PROJECT REPORT ON

ENHANCING MENSTRUAL HEALTH WITH PYTHON AND MATHEMATICAL INSIGHTS

Submitted in partial fulfilment of the requirement for the award of degree in

BACHELOR OF SCIENCE IN MATHEMATICS

SUBMITTED BY

LOGANAYAKI . P (1U21MA005)

MARIA MONISHA . J (1U21MA006)

GUIDED BY

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2021-2024

RVS COLLEGE OF ARTS AND SCIENCE

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SULUR , COIMBATORE , 641-402


Certificate
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DEPARTMENT OF MATHEMATICS

CERTIFICATE

This is to certify that the project work entitled **"ENHANCING MENSTRUAL HEALTH WITH PYTHON AND MATHEMATICAL INSIGHTS"** is a bonafide record work done by **LOGANAYAKI . P (1U21MA005) and MARIA MONISHA . J (1U21MA006)** in partial fulfilment of the requirement for the award of the **bachelor Degree in Mathematics** during the year **2021-2024.**

Submitted for the viva examination held on _____ .

Project Guide Head of the Department Principal

Internal Examiner External Examiner

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Submitted for the viva examination held on _____ .

Project Guide Head of the Department Principal

Internal Examiner External Examiner


US Declaration

DECLARATION

This is to certify that the project titled **"Enhancing Menstrual Health with Python and Mathematical Insights"** has been undertaken by **Loganayaki P (1U21MA005) and Maria Monisha J (1U21MA006)**, **students of Department of Mathematics , RVS College of Arts and Science, Sulur , Coimbatore - 641402**, under the academic auspices of **Bharathiar University**. We express our sincere appreciation to **Dr. C. Dhanapakyam**., **M.Sc., B.Ed.,Ph.D**. our esteemed project guide, for their invaluable mentorship and guidance throughout the duration of this project. This project exemplifies our dedication to utilizing **Python programming and mathematical insights** to contribute to the **advancement of menstrual healthcare**. We affirm that all aspects of this project, including research, development, and implementation, have been executed with integrity and in adherence to academic standards.

Place: Sulur **Candidate's Signature**

Date: 1.

2.


Acknowledge
TextStudio

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We are profoundly grateful for the opportunity to work under your guidance and mentorship. Your belief in us has fuelled our determination and propelled us forward on this transformative journey.


Absleqcl
MODERN CALLIGRAPHY FONT

ABSTRACT

This project focuses on the **development of a website aimed at providing comprehensive menstrual health care support for adolescent girls**. Utilizing **HTML for website structuring and Python for coding**, the platform offers an accessible and user-friendly interface. Incorporating **statistical formulas and mathematical insights, the website provides personalized health assessments, menstrual cycle tracking, and informative resources**. By leveraging technology and mathematics, this project aims to empower adolescent girls with the knowledge and tools necessary to manage their menstrual health effectively.

CONTENT


INTRODUCTION
Statistics
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1. INTRODUCTION TO STATISTICS.

1.1 What are Statistics?

Statistics encompasses the **collection, analysis, interpretation, presentation, and organization of data.** It provides methods and tools to extract meaningful insights from numerical information, aiding decision-making processes.

1.2 Historical Background:

The roots of statistics can be traced back to ancient civilizations like Babylon, Egypt, and China. However, **modern statistical methods** emerged during the **17th century** with the advent of probability theory and data analysis. Key figures such as **Sir Francis Galton, Karl, Pearson and Ronald Fisher** made significant contributions to the field.

1.3 Importance of Studying Statistics:

Statistics is crucial across various disciplines**. In science**, it helps in designing experiments and interpreting results. **In business and economics,** it informs market trends and financial decision-making. **In medicine,** it aids in clinical trials and epidemiological studies. **In social sciences,** it provides insights into human behaviour and societal trends.

1.4 Characteristics of Statistics:

- **Objective**: Statistics relies on factual and numerical data rather than opinions or beliefs.
- **Universality**: Statistical methods are applicable across different fields and contexts.
- **Precision:** Accurate data collection and analysis are essential for reliable statistical results.
- **Impartiality:** Statistical analysis should be free from bias or prejudice to ensure objectivity and validity.

1.5 Objectives of Statistics:

- **Summarize and Describe Data**: Statistics helps in summarizing and describing datasets using measures like mean, median, and mode.
- **Make Inferences or Predictions**: It allows us to make predictions about populations based on sample data and test hypotheses.
- **Test Hypotheses and Draw Conclusions**: Statistical tests enable us to assess the significance of relationships and draw valid conclusions from data.
- **Identify Patterns, Trends, and Relationships**: Statistics helps in identifying patterns, trends, and relationships within datasets, facilitating deeper insights.

1.6 Advantages of Statistics:

- **Provides Insights**: Statistics enables us to gain insights into complex phenomena and understand underlying patterns.
- **Facilitates Decision-making**: By providing evidence-based information, statistics aids in making informed decisions.
- **Evaluates Effectiveness**: It helps in evaluating the effectiveness of interventions, strategies, or treatments through rigorous analysis.
- **Enables Comparison and Benchmarking:** Statistics allows for comparisons between different groups or time periods, enabling benchmarking and performance evaluation.

1.7 Important Formulae:

- **Mean, Median, Mode**: Measures of central tendency used to describe the central value of a dataset.
- **Standard Deviation, Variance**: Measures of dispersion that quantify the spread or variability of data points.
- **Correlation Coefficient**: Quantifies the strength and direction of the linear relationship between two variables.
- **Probability Distribution Functions**: Describe the likelihood of different outcomes in a random experiment.

