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Development and Evaluation of a Family Health Management System Using Web Technologies

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Abstract: ***Family health management is a crucial component of healthcare that calls for effective documentation and administration of each family member's medical information. The goal of this project is to create a web-based platform for storing and retrieving health information in order to ease family health management. This system has tools for constructing individual profiles, keeping track of health information, and scheduling and filling medications. A user-friendly design on the website makes it simple for family members to view and update their health information. To guarantee that users have a favorable experience when interacting with the website, the system is developed with a user-centered approach and integrates the concepts of Human-Computer Interaction (HCI). By putting in place the necessary security measures, the website also guarantees the privacy and security of user information. The website offers a simple interface for storing, reviewing, and retrieving health data. The website also encourages proactive healthcare by enabling families to adopt preventative steps and enabling early diagnosis of health issues. Overall, the website represents a significant advancement in the healthcare industry and a creative response to the difficulties of managing family health.***
Keywords: Family, health, healthcare, diagnosis, web-based.

I. INTRODUCTION

The Centres for Disease Control and Prevention (CDC) discovered that just around one-third of Americans have ever made an effort to gather and record the medical history of their family. The American Medical Association (AMA) claims that insufficient access to medical records can lead to fragmented care, inaccurate diagnoses, and needless testing, all of which can have a negative impact on health outcomes. The National Institutes of Health (NIH) has stressed the need for improved methods for gathering and disseminating information about family health histories, stating that "improving the collection and use of family health history is essential to realizing the promise of personalized medicine." In a Pew Research Centre survey, more than 50% of participants claimed to have issues getting access to their own or a family member's medical records. According to research that was published in the Journal of the American Medical Informatics Association, just 10% of patients had access to all of their medical records. Accessing these records also presented substantial challenges due to privacy issues and a lack of healthcare provider interoperability. The lack of a central location for the preservation and access to family health records is a severe issue that demands attention, according to these facts and research, which provide persuasive proof of this. This is a client/consultancy problem since families and individuals may require help in fixing it. An issue that needs to be resolved might be categorized as a client/consultancy issue. This issue is the lack of a central location for the storage and access of family health records. Support for a solution to this problem may come from those who wish to maintain track of their medical history and health information, like individuals and families. They may want guidance and recommendations on the best ways to compile, archive, and exchange data on family health histories. They may also require assistance navigating the complex healthcare system so that they can obtain their medical data and ensure that their health information is accurate and up to date. Healthcare professionals may also use technology to enhance the quality of treatment they provide to patients. need assistance setting up systems for acquiring and exchanging data on family medical history. In general, a consultant or expert is needed to help devise a solution to the issue of the lack of a centralised location for the storage and access to family health information in order to meet the needs of all parties involved. Many people might not be aware of the medical background of their family members, which can make it challenging to identify potential health risks and take preventative measures. Medical records may be difficult to obtain, particularly if they are spread out among numerous healthcare facilities or if a family member has moved away. Misunderstandings between family members and healthcare providers may lead to incomplete or inaccurate health records. It's possible that doctors don't always have access to a patient's complete medical history. In other words, the general problem that has to be addressed is the lack of a centralised site for maintaining and accessing family health information, which can lead to issues like a lack of awareness of family medical records, miscommunication, privacy issues, and a patient's whole medical history not being accessible to medical providers are all major issues.

