FEMCARE

An user friendly and real-time women’s aid web-portal

**An Engineering Project in Community Service**

**Phase – II Report**

***Submitted by***

1. 22BOE10047 Puttamraju Moukthika
2. 22BCE10996 Sristi Srivastava
3. 22BOE10087 Shrijani Gubba
4. 22BCE10901 Isha Prashant Kashikar
5. 22BCE10416 Shristi Singh
6. 22BCE10792 Saee Joshi
7. 22BHI10072 Sanika Dhage
8. 22BOE10100 Aditi Upadhyay
9. 22BAI10008 Disha Chakraborty
10. 22BAI10338 Anushka Tripathi

***in partial fulfillment of the requirements for the degree of***

***Bachelor of Engineering and Technology***

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**Bonafide Certificate**

Certified that this project report titled **“Femcare”** is the bonafide work of “22BOE10047 Puttamraju Moukthika, 22BCE10996 Sristi Srivastava, 22BOE10087 Shrijani Gubba, 22BCE10901 Isha Prashant Kashikar, 22BCE10416 Shristi Singh, 22BCE10792 Saee Joshi, 22BHI10072 Sanika Dhage, 22BOE10100 Aditi Upadhyay,22BAI10008 Disha Chakraborty and 22BAI10338 Anushka Tripathi**”** who carried out the project work under my supervision.

This project report (Phase II) is submitted for the Project Viva-Voice examination held on April 2025

**Supervisor**

**Dr. G. L. Karthik**

**Assistant Professor Grade 1 School of Bioscience Engineering and Technology**

**Comments & Signature ( Reviewer 1)**

**Ms. Kalyani Keshaorao Wankhede**

**Assistant Professor**

**School of Architecture**

**Comments & Signature ( Reviewer 2)**

**Dr. Rajeev Saxena**

**Assistant Professor**

**School of Applied Science and Language**

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**Declaration of Originality**

We, hereby declare that this report entitled **“Femcare”** represents our original work carried out for the EPICS project as a student of VIT Bhopal University and, to the best of our knowledge, it contains no material previously published or written by another person, nor any material presented for the award of any other degree or diploma of VIT Bhopal University or any other institution. Works of other authors cited in this report have been duly acknowledged under the section ''References''.

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|  | Date: /04/25  22BOE10047 Puttamraju Moukthika  22BCE10996 Sristi Srivastava  22BAI10008 Disha Chakraborty  22BAI10338 Anushka Tripathi  22BOE10087 Shrijani Gubba  22BCE10901 Isha Prashant Kashikar  22BCE10416 Shristi Singh  22BCE10792 Saee Joshi  22BHI10072 Sanika Dhage  22BOE10100 Aditi Upadhyay | Reg No & Name: |

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**Abstract**

In the present work “FEMCARE”, we aim to create an umbrella structure which will work as a single source for all Women’s healthcare and wellness services through WEBDEVELOPEMENT. Such a structure will help women take charge of their health requirements by focusing on their underserved needs through education and support. FamCare’s ambition is to guarantee that women regardless of their age or background have trusted healthcare services that suite their needs from reproductive health care, mental health navigation, and enhancement of their overall living conditions. In accordance with that vision for “FemCare” has been developed and customized to follow the SMARTER framework the vision is Focused, Quantifiable, Realistic, Relevant and Time Bound as well as allows for Monitoring and Evaluation and amendment when needed. More specifically the area of emphasis on the platform is women’s health in areas such as Reproductive health, Pregnancy, Menstruation, pregnancy, menopause, physical and mental fitness and nourishment. Addressing such fundamental issues, “FemCare” hopes to bridge the gaps left by the available health care services and come in as a fully packed Women’s health service model where women can seek awareness, log their symptoms, utilize this service with other women. Further the use of this platform has been structured more for easier use of adults.

# INTRODUCTION

Menstruation is a fully natural biological phenomenon in females that is described by the periodic shedding of the uterine lining when there is no pregnancy. It is often termed a "cycle," usually starting at puberty and is characterized by the beginning of menarche-the first menstrual cycle experienced by a preadolescent girl, which often occurs when she is 12 years of age. The menstrual cycle represents a multidimensional interaction of hormonal changes that prepares the female body to be ready for pregnancy, though it usually takes 21 to 35 days and has a mean cycle of about 28 days. Comprehending menstruation plays a vital role in the improvement of reproductive health and general welfare.