1.8 Statistical Tools:

- Statistical software packages such as **R, Python (with libraries like NumPy, SciPy, and Pandas), SPSS, and SAS** are widely used for data analysis. These tools provide a range of functions for data manipulation, visualization, hypothesis testing, and regression analysis.

- **Excel** is also commonly used for basic statistical analysis and visualization. It offers built-in functions for calculating descriptive statistics, creating charts, and conducting simple regression analysis.

1.9 Applications in Real Life:

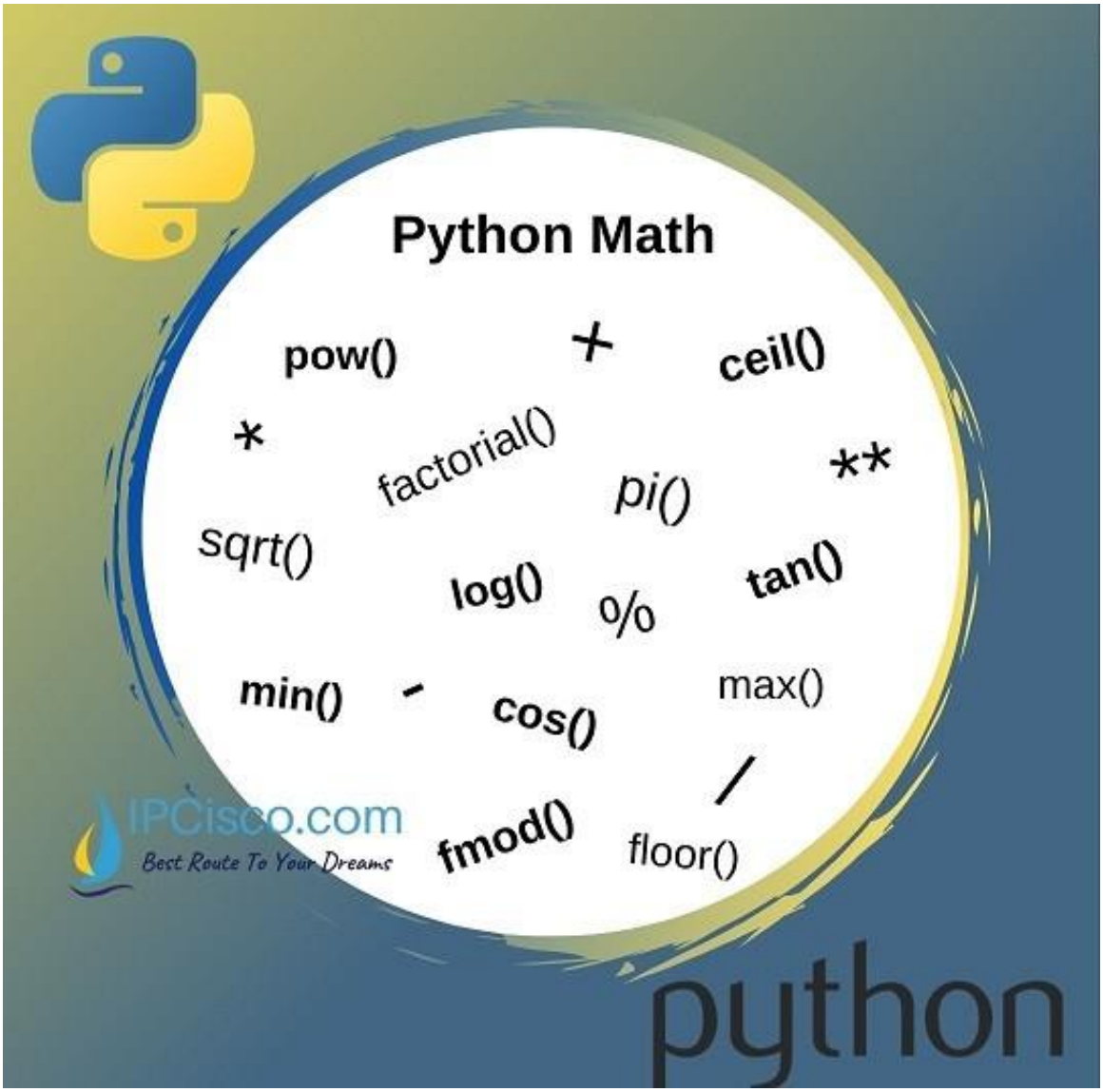
- **Market Research and Consumer Behaviour Analysis**: Statistics helps in understanding consumer preferences, market trends, and predicting demand.
- **Medical Trials and Healthcare Analytics:** It plays a crucial role in clinical trials, disease surveillance, and healthcare quality improvement.
- **Financial Forecasting and Risk Management:** Statistics aids in financial modelling, risk assessment, and portfolio management.
- **Quality Control and Manufacturing Processes**: It assists in monitoring product quality, process optimization, and defect analysis.
- **Opinion Polling and Social Science Research**: Statistics is used to conduct surveys, analyse social trends, and make policy decisions.

1.10 Importance in this Project:

- In this project, statistics will be utilized **to analyse and interpret data related to menstrual health, such as cycle length, symptoms, and trends.** Statistical methods will help in identifying patterns, correlations, and risk factors associated with menstrual health issues.
- Statistical formulas will aid in summarizing data, identifying trends, and drawing insights crucial for providing personalized health assessments to adolescent girls.