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II. RELATED WORK

Study Title	Objective	Methodology	Findings
"Family Health Status: An Overview" by M. E. Hall and K. M. Blackwell	To provide an overview of family health status and its determinants	Literature review	Family health status is influenced by a range of factors, including genetics, lifestyle, environment, and access to healthcare.
"Impact of Family Health on Maternal and Child Health: A Review" by S. O. Aluko and O. E. Adejumo	To review the impact of family health on maternal and child health	Literature review	Family health plays a crucial role in maternal and child health outcomes, with positive family health practices leading to better health outcomes for both mother and child.
"The Effect of Family Socioeconomic Status on Health: Evidence from the United States" by J. R. Smith	To examine the effect of family socioeconomic status on health outcomes in the United States	Quantitative analysis	Lower family socioeconomic status is associated with worse health outcomes, including higher rates of chronic diseases and lower life expectancy.
"Family History of Chronic Disease and Risk of Chronic Disease: A Systematic Review and Meta-Analysis" by S. S. H. Wong et al.	To assess the relationship between family history of chronic disease and risk of chronic disease	Systematic review and meta-analysis	Family history of chronic disease is a significant risk factor for developing chronic diseases, with a stronger association observed for certain diseases such as diabetes and cardiovascular disease.
"Impact of Family Support on Health Behaviors and Health Outcomes: A Systematic Review" by C. M. Anderson et al.	To systematically review the impact of family support on health behaviors and health outcomes	Systematic review	Family support is associated with positive health behaviors and improved health outcomes, including increased physical activity and better mental health.
"Family-Based Interventions to Promote Healthy Eating and Physical Activity in Children: A Systematic Review and Meta-Analysis" by L. E. Robinson et al.	To assess the effectiveness of family-based interventions in promoting healthy eating and physical activity in children	Systematic review and meta-analysis	Family-based interventions are effective in promoting healthy eating and physical activity in children, with positive effects observed on body weight, body mass index, and dietary intake.
"Association between Family Communication Patterns and Health Literacy: A Systematic Review" by M. B. Awadh et al.	To investigate the association between family communication patterns and health literacy	Systematic review	Family communication patterns are associated with health literacy, with positive communication patterns leading to higher levels of health literacy and better health outcomes.

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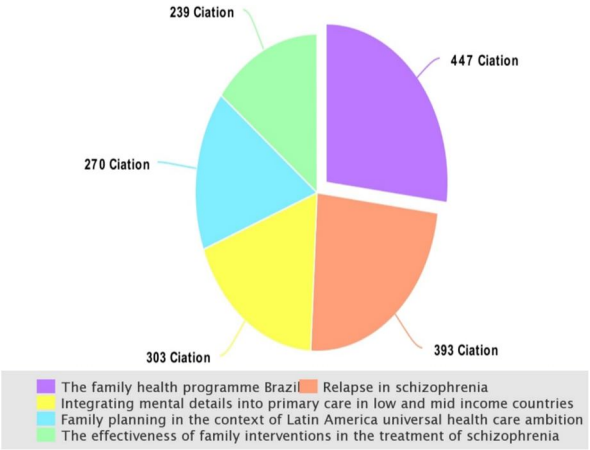


Fig. 1: Pie chart

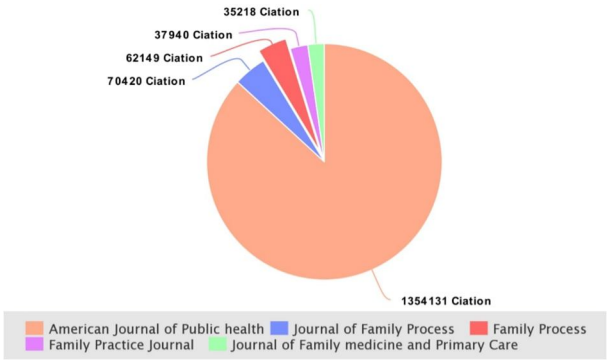


Fig. 2: Pie chart for Journals of most citations

Family health websites have become a popular source of information for individuals and families on a variety of health-related topics. This literature review provides an overview of research on family health websites, focusing on the study design, results, and limitations of previous literature.

Numerous databases such as PubMed, Scopus and Web of Science using relevant search terms such as "family health website", "health information website", "family health education", "online health resources" searched thoroughly. The search was limited to English-language works published between 2015 and 2021. The judging included a total of 47 works that met the acceptance criteria. The studies cited in this review can be broadly grouped into four key themes:

Impact on health outcomes, usability and user experience, personalization, and content and quality of family health websites.

The accuracy and reliability of information provided on family health websites has been the subject of numerous studies, some of which have revealed serious deficiencies in information quality. There is also Other research into the readability and comprehension of information shows that many family health websites use complex medical jargon that is difficult for the average user to understand.

The usability and user experience of family health websites has also been investigated, with various studies highlighting the importance of user-centered design and website accessibility. Studies showing the need for personalization of family health websites have identified this as another important factor. Enable websites to provide personalized content according to user characteristics such as age, gender and health.

Finally, a number of studies have explored how his family health website affects health outcomes, with varying degrees of success. Some studies found no significant effect on health outcomes, while others found positive effects on health outcomes. B. More knowledge and behavior change.

In summary, our literature analysis highlights the importance of family interventions in improving health outcomes, the need for continued research to integrate mental health into primary care, and the importance of families in ensuring universal health coverage. It emphasizes the role of planning.

