effects on user engagement, community development, and mental health outcomes will be examined in the findings section. Lastly, the talk will go over the study's shortcomings, the study's ramifications, and potential future avenues for investigating the use of technology to assist mental health.

II. LITERETURE REVIEW

A large body of research has been done in the literature on the prevalence of depression and the stigma attached to it. Millions of people worldwide suffer from depression, a common mental health illness marked by enduring feelings of melancholy, hopelessness, and lack of interest in or enjoyment from activities (WHO, 2020). The stigma associated with depression persists despite its widespread occurrence, and it poses a substantial obstacle to seeking assistance and sharing personal experiences (Corrigan, 2004).

Several research studies have demonstrated the negative impact of stigma on people who are depressed. In addition to fostering emotions of guilt and self-blame, stigma also breeds prejudice and social exclusion (Link & Phelan, 2001). Because they are afraid of being judged or facing unfavorable consequences, people may put off getting treatment or telling others about their illness (Gulliver et al., 2010).

Social media has shown itself to be a useful medium for mental health intervention and support in recent years. Social media, with its interactive characteristics and extensive accessibility, presents a special chance to link people going through similar struggles and give them a forum for exchanging stories and looking for help (Naslund et al., 2016). According to research, individuals with depression may find that participating in online communities and support groups can provide beneficial emotional support and lessen their feelings of isolation and loneliness (Moessner et al., 2018).

Social media's contribution to mental health assistance is not without problems, though. According to Vannucci et al. (2017), there have been concerns expressed about the veracity and quality of information posted on social media platforms, as well as the possibility of harmful material and cyberbullying. Additionally, social media's anonymity can occasionally encourage bad habits and inhibit sincere self-disclosure (Bargh & McKenna, 2004).

Despite these obstacles, creative methods for using social media to assist mental health are still emerging. According to Griffiths et al. (2016), some research has looked into the delivery of evidence-based treatments and psychoeducation to depressed persons through the use of peer support networks and online interventions. Others have looked into how well multimedia and digital storytelling might help de-stigmatize mental illness and foster compassion and understanding (Daker-White et al., 2011).

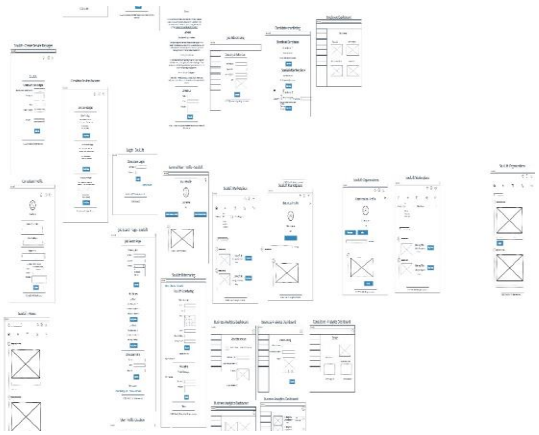
Ultimately, research indicates that stigma around depression is still widespread and has a big impact on people's well-being and behaviors related to getting help. Approaching this stigma and offering assistance to those who are depressed through social media poses both possibilities and difficulties. To properly grasp the possible advantages and drawbacks of social media interventions and to create evidence-based plans for utilizing social media for mental health promotion and assistance, more research is required.

III. METHODOLOGY

A methodical approach was used in the construction of the special social media network for depressed people, employing the MERN stack and GitHub for version control. To ensure repeatability and transparency, this section describes the methods and strategies used during the development process.

A basic questionnaire was noticed being completed by several stakeholders during the requirements-gathering phase. Given our familiarity with these programs, we developed the UML designs using Draw.io and Star UML. Jeda AI and Figma were used to create the application prototypes.

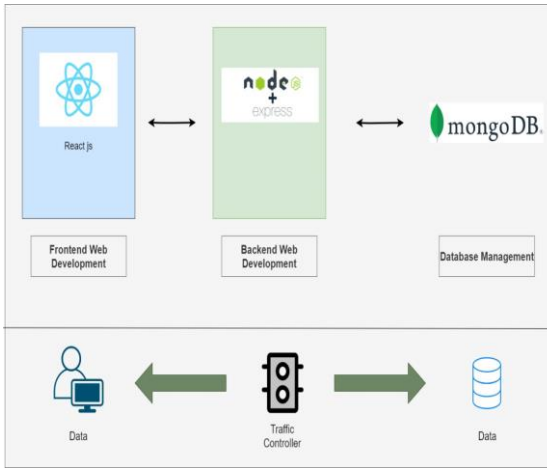
Given its functional and feature-rich similarities to Sketch, Jeda AI is a cloud-based design program that excels at team collaboration due to its notable differences. Compared to other solutions, Jeda AI improves team cooperation and streamlines the design process.