1.11 Data Collection and Transformation:

- Statistics plays a vital role in data collection through various methods such as **surveys, experiments, or observational studies.** It ensures that data is collected systematically and accurately.
- Through statistical analysis, raw data can be transformed into meaningful information, facilitating decision-making and problem-solving. Statistical techniques help in organizing, summarizing, and visualizing data to extract valuable insights.
- This detailed explanation provides a comprehensive overview of statistics, including the significance of statistical tools, and its relevance to your project on menstrual health care.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python

2. PYTHONIC SOLUTIONS: BRIDGING MATHEMATICS TO REAL-LIFE CHALLENGES .

2.1 Python: the mathematical bridge:

Python, a versatile programming language, serves as a powerful bridge between abstract mathematical concepts and real-life applications. With its simple syntax and extensive libraries, Python enables mathematicians and problem-solvers to tackle complex real-world challenges with ease.

2.2 Mathematical modelling made accessible:

Through Python, mathematical modelling becomes accessible to a wider audience. Its intuitive nature and rich ecosystem of libraries like **NumPy and SciPy empower users to translate mathematical theories into practical solutions**, whether it's predicting market trends, optimizing resource allocation, or simulating physical phenomena.

2.3 Solving Real-Life Problems with Python:

Python equips us with the tools needed to address real-life problems across diverse domains. From analysing financial data to optimizing logistics operations, Python's data handling capabilities, numerical computing libraries, and visualization tools streamline the process of problem-solving, enabling us to make informed decisions and drive meaningful outcomes.

2.4 Unleashing Creativity in Mathematical Problem-Solving:

Python's flexibility and expressiveness unlock new avenues for creativity in mathematical problem-solving. With Python, mathematicians are empowered to push the boundaries of traditional problem-solving techniques and devise elegant solutions to complex real-world problems.


python

3. INTRODUCTION TO PYTHON.

(PYTHON: EMPOWERING INNOVATION THROUGH TIME)

3.1 History of Python:

Python's journey began in the **late 1980s when Guido van Rossum, a Dutch programmer,** set out to create a language that prioritized simplicity and readability. The first version**, Python 0.9.0,** was released in **1991**, laying the foundation for what would become one of the most influential programming languages in history. Over the years, Python underwent significant development, with regular updates and enhancements, leading to the release of **Python 3.0 in 2008,** which introduced several backward-incompatible changes to the language.

3.2 What is Python?

Python is a high-level, interpreted programming language known for its simplicity, versatility, and readability. Its clean and concise syntax promotes readability and reduces the time needed for comprehension and debugging. Python supports multiple programming paradigms, including **procedural, object-oriented, and functional programming,** making it suitable for a wide range of tasks.

3.3 Why Python?

Python's popularity stems from **its ease of use, flexibility, and extensive libraries and frameworks.** Its dynamic typing system allows **for rapid development and iteration,** while its **object-oriented nature facilitates modular and reusable code.** Python's versatility enables it to be used in various applications, **from web development and data analysis to artificial intelligence and machine learning.**

3.4 How Python Works ? :

Python operates as **an interpreted language**, executing code line by line, making it easy to test and debug. Its dynamic typing system and object-oriented nature facilitate rapid development and iteration. Python's extensive libraries and frameworks provide solutions for everything from web development and data analysis to machine learning and artificial intelligence.

3.5 Advantages of Python:

- **Readability:** Python's clean and concise syntax promotes readability and reduces the time needed for comprehension and debugging.
- **Versatility:** Python supports multiple programming paradigms, making it suitable for a wide range of tasks.
- **Extensive Libraries**: Python boasts a vast ecosystem of libraries and frameworks, providing solutions for various domains.
- **Community Support**: Python has a large and active community of developers who contribute to its growth and development, offering support, tutorials, and resources.

3.6 Applications in Real Life:

Python finds applications across various domains:

- **Web Development:** Frameworks like Django and Flask enable rapid development of web applications.
- **Data Analysis and Visualization:** Libraries like Pandas, NumPy, and Matplotlib facilitate data manipulation and visualization.
- **Machine Learning and Artificial Intelligence:** Python's libraries, including TensorFlow and PyTorch, are instrumental in building and training machine learning models.
- **Automation and Scripting:** Python's simplicity makes it ideal for automating repetitive tasks and scripting, increasing efficiency and productivity.

In conclusion, Python's journey from its inception to its widespread adoption across various domains exemplifies its role as a universal language of innovation, empowering developers worldwide to build impactful solutions and drive progress through time.


COLLECTING
DATA

4. DATA COLLECTION.

4.1 Selection of topic :

The adolescent stage marks the transition from childhood to adulthood, characterized by the pursuit of physical and psychological maturity, economic independence, and the development of adult identity. **A study conducted by the National Institute of Nutrition revealed that approximately 40% of adolescent girls in rural areas across nine states of India were undernourished.** This prevalence of malnutrition in rural areas can be attributed to low economic status and limited awareness among adolescent girls, particularly in rural regions.

4.2 Selection of area :

We visited a remote village named **Kammalapatti** in **Sulur, Coimbatore,** to facilitate the survey and streamline the process.

4.3 Selection of subject :

Thirty adolescent girls aged between **10 and 19 years** were selected for the study. An interview schedule was prepared to collect data through offline mode, utilizing **surveys and manual questionnaires.**

4.4 Selection of tool :

The tool utilized for this study was **an interview schedule with a questionnaire** designed to elicit accurate information. It facilitated the collection of primary data from the study participants.