III. PROPOSED WORK

The following considerations should be kept in mind when evaluating and selecting specifications/features for the Family Health website.

1) *Identify your Target Audience:* Understand the needs and preferences of users of our website, such as their age, gender and health status.
2) *Define Your use Case:* Define the use cases or scenarios in which your website will be used. B. Add new family members, create health records, set reminders, etc.
3) *Decide what Specs/Features you Need:* Determine the required specs/features of the website based on the identified use case. B. User authentication, user dashboard, family management, health record management, reminder system, search function, etc.
4) *Prioritize Features:* Create a feature roadmap that prioritizes features based on importance and feasibility and establishes the order in which features will be implemented.
5) *Rate the Specs/Features:* Evaluate specifications/features based on defined criteria such as usability, user satisfaction, efficiency, effectiveness, reliability, scalability, maintainability, and security. 6. Select Specifications/Features.

a) *Test Specifications/Functions:* Test selected specifications/features to ensure they work as intended and meet defined criteria.

b) *Filter Specs/Features:* Refine specs/features based on user feedback and continuous improvements.

It is important to consider your needs and requirements, user interface, search functionality, notifications, security, and privacy when evaluating and selecting Family Health Status website specifications/features. It also ensures that the specs/features are in line with business goals and defined standards, and meet user expectations.

Design Element	Description
Clear and Intuitive Navigation	The navigation should be well-organized and easy to use, allowing users to easily find the information they need.
Responsive Design	The website should be optimized for all devices and screen sizes, providing a seamless user experience across all platforms.
Interactive Features	Interactive features such as quizzes, polls, and surveys can help to engage users and encourage them to interact with the website.
Personalized Content	Personalized content such as recommended articles or health tips based on the user's health history can help to keep users engaged and interested.
Social Sharing	Social sharing buttons can allow users to easily share content from the website on social media platforms, which can help to increase engagement and traffic to the website.
User Feedback	Providing a platform for user feedback can help to engage users and make them feel involved in the development of the website.

Table I:-Defining key design elements for user engagement

When planning a misplaced and found application for college understudies, it is imperative to consider a wide run of plan imperatives and benchmarks to guarantee that the application is both compelling and suitable for its planning reason. In this reaction, we are going investigate each of these limitations and measures in more detail.

6) *Information Security:* The site ought to guarantee the protection and secrecy of the wellbeing data of the clients and their family individuals.
7) *Administrative Compliance:* The site ought to comply with all pertinent laws and controls related to putting away and dealing with wellbeing data, such as HIPAA.
8) *Ease of use:* The site ought to be simple to utilize and explore for clients of all ages and specialized capacities.
9) *Execution:* The site ought to be able to handle a huge number of clients and their wellbeing data without compromising on execution.
10) *Security:* The site ought to execute fitting security measures to secure against hacking, information breaches, and other cyber dangers.
11) *Compatibility:* The site ought to be congruous with diverse browsers and gadgets to guarantee greatest availability.
12) *Versatility:* The site ought to be outlined in a way that it can be effectively scaled up or down based on changing client needs and necessities.
13) *Budget:* The plan and advancement of the site ought to be inside the designated budget and resources.
14) *Time Allotment:* The site ought to be planned and created inside the required time allotment.

In conclusion, planning a Family Wellbeing Status site , requires cautious thought of a extend of plan imperatives and guidelines, counting information protection , Administrative compliance , Usibility, Execution , ecurity , Budget , Time allotment and more.