This early menarche phenomenon arouses several issues within present society due to the trend of increased ages of menarche that occur below 11 years. Some factors were said to be associated with the increased incidence and these included genetics predisposition, nutritional conditions, environmental, and socio-economic statuses. Such findings may trigger psychological and social problems when such development faces the society with their expectation to handle matters to do with menstruation. Menstruation-related stereotypes often perpetuate stigma and myths, which in turn provoke fear and shame among young women. Such stereotypes can damage the self-esteem and mental health of girls, making it all the more important to have adequate education programs that address such issues. Teaching children about menstruation requires knowledge of their stages of development and their psychological preparedness. It is, therefore, essential to provide correct information in a setting that encourages free communication. A better-informed generation can be facilitated by the normalization of discussions on menstruation and the elimination of many myths that are prevalent and have become a way of life. The programs in schools should be fashioned according to the cognitive and emotional development stages of children to make the information suitable and empowering for them. Public education initiatives should reach more diverse sections of society by emphasizing the importance of menstrual health as an integral part of general well-being.

Menstrual symptoms vary greatly from one woman to another; however, they can include physical discomforts such as cramps, bloating, headaches, and fatigue, as well as emotional expressions like mood swings and irritability. Identification of these symptoms is an important step toward effective management and support during the menstrual cycle. In addition to physical discomfort, many women experience premenstrual syndrome, which can significantly impact their daily lives. Hygiene practices should be followed during this time to prevent infections and maintain health; this includes the timely replacement of menstrual products, such as pads or tampons, as well as appropriate disposal methods.

It is common for cravings for certain foods to occur during menstruation. However, if not properly controlled, these cravings can lead to unhealthy eating habits.

The regulation of cravings is crucial for emotional well-being; however, it is equally important to select nutritious alternatives that promote overall health. Proper nutrition plays a key role in alleviating menstrual symptoms and enhancing general wellness. Thus, it is essential to incorporate balanced diets that are abundant in vital vitamins and minerals, including iron, calcium, and magnesium. It can also help alleviate some symptoms that accompany menstruation, because it can reduce stress and good mood associated with the release of endorphins.

Understanding the relationship between diet and menstrual health is also important. Some foods make symptoms worse, whereas other foods may help improve things. For instance, fish contains omega-3 fatty acids that can potentially reduce inflammation and alleviate cramping. On the other hand, too much sugar may exacerbate mood swings or bloating. Thus, educating women to make healthier food choices when menstruating may lead to better health outcomes.

In a nutshell, education on menstruation needs to address various aspects including biological foundations, social impacts, both children and adult education, symptom management techniques, hygiene practice, nutritional factors, and the importance of physical activity. In this paper, it attempts to delve deeper into those topics to improve learning results while promoting better health among women at all ages. By exploring these interlinked topics, our goal is to empower people with knowledge that foster a healthier relationship with their bodies and encourage proactive responses towards menstrual health.

## 1.1 Motivation

In India Many women struggle to find the correct tools or information to manage their health, especially when it comes to periods, hygiene, nutrition, and exercise, these factors motivates us for creating “**FemCare”**  because we think women’s health is important and deserves attention

We believe most significant challenges women faces is the lack of open conversation around their health. Periods, hygiene, exercise, and well-being are often treated as taboo topics, leading to misinformation and silence. This silence may leave many women feeling isolated or unsure about how to care for themselves. “**FemCare”** is taking a step forward to break the silence and normalize these conversations, ensuring that women feel confident and supported in addressing their health needs. We try ensuring women have access to correct and accurate resources they need anytime and anywhere.

Our goal with “FemCare” is to provide women with easy access to tools and knowledge to take care of themselves . From tracking periods to offering tips on hygiene, exercise and nutrition, we want to support women in understanding their bodies and making informed choices. We wish to provide women a platform that supports them in their daily lives and keep them aware about their health

## Objective

The main aim of “FemCare” is to create an umbrella structure which will work as a single source for all Women’s healthcare and wellness services. Such a structure will help women take charge of their health requirements by focusing on their underserved needs through education and support. Femcare’s ambition is to guarantee that women regardless of their age or background have trusted healthcare services that suite their needs from reproductive health care, mental health navigation, and enhancement of their overall living conditions.