4.5 Conduction of survey:

The interview schedule was prepared to gather information regarding their **socio-economic status, nutritional assessment, personal habits, and health assessment.** A **one-to-one** interview format consisting of relevant questionnaires was utilized for this survey.

4.6 Tabular columns:

The following tabular columns represent the anthropometric and dietary assessment of the selected subjects.

4.6.1 Height of the selected subjects: n=30

S.NO	Height(cm)	No. of. participants	Percentage(%)
1	<140	2	6.6
2	140-150	12	40
3	150-160	13	43.4
4	>165	3	10
		Total=30	Total=100

4.6.2 Weight of the selected subjects: n=30

S.NO	Weight(kg)	No .of .participants	Percentage(%)
1	30-40	10	33.3
2	40-50	9	30
3	50-60	6	20
4	60-70	1	3.3
5	70-80	4	13.4
		Total=30	Total=100

4.6.3 BMI of the selected subjects: n=30

S.No	BMI	BMI value	No of participants	Percentage(%)
1	Under weight	<18.5	13	43.3
2	Normal weight	18.5-24.9	12	40
3	Over weight	25-29.9	4	13.3
4	Obese	30 and above	1	3.33
			Total=30	Total=100

4.6.4 Waist-Hip ratio of the selected subjects: n=30

S.no	Waist-Hip ratio	Number of participants	Percentage(%)
1	0.2-0.5	26	86.6
2	0.5-1.0	1	3.3
3	Above 1	3	10.1
		Total=30	Total=100

4.6.5 Food Habits of the selected subjects: n=30

S.No	Diet preference	Number of participants	Percentage(%)
1	Vegetarian	6	20
2	Non -vegetarian	24	80
3	Ovo -vegetarian	0	0
		Total=30	Total=100

4.6.6 Nutrients intake of the selected subjects:

S.No	Nutrients	Day 1	Day 2	Day 3	RDA
1	Energy(kcal)	2100	2247	2189	2440
2	Protein(g)	47.5	51	49.5	55.5
3	Carbohydrates(g)	265.78	278.90	257.15	Apx. 230
4	Fat(g)	32.7	33	30.9	35
5	Fibre(g)	19.56	19.45	22.5	Apx.30
6	Iron(mg)	24	25.7	26.7	26
7	Calcium(mg)	656	554	679	800

From the above table, it is clear that the energy, protein intake is literally similar to the RDA. The protein intake of an individual varies according to their body weight. Never the less, calcium intake of the selected subjects is inadequate. Fat intake of the selected subjects is less. Thus, it can be concluded that the selected subjects are not getting an adequate quantity of certain nutrients.

4.7 PHOTOS :

These are the pictures we captured during the time of collecting the data in kammalapatti, sulur, Coimbatore.

Fig 4.7.1

Fig 4.7.2

Fig 4.7.3


PROBLEM

5. CONFRONTING THE ISSUE.

"Unveiling Rural Health Inequities: Deficiencies in Menstrual Care and Wellness Support"

- ✓ The problem identified through our survey is **the lack of guidance and resources for menstrual health care, nutritional intake, fitness, exercise, mental health, and sanitary hygiene, particularly in rural areas.** There is a **notable scarcity of gynaecologists, nutritionists, and fitness mentors in these regions, forcing residents to travel to urban areas for consultation and support.** However, due to various factors such as limited accessibility, transportation challenges, and perhaps even complacency, individuals often neglect seeking medical assistance regularly.

- ✓ This neglect of menstrual health care and overall well-being can lead to various health complications and diseases. For instance, inadequate attention to menstrual health may exacerbate existing conditions or contribute to the development of new ones. Additionally, the consumption of fast food, prevalent in many rural areas, can potentially intensify menstrual flow due to its propensity to increase body heat.

- ✓ Furthermore, other related issues compound the problem, including limited access to affordable and hygienic sanitary products, cultural taboos surrounding menstruation, and insufficient awareness about the importance of mental health and fitness. These factors collectively exacerbate the challenges faced by individuals in rural communities, underscoring the urgent need for comprehensive solutions to address their holistic well-being.

- ✓ **In summary, the lack of guidance, resources, and professional support in rural areas regarding menstrual health care, nutrition, fitness, mental health, and sanitary hygiene poses significant health risks and challenges for the residents. It is imperative to develop targeted interventions and initiatives to bridge these gaps and ensure equitable access to essential health services and information for all individuals, irrespective of their geographical location.**


SOLUTION

6. PATHWAYS TO PROGRESS.

To address the pressing challenges identified, we have committed to developing an innovative online platform dedicated to comprehensive menstrual health care. This transformative website will offer tailored guidance and resources, specifically designed to empower individuals in rural areas to effectively manage their menstrual health, nutritional intake, and overall well-being.

6.1 Key components of our solution include:

6.1.1 Expert Guidance Hub: A virtual hub connecting users with experienced gynaecologists, nutritionists, fitness coaches, and mental health professionals for personalized consultations and advice, ensuring access to expert support regardless of geographical constraints.

6.1.2 Educational Portal: An extensive repository of articles, videos, and infographics covering menstrual health education, nutritional guidelines, fitness routines, and mental wellness strategies, promoting informed decision-making and proactive health management.

6.1.3 Interactive Tools Suite: Innovative tools and trackers enabling users to monitor menstrual cycles, track nutritional intake, set fitness goals, and assess mental well-being, empowering them to take control of their health journey.