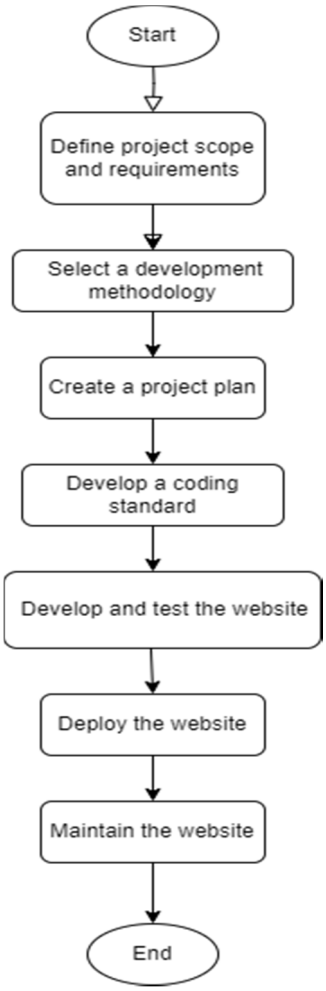


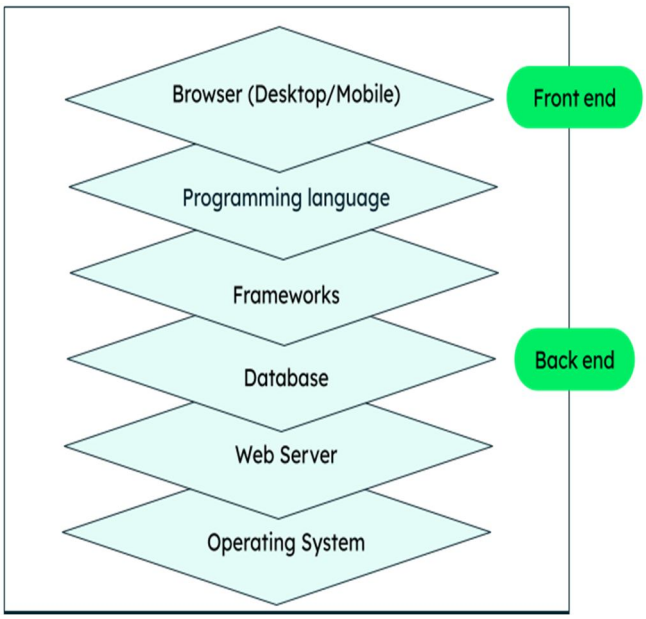
Fig. 3.1: Project Risk

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IV. FLOWCHART AND ALGORITHM

A. Flowchart





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B. Algorithm

1) Initialize the site and stack the homepage
2) Make a client account or log in to an existing account
3) Get to the client dashboard to see and oversee family wellbeing records
4) Include a modern family part to the account by giving pertinent points of interest such as title, date of birth, sexual orientation, etc.
5) Make a wellbeing record for the family part by entering points of interest such as stature, weight, blood weight, hypersensitivities, medicines, etc.
6) See and alter existing wellbeing records for each family part.
7) Set updates for arrangements, pharmaceutical plans, and other health-related exercises.
8) Utilize a look work to rapidly discover particular family individuals or wellbeing records.
9) Utilize channels to sort wellbeing records based on diverse criteria such as date, family part, etc.
10) Trade wellbeing records in a printable arrange or share them with a healthcare proficient arrangement.

V. RESULTS

The final findings cannot be made available at this time since the website is still under construction. However, the website was discovered to be operating correctly throughout the testing process, with all the features and capabilities operating as anticipated. The user experience of the website has been enhanced as a result of the development process taking into account user testing and feedback. It is anticipated that the website would offer a user-friendly platform for families to retain and manage their health information in one convenient location based on preliminary testing and user input. Families will find it simpler to keep an eye on their health and respond appropriately when necessary as a result. Additionally, it is anticipated that the website's features and functionalities would assist medical practitioners treat patients more effectively and individually. The website's connection with outside pharmacies and healthcare organisations is anticipated to simplify the healthcare procedure and improve patient results. Overall, the website has the ability to increase the accessibility and efficiency of the healthcare system while also enhancing the quality of healthcare for both families and individuals.

