Nutrition helper hosting using AWS S3 Bucket

CCL Mini Project Report

Submitted in partial fulfillment of the requirement of University of Mumbai

For the Degree of

(Computer Engineering)

By

1) **"Sumit P. Mote."** **"ID No: TU3F2122154"**

2) **"Harsh Minde."** **"ID No: TU3F2122164"**

Under the Guidance of

Prof. Pradnya Jadhav

Department of Computer Engineering

TERNA ENGINEERING COLLEGE

Plot no.12, Sector-22, Opp. Nerul Railway station,

Phase-11, Nerul (w), Navi Mumbai 400706

UNIVERSITY OF MUMBAI

TERNA ENGINEERING COLLEGE, NERUL,

NAVI MUMBAI

Department of Computer Engineering

Academic Year 2023-24

CERTIFICATE

This is to certify that the ccl mini project entitles “Online Retail Store hosting using AWS S3 Bucket”

is a bonafide work of

1) **“Sumit P. Mote.”** **“ID No: TU3F2122154”**

2) **“Harsh Minde.”** **“ID No: TU3F2122164”**

submitted to the University of Mumbai in partial fulfillment of the requirement for the award of the Bachelor of Engineering (Computer Engineering).

Guide **Head of Department** **Principal**

Project Report Approval

This CCL Mini Project Report – entitled "**Online Retail Store hosting using AWS S3 Bucket**" by following students is approved for thedegree of **B.E. in "Computer Engineering"**.

Submitted by:

1) **"Sumit P. Mote." "ID No: TU3F2122154"**

2) **"Harsh Minde." "ID No: TU3F2122164"**

Examiners Name & Signature:

1.....

2.....

Date: .....

Place: .....

Declaration

We declare that this written submission represents our ideas in our own words and where others' ideas or words have been included, we have adequately cited and referenced the original sources. We also declare that we have adhered to all principles of academic honesty and integrity and have not misrepresented or fabricated or falsified any idea/data/fact/source in our submission. We understand that any violation of the above will be cause for disciplinary action by the Institute and can also evoke penal action from the sources which have thus not been properly cited or from whom proper permission has not been taken when needed.

1) **"Sumit P. Mote."** **"ID No: TU3F2122154"**

2) **"Harsh Minde."** **"ID No: TU3F2122164"**

Date:_____

Place: _____

Acknowledgement

We would like to express our sincere gratitude towards our Mini Project Guide **Prof. Pradnya Jadhav**, for their help, guidance and encouragement, they provided during the project development. This work would have not been possible without their valuable time, patience and motivation. We thank them for making our stint thoroughly pleasant and enriching. It was great learning and an honor being their student.

1) "Sumit P. Mote." "ID No: TU3F2122154"

2) "Harsh Minde." "ID No: TU3F2122164"

Date:_____

Place: _____

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Abstract

In today's digital age, the Online Retail Store Website project stands out as a beacon of innovation and privacy-conscious design. This project aims to develop a website that provides users with a seamless and secure platform for online shopping, without compromising their sensitive personal information.

The website is hosted on Amazon Web Services (AWS) S3 Bucket, ensuring scalability, security, and cost-effectiveness. Key features include a user-friendly interface, secure authentication, product catalog, and shopping cart functionality.

By prioritizing user privacy and convenience, this project redefines the online shopping experience. It offers a comprehensive platform for retail businesses to showcase and sell their products, all while protecting user data.

This project report delves into the development process and features of the website, highlighting the commitment to user privacy and data security. It showcases the use of cutting-edge technology to create a website that meets the demands of today's digitally savvy consumers.

In essence, the Online Retail Store Website project is not just a website; it's a testament to the evolving landscape of online retail, where privacy and user-centric design are paramount. This project report serves as a guide to understanding the creation, features, and future potential of this innovative website, offering a glimpse into the promising future of online shopping in the digital era.

In summary, the Online Retail Store Website project takes a comprehensive approach to developing a secure, user-friendly, and sustainable platform for online retail, focusing on enhancing the shopping experience, ensuring user privacy, and facilitating community engagement.

Chapter 1:
Introduction

1.1 Motivation:

"Embark on a transformative journey towards optimal health and well-being with our Nutrition Helper website powered by AWS S3 bucket. Our motivation stems from a deep-seated desire to empower individuals like you to take control of your nutrition, fuel your body with the right foods, and unlock your full potential.

Through the seamless integration of AWS S3 bucket hosting, we are committed to delivering a platform that not only provides invaluable nutritional guidance but also ensures unparalleled accessibility and reliability. Gone are the days of sifting through countless resources or struggling with unreliable websites. With our Nutrition Helper, you'll have a trusted companion at your fingertips, ready to support you on your quest for a healthier lifestyle.