6.1.4 Community Support Network: An inclusive online community forum providing a safe space for individuals to share experiences, seek advice, and offer support, fostering a sense of belonging and solidarity among users.

6.1.5 Resource Directory: A curated directory of local healthcare providers, affordable sanitary product suppliers, and community support organizations, ensuring easy access to essential resources and services.

Through the integration of cutting-edge technology and a user-centric approach, our platform endeavours to revolutionize menstrual health care delivery, empowering individuals to lead healthier, happier lives with confidence and dignity.


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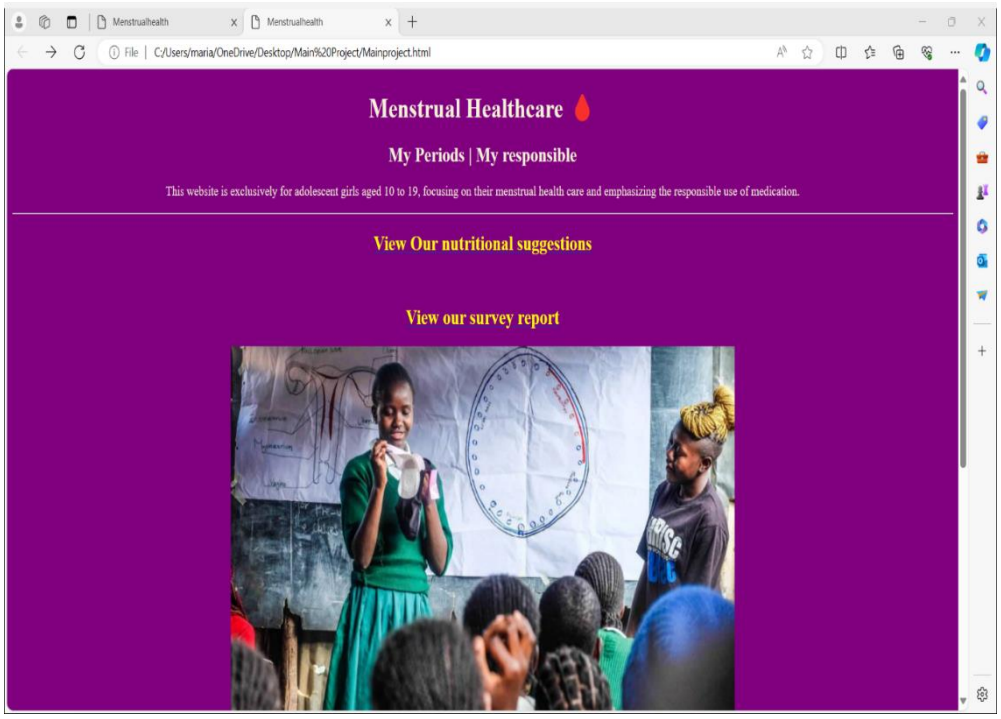
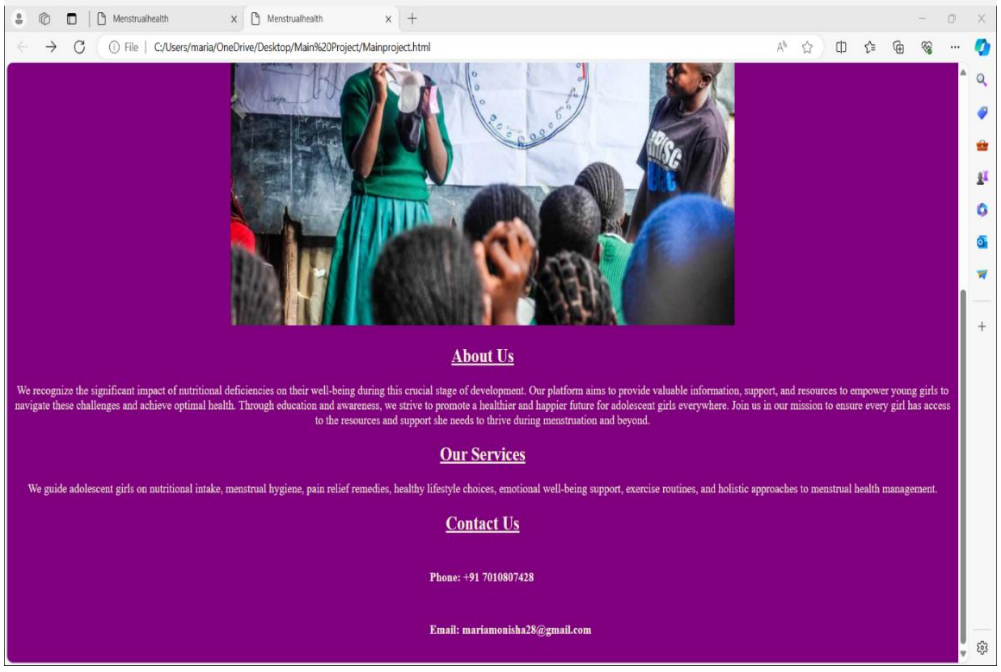
7. “MENSTRUAL HEALTH CARE” - A DEMO WEBSITE.





7.1 HTML for Frontend Development (Structuring the webpage).

Structuring a webpage using HTML involves several key steps:

7.1.1 Planning and Content Outline:

- Determine the purpose of the webpage and identify the target audience.
- Outline the content and structure of the webpage, including headings, paragraphs, images, links, forms, and other elements.