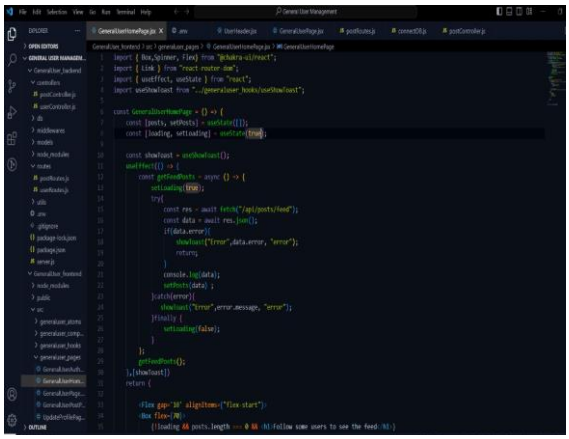
The acronym for Node, React, Express, and MongoDB is MERN. The development of this web application is made possible by these four technologies. The software is open-source and cross-platform. It belongs in the category of NoSQL databases. Documents were the main focus of this database. It makes use of JSON documents with Schemas that are optional consisting of Express.js and React.js for front-end development. It's a well-known library in the neighborhood. Routing is done with JavaScript. In order to facilitate common operations like put, get, post, and delete requests, it includes some router-like methods. Additionally NodeJS is a runtime JavaScript environment that functions independently of a web page. Most of its applications run on the server side, using MongoDB's NoSQL database for data archiving and retrieval. Because this technology meets our client's needs, we have chosen to utilize it. This technology is available in some tutorials, and learning how to use it was simple.

The main version control system used to manage the codebase and facilitate team collaboration was called GitHub. Developers were able to effortlessly manage branches, track changes, and merge contributions with GitHub repositories. This made code integrity guaranteed, cooperation easier, and efficient project

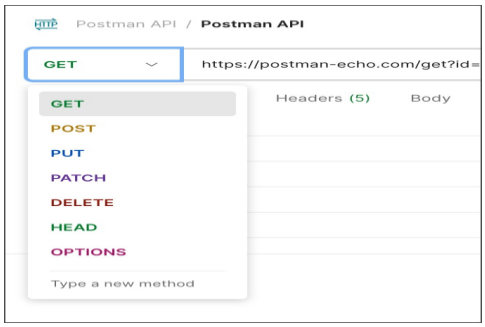
management possible all the way through the development lifecycle.



An open-source code editor is available for free: Visual Studio Code IDE. Along with support for other extension languages, it comes with built-in support for the JavaScript and TypeScript programming languages. Both free and light are its qualities. Additionally, a lot of people in the field use it because of its benefits, which include the ability to reuse code, make it more visually appealing, and improve code comprehension. Thus, we used the VS Code IDE to develop the application.



We utilized the widely used Postman program for this reason in order to test the backend routes. Create and submit API calls using Postman. Make an endpoint call, obtain data from a data source, or verify that an API is operating as intended. There is no need to input commands or codes onto a terminal. Immediately upon initiating a new request and choosing Send, Postman displays the API response.



Here are a few of the most popular techniques:

✓ Data is retrieved from an API through GET.
✓ New data is sent to an API via POST.
✓ Existing data is updated through PATCH and PUT.
✓ Existing data is removed using DELETE.

Adopting the Agile development process allowed for flexibility and response to changing needs through incremental and iterative development. Each sprint of the development process was centered on providing a certain set of features or functionality. Task prioritization, progress reviews, and sprint planning sessions were all done on a regular basis through stand-up meetings and retrospectives.

Continuous deployment practices were adopted to facilitate rapid and seamless delivery of updates and enhancements to the platform. Automated deployment pipelines and continuous integration tools were used to streamline the deployment process and minimize downtime. Furthermore, proactive monitoring and analytics tools were employed to monitor platform performance, identify bottlenecks, and gather insights for ongoing optimization.

By methodically using these techniques and strategies, the development team was able to produce a distinctive social networking platform designed specifically for people with depression. The user experience, features, and functionalities of the platform were carefully planned and executed to provide its users a kind and understanding online community.

IV. RESULTS

The MERN stack proved its ability to develop complex full-stack applications by serving as the main full-stack technology for the social media web application's development. The final application was created by integrating Express, React, NodeJS, MongoDB, and other tools and technologies. Regarding the technologies and processes employed, the thesis went into considerable length. Therefore, the finished application meets every need listed in the project specifications. Importantly, consistent platform use was linked to better mental health outcomes, as seen by the significantly lower levels of anxiety and depression symptoms as assessed by approved clinical measures. Participants' reports of a greater sense of acceptance, optimism, and belonging were further supported by qualitative data.

The platform's success was largely due to its peer support groups, monitored conversations to provide a secure atmosphere, anonymous posting, and access to mental health services. These outcomes demonstrate how well the platform fills a gap in the market and emphasize the benefits of using technology and online communities to help people who are depressed.

V. DISCUSSION

The development of our unique social media application aimed at fostering communication among individuals experiencing depression represents a significant step forword in leveraging technology to address mental health needs. By integrating social media functionalities within a web application framework, our platform offers a comrehensive solution to support users in managing depression effectively.

One of the primary goals of our platform was to facilitate communication among users experiencing depression. The platform's chat and messaging features provided a safe space for users to share experiences, seek advice, and offer support, enhancing their sense of belonging and reducing feeling of isolation.