In accordance with that vision for “FemCare” has been developed and customized to follow the SMARTER framework the vision is Focused, Quantifiable, Realistic, Relevant and Time Bound as well as allows for Monitoring and Evaluation and amendment when needed. More specifically the area of emphasis on the platform is women’s health in areas such as Reproductive health, Pregnancy, Menstruation, pregnancy, menopause, physical and mental fitness and nourishment. Addressing such fundamental issues, “FemCare” hopes to bridge the gaps left by the available health care services and come in as a fully packed Women’s health service model where women can seek awareness, log their symptoms, utilize this service with other women. Further the use of this platform has been structured more for easier use of adults.

**1. Particulars**: Femcare's mission is to create a health website for women through which they can access information about reproductive health, mental health, fitness as well as conditions like PCOS and menopause as well as overall wellness management.

**2. Measurement**: The level of success of this project will be determined by KPIs such as volume of traffic directed to the site, the amount of time users spend on the site, the amount of click-through, reviews made by users, volume of subscriptions per time to worry tools or how many users signed up to customized services such as teleconsultation, exercise or health plans.

**3. Implementation :** The design of the platform “FemCare” wants to create will render reliable health information and will be user-friendly. The target seems volatile but possible given the planned allocation and timing of resources.

**4. Significance :** Increasing women’s health care provision is an important aspect for the achievement of the broader goals of the “FemCare”project. Since the emphasis is on personalized and timely health care, it is anticipated that the platform will help achieve the goal of enhancing the health literacy and wellbeing of the community. It also ties in with the relevant goals of using technology to enhance health care delivery.

**5. Provision of deadlines:** It is to be implemented in phases: ○ First phase (3 months): Building of the fundamental website.

**6. Assess and Readjust:** Milestone achievement will be checked after every month during the tip of the eye progress evaluation of the roadmap, looking for user feedback and analytics to identify areas of improvement potentially on user interface or further sensitization on other aspects of health topics. The roadmap means may be changed in order to provide new tools, resolve issues in an optimal way, etc.

Since basic termination through “FemCare” is through framing various options other than women’s health also has been neglected in a few areas and given the health care through the use of technology is reception with society majority by “FemCare”addressing the gaps in which it is based on. The stance of “FemCare”looks beyond unquestioned things which are centered around patient care which is global focus of healthcare now – accessibility, inclusivity, personalization. By filling gaps of unaddressed problems and encouraging women to take actions towards improving her health “FemCare”strives towards making of more aware and healthier society and encourages more knowledgeable and empowered society.

Last but not least, “FemCare”will be reviewing the use of technology to ensure it is relevant and appropriate. Reviewing once a month the technology analytics, user feedback and core metrics will improve the platform constantly. Whether it comes to reworking user experience, feature development or extending the

1. **METHODOLOGY**

The Fem-Care project's methodology integrates data-driven analytics, biological research, AI integration, and user-centred web development to provide a comprehensive menstrual health platform for women of all ages. It has the following structure:

2.1 SMARTER FRAME WORK :

• Specific: Focus on menstrual and women’s health• Measurable: KPI-based (site traffic, click-throughs, subscriptions)• Achievable: Phase-based implementation• Realistic: User-friendly web design• Time-bound: Monthly evaluation milestones• Evaluable: Analytics-based review• Reviewable: Adaptable based on feedback

2.2 PHASE IMPLEMENTATION :

* **Phase I**: Website foundation – educational content, awareness blogs, static product pages.
* **Phase II**: AI chatbot integration, menstrual cycle prediction model, and interactive features.
* Monthly checkpoints were scheduled to assess progress and recalibrate development or UI/UX needs.

2.3 TECHNICAL STACK :

* **Frontend**: HTML5, CSS3, JavaScript for responsive and interactive pages.
* **Design Approach**: Modular structure with intuitive UI/UX, mobile-first layout.
* **User Engagement**: Searchable blogs, contact forms, educational articles, and menstrual health tools.