7.1.2 Creating the HTML Document:

- Start by creating a new HTML document using a text editor such as Notepad, Visual Studio Code, or Sublime Text.
- Begin with the `<!DOCTYPE html>` declaration, which specifies the document type and version of HTML being used.
- Add the `<html>` element, which serves as the root element of the HTML document.
- Inside the `<html>` element, include the `<head>` and `<body>` elements.

7.1.3 Setting Up the Head Section:

- Within the `<head>` element, include metadata such as the page title, character encoding, and viewport settings.
- Use the `<title>` element to specify the title of the webpage, which appears in the browser's title bar or tab.
- Optionally, add links to external stylesheets (`<link rel="stylesheet" href="styles.css">`) and scripts (`<script src="script.js"></script>`).

7.1.4 Designing the Page Structure:

- Within the `<body>` element, define the structural components of the webpage using HTML elements such as headings (`<h1>`, `<h2>`, etc.), paragraphs (`<p>`), lists (`<ul>`, `<ol>`, `<li>`), and divs (`<div>`).
- Use semantic HTML elements whenever possible to improve accessibility and search engine optimization (SEO), such as `<header>`, `<nav>`, `<main>`, `<section>`, `<article>`, `<aside>`, and `<footer>`.

7.1.5 Incorporating Multimedia Content:

- Insert images using the `<img>` element, specifying the source (`src`) and optional attributes such as `alt` text for accessibility and `width` and `height` for sizing.
- Embed multimedia content such as videos and audio files using the `<video>` and `<audio>` elements, respectively.

7.1.6 Creating Hyperlinks and Navigation:

- Use the `<a>` element to create hyperlinks, linking to other webpages within the same site or external URLs. Organize navigation menus using unordered lists (`<ul>`) and list items (`<li>`), and style them using CSS for visual consistency.

7.1.7 Adding Forms and User Input Elements:

- Incorporate forms using the `<form>` element, with input fields (`<input>`), text areas
- (`<textarea>`), checkboxes (`<input type="checkbox">`), radio buttons (`<input type="radio">`), dropdown menus (`<select>`), and submit buttons (`<input type="submit">`).

7.1.8 Testing and Debugging:

- Validate the **HTML** code using online validators or browser developer tools to ensure compliance with HTML standards and identify any syntax errors or missing elements.
- Preview the webpage in different browsers and devices to check for compatibility and responsiveness.
- Debug any issues related to layout, styling, or functionality, and make necessary adjustments to improve the user experience.

7.1.9 Finalizing and Publishing:

- Make any final refinements or updates based on testing feedback.
- Upload the **HTML** file along with any associated **CSS** stylesheets, JavaScript files, and multimedia content to a web server for hosting.
- Test the live webpage to confirm that all elements are functioning correctly and appear as intended, and make any additional adjustments as needed.

7.2 PYTHON for Backend Development.

7.2.1 Server-Side Logic:

Python serves as the backbone for server-side logic in a website. When a user interacts with a web application, their browser sends requests to the server, where Python processes these requests, executes the necessary operations, and generates responses. Python web frameworks **like Django, Flask, and Pyramid** provide the mechanisms for handling routing, request processing, and response generation efficiently.

7.2.2 Data Processing and Manipulation:

Python excels at data processing and manipulation tasks, crucial for backend operations. With Python, developers can interact with databases, perform **CRUD (Create, Read, Update, Delete)** operations, and process data retrieved from external sources. Mechanisms such as **Object-Relational Mapping (ORM)** tools in Django and Flask simplify database interactions by mapping database objects to Python objects, enabling seamless data manipulation.

7.2.3 API Development:

Python is widely used for developing APIs that facilitate communication between the frontend and backend components of a website. **RESTful APIs** written in Python provide endpoints through which frontend applications can access backend functionalities and data. Mechanisms such as **Flask-RESTful and Django REST Framework streamline API development by providing** tools for defining endpoints, serializing data, and handling requests/responses.

7.2.4 Authentication and Authorization:

Python enables the implementation of robust authentication and authorization mechanisms to secure backend resources. With Python frameworks, developers can integrate authentication mechanisms like **token-based authentication** or **OAuth** with ease. Mechanisms such as user sessions, **JSON Web Tokens (JWT),** and role-based access control **(RBAC)** are commonly employed to manage user authentication and authorization securely.

7.2.5 Business Logic Implementation:

Python empowers developers to implement intricate business logic and algorithms required for specific website functionalities. Backend applications written in Python can execute complex computations, process transactions, and enforce business rules efficiently. Mechanisms such as service layers and domain models encapsulate business logic, ensuring modularity, scalability, and maintainability of the codebase.

7.2.6 Task Automation:

Python facilitates task automation in backend systems, automating routine processes and operations. Task queues and schedulers like **Celery and APScheduler** enable developers to execute background tasks asynchronously, such as sending emails, generating reports performing data cleanup. Mechanisms such as task prioritization, retry policies, and distributed task processing enhance reliability and scalability.

7.2.7 Integration with External Services:

Python seamlessly integrates with external services and **APIs,** enriching backend functionalities. Through **HTTP** requests and API calls, Python-based backend systems can communicate with third-party services such as payment gateways, email providers, and cloud storage platforms. Mechanisms such as API clients, webhooks, and data serialization enable smooth integration and data exchange.