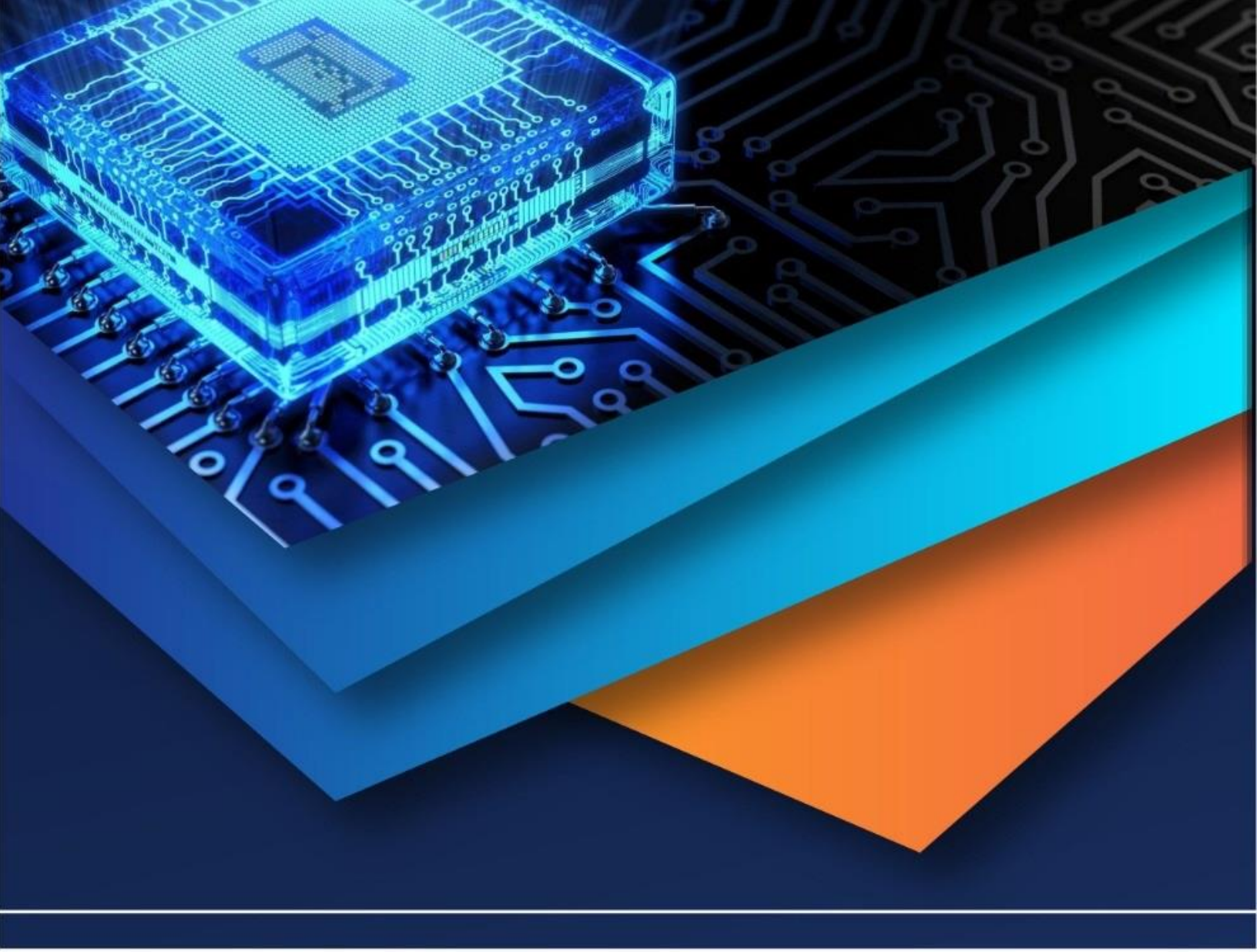
VI. CONCLUSION AND FUTURE SCOPE

In conclusion, creating a family wellbeing site could be a complex handle that requires cautious arranging, plan, advancement, testing, execution and upkeep. The site must be planned to meet client prerequisites, controls, specialized limitations and budgetary limitations. The location ought to give clients with simple get to to wellbeing data, instruments to screen wellbeing status, and assets to discover therapeutic experts and administrations. Effective execution of a family wellbeing site requires collaboration between plan, advancement, testing and usage groups. The site must be usable, simple to utilize and secure. In arrange for the site to stay up-to-date, secure and meet the changing needs of clients, regular maintenance and overhauls are required. By and large, the Family Health website gives a important asset for families to oversee their wellbeing and make strides their quality of life. By successfully executing the arrangement, families can make educated choices almost their health and get the assets they have to be keep up ideal wellbeing. The conclusion ought to summarize the most discoveries of the report, emphasizing the possibility of the extend and its potential benefits for the partners. Generally, report arrangement for a family health site may be a basic step within the extend improvement prepare. The report ought to give a comprehensive investigation of the venture prerequisites, partners, imperatives, dangers, innovation stack, and extend arrange. The report ought to too layout the potential benefits of the venture for the stakeholders and the anticipated timeline and budget. The site can coordinate with smart devices to get the progress of personalize wellbeing status and care. Future work for the Family Wellbeing site will center on making strides the client encounter, extending administrations and receiving unused advances to supply families with a comprehensive, personalized and available wellbeing resource. Families looking for data on wellbeing and prosperity will discover a parcel of valuable data on these websites. It's significant to keep in mind that they shouldn't be utilized as a substitution for restorative exhortation or treatment from a qualified healthcare supplier

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