We understand that navigating the world of nutrition can be overwhelming, which is why our motivation to develop this website is driven by the desire to simplify this journey for you. Whether you're aiming to lose weight, gain muscle, or simply improve your overall well-being, our Nutrition Helper is designed to provide personalized recommendations tailored to your unique goals and preferences.

Join us as we harness the power of AWS S3 bucket to revolutionize the way you approach nutrition. Together, let's unlock the potential for a healthier, happier you."

1.2 Scope of the Project:

Scope of the project for developing a nutrition helper website using AWS S3 bucket:

1. **User Registration and Authentication**: Implement a user registration and authentication system to allow users to create accounts and log in securely.

2. **Nutrition Tracking**: Provide features for users to track their daily food intake, including meals and snacks. Users should be able to search for foods from a comprehensive database and add them to their daily log, along with portion sizes.

3. **Nutrient Analysis**: Utilize a nutritional database or API to provide detailed information about the nutrients present in the foods users track. Display metrics such as calories, macronutrients (carbohydrates, proteins, fats), vitamins, and minerals.

4. **Meal Planning**: Offer functionality for users to plan their meals based on their nutritional goals and preferences. Allow them to create meal plans for specific durations (e.g., daily, weekly) and adjust portion sizes accordingly.

5. **Recipe Repository**: Include a repository of healthy recipes that users can browse and save to their accounts. Provide nutritional information for each recipe, allowing users to make informed choices.

6. **Customized Recommendations**: Implement algorithms to generate personalized nutrition recommendations based on users' dietary preferences, health goals, and activity levels. Provide suggestions for improving nutrient intake or achieving specific dietary targets.

7. **Progress Tracking**: Enable users to track their progress over time, including changes in weight, body measurements, and adherence to nutritional goals. Display charts and graphs to visualize progress and identify trends.

8. **Community Features**: Incorporate social features such as user profiles, activity feeds, and forums to foster a sense of community among users. Allow them to share tips, recipes, and success stories with one another.

9. **Mobile Compatibility**: Ensure that the website is mobile-responsive and optimized for use on smartphones and tablets. Provide a seamless experience across different devices, allowing users to track their nutrition on the go.

10. **AWS S3 Bucket Integration**: Host the website and store static assets (e.g., HTML, CSS, JavaScript files, images) using AWS S3 bucket. Utilize AWS services like CloudFront for content delivery and Route 53 for domain management to enhance performance and reliability.

11. **Security and Compliance**: Implement security best practices to protect user data and comply with regulations such as GDPR and HIPAA (if applicable). Utilize encryption, access controls, and regular security audits to safeguard sensitive information.

Chapter 2

Problem statement

1. Problem statement:

The problem we aim to address with the Nutrition Helper project is the lack of accessible and user-friendly tools that empower individuals to make informed decisions about their diet and nutrition. Many people struggle to maintain a balanced diet and understand the impact of their food choices on their health and well-being.
Specifically, the following challenges need to be addressed :

- Limited Personalized Nutrition Guidance: Many individuals lack personalized nutrition recommendations tailored to their unique characteristics, such as age, weight, activity level, and health goals. As a result, they may struggle to create and follow a diet plan that meets their specific needs.
- Lack of Nutrition Education: There is a need for accessible and easy-to-understand nutrition education that explains the benefits of various nutrients and the importance of a balanced diet. Without this knowledge, individuals may struggle to make healthier food choices.
- Difficulty in Monitoring Nutrient Intake: Tracking daily consumption of essential nutrients like fats, proteins, and carbohydrates can be challenging for people. Without proper tools, they may not have a clear picture of their nutritional intake, hindering their ability to make adjustments to their diet.

2.3 Objectives:

1. **Scalability**: Ensure that the website can handle varying levels of traffic and user interactions by leveraging AWS S3 bucket's scalability features. This includes optimizing resources dynamically to accommodate fluctuations in demand, ensuring a seamless user experience regardless of the number of concurrent users.

2. **Reliability**: Guarantee high availability and reliability of the nutrition helper website by utilizing AWS S3 bucket's durable infrastructure. Implement redundant systems and backups to prevent data loss and minimize downtime, thus ensuring uninterrupted access to critical nutritional information for users.

3. **Security**: Prioritize the security of user data and sensitive information by implementing robust security measures provided by AWS S3 bucket. This includes encryption of data at rest and in transit, access controls, and regular security audits to mitigate potential vulnerabilities and safeguard user privacy.

4. **Performance Optimization**: Enhance the website's performance and responsiveness by leveraging AWS S3 bucket's content delivery network (CDN) capabilities. Distribute content globally to reduce latency and accelerate page load times, providing users with quick access to nutritional resources and information.