7.2.8 Scalability and Performance Optimization:

Python frameworks offer mechanisms for optimizing backend performance and scalability. Techniques such as caching, database query optimization, and asynchronous request handling improve response times and resource utilization. Horizontal scaling mechanisms, supported by technologies like load balancers and containerization, enable backend systems to handle increased traffic and workload effectively.

By leveraging Python's versatile features and employing these mechanisms effectively, developers can build robust, scalable, and feature-rich backend systems for websites, ensuring seamless user experiences and efficient operations.


HTML
5

8. HTML coding for website development .

```
<!DOCTYPE html>
<html lang="an">

<head>
   <title>Menstrualhealth</title>
</head>

<body bgcolor="purple" style="color: beige;">
   <center>
      <h1>Menstrual Healthcare □</h1>
      <h2>My Periods | My responsible</h2>
      <p>This website is exclusively for adolescent girls aged 10 to 19, focusing on their menstrual health care and emphasizing the responsible use of medication.</p>
      <hr>
      <a href="C:\Users\maria\OneDrive\Desktop\suggestions\suggestions.html\suggestions.html"><h2 style="color: yellow;">View Our nutritional suggestions</h2><br></a><a href="C:\Users\maria\OneDrive\Desktop\surveys\surveys.html"><h2 style="color:yellow;">View our survey report</h2></a><img src="my periods.jpg">
      <h2><u>About Us</u></h2>
      <p>We recognize the significant impact of nutritional deficiencies on their well-being during this crucial stage of development. Our platform aims to provide valuable information, support, and resources to empower young girls to navigate these challenges and achieve optimal health. Through education and awareness, we strive to promote a healthier and happier future for adolescent girls everywhere. Join us in our mission to ensure every girl has access to the resources and support she needs to thrive during menstruation and beyond.</p>
      <h2><u>Our Services</u></h2>
      <p>We guide adolescent girls on nutritional intake, menstrual hygiene, pain relief remedies, healthy lifestyle choices, emotional well-being support, exercise routines, and holistic approaches to menstrual health management.</p>
      <h2><u>Contact Us</u></h2>
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PYTHON
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9.1 PYTHON CODING (PROBLEM STATEMENT) .

How can you create a Python program to calculate Body Mass Index (BMI) and provide corresponding suggestions based on the calculated BMI?

Note: This program should run only if the gender is female.

9.1.1 User Input:

- Begin by prompting the user to input their **weight (in kilograms)** and **height (in meters).**

9.1.2 BMI Calculation:

- Write a function to calculate the BMI using the formula:
- **BMI = weight / (height * height).**

9.1.3 BMI Categorization:

Define another function to categorize the BMI into different categories such as underweight, normal weight, overweight, or obese, based on the following criteria:

- **BMI < 18.5: Underweight**
- **18.5 <= BMI < 25: Normal weight**
- **25 <= BMI < 30: Overweight**
- **BMI >= 30: Obese**

9.1.4 Display Results:

- Display the calculated BMI and the corresponding category to the user.

9.2 PYTHON CODING TO CALCULATE BMI(BODY MASS INDEX).