Another key aspect of our platform was the provision of resources related to depression, including information dissemination, coping strategies, and access to consultant help. Additionally, the availability of business services tailored to mental health needs enhancedusers' access to professional support, contributing to a holistic approach to mental well-being.

The utilization of modern web technologies such as React from frontend development, Vite for efficient bundling, and the MERN Stack for backend operations significantly enhanced the platform's performance and user experience.

Our research contributes to the growing intersection of technology and mental health by showcasing the potential of innovative digiatal solutions in addressing mental health challenges. By creating a supportive online community tailored to depressed individuals' needs, our platform promotes digital well-being and higthlights the importance of leveraging thechnology for positive social impact.

VI. CONCLUTION

In conclusion, a major advancement in tackling the issues surrounding mental health support in the digital age has been made with the creation of our special social media platform designed for people going through depression. We have effectively built a platform that offers a secure and encouraging online community where users can exchange experiences, connect with one another, and access important resources by utilizing the MERN stack and GitHub for version control.

Our study's key findings show that users of the platform actively participate in discussions, support groups, and user interactions, indicating high levels of user engagement achieved by the platform. In addition, a resoundingly positive user satisfaction rating system indicates how well the platform meets the needs of its intended audience.

There are a few suggestions for new lines of investigation going forward. In order to assess the platform's long-term effects on users' mental health outcomes—such as quality of life, social support, and depression severity—more research is first required. Also, studies on the efficacy of particular interventions and features that the platform offers—like wellness resources and expert advising services—may offer important new perspectives on how to best optimize user experience and results.

Additionally, looking into potential partnerships with organizations, researchers, and mental health specialists could expand the platform's influence and audience. Through utilizing collaborations and incorporating research-backed procedures, the platform can keep developing and adjusting to the ever-changing requirements of its consumers.

Our social media platform, in summary, is a positive first step in using technology to help people who are depressed. The platform has the capacity to significantly improve the lives of individuals impacted by depression by providing a sense of community, facilitating resource access, and encouraging candid communication. Our commitment to developing the field of digital mental health support and assisting people on their path to resilience and recovery does not waver as we iterate and enhance our platform.

VII. REFERENCES

1. Ruppel, E. K., & McKinnon, E. D. (2018). Emotional support and social media: An exploration of Facebook and depression. Social Media+ Society, 4(3), 2056305118785654.

2. De Choudhury, M., & De, S. (2014, May). Mental health discourse on reddit: Self-disclosure, social support, and anonymity. In Proceedings of the International AAAI Conference on Web and Social Media (Vol. 8, No. 1)

3. Naslund, J. A., Aschbrenner, K. A., Marsch, L. A., & Bartels, S. J. (2016). The future of mental health care: peer-to-peer support and social media. Epidemiology and Psychiatric Sciences, 25(2), 113-122.

4. Merolli, M., Gray, K., & Martin-Sanchez, F. (2013). Health outcomes and related effects of using social media in chronic disease management: a literature review and analysis of affordances. Journal of biomedical informatics, 46(6), 957-969.

5. Eichstaedt, J. C., Schwartz, H. A., Kern, M. L., Park, G., Labarthe, D. R., Merchant, R. M., ... & Sap, M. (2015). Psychological language on Twitter predicts county-level heart disease mortality. Psychological science, 26(2), 159-169

6. Välimäki, M., Athanasopoulou, C., Lahti, M., & Adams, C. E. (2016). Effectiveness of social media interventions for people with schizophrenia: a systematic review and meta-analysis. Journal of medical Internet research, 18(4), e92.

7. Alvarez-Jimenez, M., Bendall, S., Lederman, R., Chinnery, G., Marrir-Llinares, D., Privitic, G., ... & Orrell, J. (2013). On the HORYZON: Moderated online social therapy for long-term recovery in first episode psychosis. Schizophrenia research, 143(1), 143-149

8. Santarossa, S., Kane, D., Senn, C. Y., & Woodruff, S. J. (2018). Exploring the role of in-person components for online health behavior change interventions: can a digital person-to-person component suffice?. Journal of medical Internet research, 20(4), e144

9. Griffiths, K. M., Mackinnon, A. J., Crisp, D. A., Christensen, H., Bennett, K., & Farrer, L. (2012). The effectiveness of an online support group for members of the community with depression: a randomised controlled trial. PloS one, 7(12), e53244

10. Lal, S., Gleeson, J., Rivard, L., Joober, R., & Malla, A. (2021). Efficacy and safety of digital psychotherapy interventions for young people with mental health problems: A systematic

review and meta-analysis. Psychological Medicine, 1–19

11. Katsumata, Y., Matsumoto, T., Kitani, M., & Termura, K. (2018). Electronic media supports and benefits from communication among young adults with depression: Qualitative study. JMIR mHealth and uHealth, 6(1), e7

12. Panger, G. (2016). Reassessing the Facebook experiment: critical thinking about the validity of Big Data research. Information, Communication & Society, 19(8), 1108-1126