2.4 AI CHATBOT DEVELOPMENT :

* Integrated two AI models: **Google Gemini** (primary) and **Mistral** (fallback).
* Implemented:
  + Prompt engineering
  + Personalized responses for health, nutrition, fertility
  + Child-friendly mode
  + Menstrual health quiz
* Modular backend logic using Python, JSON-based data storage, and API-based responses.

2.5 MENSTRUAL CYCLE PREDICTION MODEL :

* **Model Used**: Decision Tree Regressor
* **Steps**:
  + Data preprocessing: Handling missing values, encoding categorical data
  + Feature selection: Cycle length, luteal phase, symptoms, ovulation days
  + Model training and evaluation using MAE, MSE, RMSE, R²
* Achieved **R² Score of 0.9975**, indicating high prediction accuracy

2.6 EDUCATIONAL AND OUTREACH COMPONENT

* Comprehensive literature review on:
  + Menstrual hygiene
  + Health myths
  + Nutrition
  + Gender bias in healthcare
* Interactive content like:
  + “Talking to Kids About Periods”
  + Story-based education
  + Period-friendly nutrition and exercise tips

1. INDIVIDUAL CONTRIBUTION

Being a core member of the FemCare project team, I worked significantly on both technical development and organizational coordination of the website. My area of focus was to create a responsive, interactive, and user-friendly platform that matched the mission of the project to advance women's health awareness and outreach. I was very much involved in the front-end design process, optimized user experience, and making smooth content and feature integration. At the same time, I led the technical team, facilitated communications between design and content teams, and ensured there was a unified workflow. All this combined work enabled us to produce a technically robust and socially relevant product.

3.1 TECHNICAL CONTRIBUTION

I have contributed significantly to the technical design and front-end development of the project website. My key contributions are:

* Homepage Design & Structure :I created and crafted the whole homepage of the site, putting into place all the necessary visual and structural aspects. Particular consideration was taken to develop a clean, user-friendly layout that complies with the aim and tone of the project. I also ensured a consistent and calming color scheme, carefully selected to be both visually pleasing and girl-friendly, maximising user comfort and ease of access.
* User Experience (UX) & Aesthetics: I designed a user-centered interface through visual hierarchy, content flow, and interaction. I supplemented the user experience with related videos and custom graphics that enhanced the informational and emotional purposes of the site. These multimedia components provided depth and commonality, rendering the content interactive and more accessible to a larger audience.
* Responsiveness & Interactivity: Through CSS and JavaScript, I incorporated interactivity and responsiveness into the homepage and other elements, making the site usable on devices and user-friendly. Interactive components were strategically positioned to entice discovery and retention.
* Feature Integration (Relaxation & Wellness):I helped in integrating specialized areas, such as relaxation exercises and mental wellness features, to support the project's health and support goals.
* Webpage Integration:
* I was responsible for bringing together individual web pages designed by various team members into a uniform structure. This included ensuring consistency in design, testing for effortless transitions, fixing layout bugs, and making navigation as seamless as possible.
* Chatbot Development:
* I incorporated a chatbot within the website that provides an interactive layer of support that aligns with FemCare's goal to offer friendly and accessible health information.

3.2 MANAGEMENT

Aside from my technical tasks, I assumed the leadership function of coordinating the technical team for the FemCare project, making coordination and timely completion a success. I started by establishing an organized workflow, dividing the project into manageable stages and allocating tasks in accordance with each team member's individual skills and interests. I developed a collaborative project timeline, had regular check-ins, and employed collaborative tools to monitor progress and resolve obstacles in advance. Communication was central to my management style — I had weekly sync meetings to discuss progress, review outputs, and reset goals when needed. I also acted as the liaison between the technical and biology teams, making sure that the scientifically-researched material was conveyed accurately and gracefully into web features without compromising its clarity or purpose.

Aside from planning and coordination, I also offered on-the-fly mentorship by helping team members with debugging problems, UI/UX consistency, and integration issues. In the final stages, I spearheaded an intensive quality assurance process that involved checking every webpage for functionality, visual consistency, mobile responsiveness, and content accuracy. I also supervised the ultimate integration of all technical elements into a cohesive, user-friendly interface that embodied the core values of the FemCare initiative. This cooperative, hands-on style of leadership benefited not only in the provision of a refined and fully operational website but also in creating a healthy, productive, and well-coordinated technical team culture.