```
gender=input(str("Enter your Gender:"))
age=input(str("Enter your Age:"))
if(gender=="Female" and age>="10" and age<="19"):
    print("Welcome to our website!!")
    service=input(str("Enter your requirement:"))
    if (service=="BMI"):
        name=input(str("Enter your Name:"))
        height=int(input("Height (m):"))
        weight=int(input("Weight ( Kg):"))
        BMI=weight/height
        print("Your BMI is :",BMI)
        if(BMI<18.5):
            print("It seems that you are underweight .")
            print("You must add nutritional foods that enriches the level of protein , carbohydrates and fat ,some micronutrients , in your daily meal.")
            print("Here are the suggested foods you can have in your daily life :")
            print("Proteins: Beans, Nuts, Chicken, Egg")
            print("Calcium :Cheese, Ice cream, Frozen Yogurt")
            print("Carbohydrate: Ghee, Butter , Meat")
            print("Iron: Beef, Chicken , Spinach ,Enriched Whole grain")
            print("Zinc: Shell fish , Whole grain")
            print("Have a healthy life ahead.")
            print("Thank you for choosing our website.")
```

if(BMI>=18.5 and BMI<=24.9):

print("It seems that you are having a normal weight .")

print("You can add more nutritional foods that enriches the level of protein , carbohydrates and fat ,some micronutrients , in your daily meal. You can also do some basic workouts regularly to maintain this normal weight.")

print("Here are the suggested foods you can have in your daily life :")

print("Protein: Soya beans, Nuts, Chicken, Egg")

print("Calcium :Cheese, Ice cream, Frozen Yogurt")

print("Carbohydrate: Ghee, Butter, Meat")

print("Iron: Beef, Chicken, Spinach, Enriched Whole grain")

print("Zinc :Shell fish , Whole grain")

print("Do yoga, Jogging, walking regularly to maintain this normal weight.")

print("Have a healthy life ahead.")

print("Thank you for choosing our website.")

if(BMI>=25 and BMI<=29.9):

print("It seems that you are Over weight .")

print("You can add more nutritional foods that enriches the level of protein , limited carbohydrates and fat ,some micronutrients , in your daily meal. You can also do some basic workouts regularly to maintain this normal weight.")

print("Here are the suggested foods you can have in your daily life :")

print("Protein: Soya beans, Nuts, Chicken, Egg")

print("Calcium :Cheese, Ice cream, Frozen Yogurt")

print("Carbohydrate: Ghee, Butter ,Meat")

print("Iron: Beef, Chicken, Spinach, Enriched Whole grain")

print("Zinc :Shell fish , Whole grain")

print("You should do continuous workouts like Planks, sit ups, playing sports, Running.")

print("You should also follow strict diet.")

print("Have a healthy life ahead.")

print("Thank you for choosing our website.")

if(BMI>=30):

print("It seems that you are Obese .")

print("You can add more nutritional foods that enriches the level of protein , limited carbohydrates and fat ,some micronutrients , in your daily meal. You can also do some basic workouts regularly to maintain this normal weight.")

print("Here are the suggested foods you can have in your daily life :")

print("Protein: Soya beans, Nuts, Chicken, Egg")

print("Calcium :Cheese, Ice cream, Frozen Yogurt")

print("Carbohydrate: Ghee, Butter, Meat")

print("Iron: Beef, Chicken, Spinach, Enriched Whole grain")

print("Zinc: Shell fish , Whole grain")

print("You should do continuous workouts like Planks, sit ups, playing sports, Running.")

print("You should also follow strict diet.")

print("Have a healthy life ahead.")

print("Thank you for choosing our website.")

9.2.1 OUTPUT FOR UNDERWEIGHT :

Enter your Gender: Female

Enter your Age:15

Welcome to our website!!

Enter your requirement: BMI

Enter your Name: Moni

Height (m):5

Weight (Kg):66

Your BMI is : 13.2

It seems that you are underweight .

You must add nutritional foods that enriches the level of protein , carbohydrates and fat ,some micronutrients , in your daily meal.

Here are the suggested foods you can have in your daily life :

Protein: Soya beans, Nuts, Chicken, Egg

Calcium :Cheese, Ice cream, Frozen Yogurt

Carbohydrate: Ghee, Butter, Meat

Iron: Beef, Chicken, Spinach, Enriched Whole grain

Zinc: Shell fish , Whole grain

Have a healthy life ahead.

Thank you for choosing our website.

9.2.2 OUTPUT FOR NORMAL WEIGHT :

Enter your Gender: Female

Enter your Age:12

Welcome to our website!!

Enter your requirement: BMI

Enter your Name: Abi

Height (m):3

Weight (Kg):75

Your BMI is : 25.0

It seems that you are having a normal weight .

You can add more nutritional foods that enriches the level of protein , carbohydrates and fat ,some micronutrients , in your daily meal. You can also do some basic workouts regularly to maintain this normal weight.

Here are the suggested foods you can have in your daily life :

Protein: Soya beans, Nuts, Chicken, Egg

Calcium :cheese, Ice cream, Frozen Yogurt

Carbohydrate: Ghee, Butter, Meat

Iron: Beef, Chicken, Spinach, Enriched Whole grain

Zinc: Shell fish , Whole grain

Do yoga, Jogging, walking regularly to maintain this normal weight.

Have a healthy life ahead.

Thank you for choosing our website.

9.2.3 OUTPUT FOR OVER WEIGHT:

Enter your Gender:Female

Enter your Age:18

Welcome to our website!!

Enter your requirement: BMI

Enter your Name: Karthika

Height (m):2

Weight (Kg):75

Your BMI is : 37.5

It seems that you are Over weight .

You can add more nutritional foods that enriches the level of protein , limited carbohydrates and fat ,some micronutrients , in your daily meal. You can also do some basic workouts regularly to maintain this normal weight.

Here are the suggested foods you can have in your daily life :

Protein: Soya beans, Nuts, Chicken, Egg

Calcium : cheese, Ice cream, Frozen Yogurt

Carbohydrate: Ghee, Butter, Meat

Iron: Beef, Chicken, Spinach, Enriched Whole grain

Zinc: Shell fish , Whole grain

You should do continuous workouts like Planks, sit ups, playing sports, Running.

You should also follow strict diet.

Have a healthy life ahead.

Thank you for choosing our website.

9.2.4 OUTPUT FOR OBESE :

Enter your Gender: Female

Enter your Age:17

Welcome to our website!!

Enter your requirement: BMI

Enter your Name: Elakkiya

Height (m):2

Weight (Kg):75

Your BMI is : 37.5

It seems that you are Obese .

You can add more nutritional foods that enriches the level of protein , limited carbohydrates and fat ,some micronutrients , in your daily meal. You can also do some basic workouts regularly to maintain this normal weight.

Here are the suggested foods you can have in your daily life :

Proteins: beans, Nuts, Chicken, Egg

Calcium :cheese, Ice cream, Frozen Yogurt

Carbohydrate: Ghee, Butter, Meat

Iron: Beef, Chicken, Spinach, Enriched Whole grain

Zinc: Shell fish , Whole grain

You should do continuous workouts like Planks, sit ups, playing sports, Running.

You should also follow strict diet.

Have a healthy life ahead.

Thank you for choosing our website.


CONCLUSION

CONCLUSION

To summarize, **the development of a demo website dedicated to menstrual health care for adolescent girls aged 10 to 19 marks an important milestone. Through the utilization of Python coding language, I have laid the foundation for future expansion and refinement.** As we embark on the journey to further enhance this platform, our commitment to meeting the diverse needs of our users remains unwavering. With a clear vision and determination, we are poised to evolve this project into a comprehensive resource, empowering young girls with essential knowledge and support for their well-being. I eagerly anticipate the next phase of development and the positive impact it will bring to our community.

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  - https://youtu.be/m67-bOpOoPU?si=N4-vSZWSmelk1GNx


Thank
you!