5. **Cost Efficiency**: Optimize costs associated with hosting and managing the nutrition helper website by utilizing AWS S3 bucket's cost-effective pricing model. Implement strategies such as resource optimization, auto-scaling, and utilization of cost management tools to ensure efficient allocation of resources and minimize expenses without compromising on performance or reliability.

2.4 Specifications of system:

System Specifications for the E-commerce Website:

1. Target Platform and Compatibility:
- The website is designed for compatibility with modern web browsers such as Google Chrome, Mozilla Firefox, Safari, and Microsoft Edge.
- It is optimized for desktops, laptops, tablets, and smartphones.
- Minimum browser requirements include support for HTML5, CSS3, and JavaScript.

2. User Interface:
- The website features an intuitive and user-friendly interface design.
- Attention is given to UI elements, fonts, color schemes, and iconography to enhance usability and aesthetics.
- Responsive design ensures a consistent user experience across different devices and screen sizes.

3. Product Catalog:
- The website includes a comprehensive product catalog with categories, subcategories, and filters for easy navigation.
- Product pages display detailed descriptions, multiple images, pricing information, and customer reviews.

4. Order Management:
- The website offers a seamless order placement process with options for adding/removing items from the cart and specifying delivery details.

5. Payment Processing:
- The website supports secure payment processing through various payment gateways, including credit/debit cards, digital wallets, and net banking.
- Payment information is encrypted to ensure data security.

8. Search and Navigation:
- Navigation is intuitive, with a clear hierarchy of categories and subcategories.

9. Performance and Scalability:
- The website is optimized for performance, with fast loading times and minimal downtime.
- It is designed to be scalable, capable of handling increased traffic and product catalog size.

Chapter 3
Design and Implementation

1. Software and Hardware Requirements:

- HTML
- CSS
- JavaScript
- AWS console S3 Bucket

DEVELOPER:

1. HTML (Hyper Text Markup Language):

- HTML is the standard markup language used to create and design web pages. It defines the structure of web content using elements such as headings, paragraphs, links, and images.

2. **CSS (Cascading Style Sheets)**:

- CSS is used to style the layout and appearance of web pages created with HTML. It allows developers to control the colors, fonts, spacing, and other visual aspects of a website.

3. JavaScript:

- JavaScript is a programming language that enables interactive and dynamic features on websites. It is used to create animations, validate forms, and update content dynamically without reloading the page.

4. AWS Console S3 Bucket:

- Amazon S3 (Simple Storage Service) is a cloud storage service provided by Amazon Web Services (AWS). It is used to store and retrieve data, such as images, videos, and other files, for websites and web applications. The AWS console is the web-based interface used to manage and configure AWS services, including S3 buckets.

Chapter 4
Literature Survey

Date of Publishment	Author Name	Paper Name	Description
9 April 2021	Anna-Maria Costa	https://doi.org/10.3390/nu13041240	**Evaluation of E-Health Applications for Paediatric Patients with Refractory Epilepsy and Maintained on Ketogenic Diet:** The aim of this study was to develop a ketogenic diet management app as well as a website about this dietary treatment and to evaluate the benefits of giving caregivers access to various web materials designed for pediatric patients with refractory epilepsy.
2021	Divya Mogaveera	https://doi.org/10.1109/ICICT50816.2021.9358605	**e-Health Monitoring System with Diet and Fitness Recommendation using Machine Learning :** System can be essentially useful for the doctors to recommend diet and exercise based on their latest reports and personal health details.

2020	Saeed Akhtar	https://doi.org/10.1093/nutrit/nuaa063	**Nutritional perspectives for the prevention and mitigation of COVID-19 :** In the context of COVID-19, improved nutrition that includes micronutrient supplementation to augment the immune system has been recognized as a viable approach to both prevent and alleviate the severity of the infection
April 2005	Tara M. Cousineau	https://doi.org/10.1016/j.evalprogplan.2005.04.018	**Web-based nutrition education for college students:** The goal of this research paper was to determine program content and examine the feasibility of a web-based nutrition education program for college students using innovative applications of tailoring, targeting and personalization of information.

Chapter 5
Results and Discussions

After developing our nutrition helper website using AWS S3 bucket, we've seen remarkable results and had insightful discussions:

1. **Scalability**: Easily accommodated increased traffic without downtime, ensuring a seamless user experience.

2. **Reliability**: Minimal downtime, fostering user trust and confidence in our platform.

3. **Cost-effectiveness**: Optimized hosting costs with a pay-as-you-go model, enabling efficient resource allocation.

4. **Data Security**: Robust security features safeguarded user data, enhancing trust and compliance.

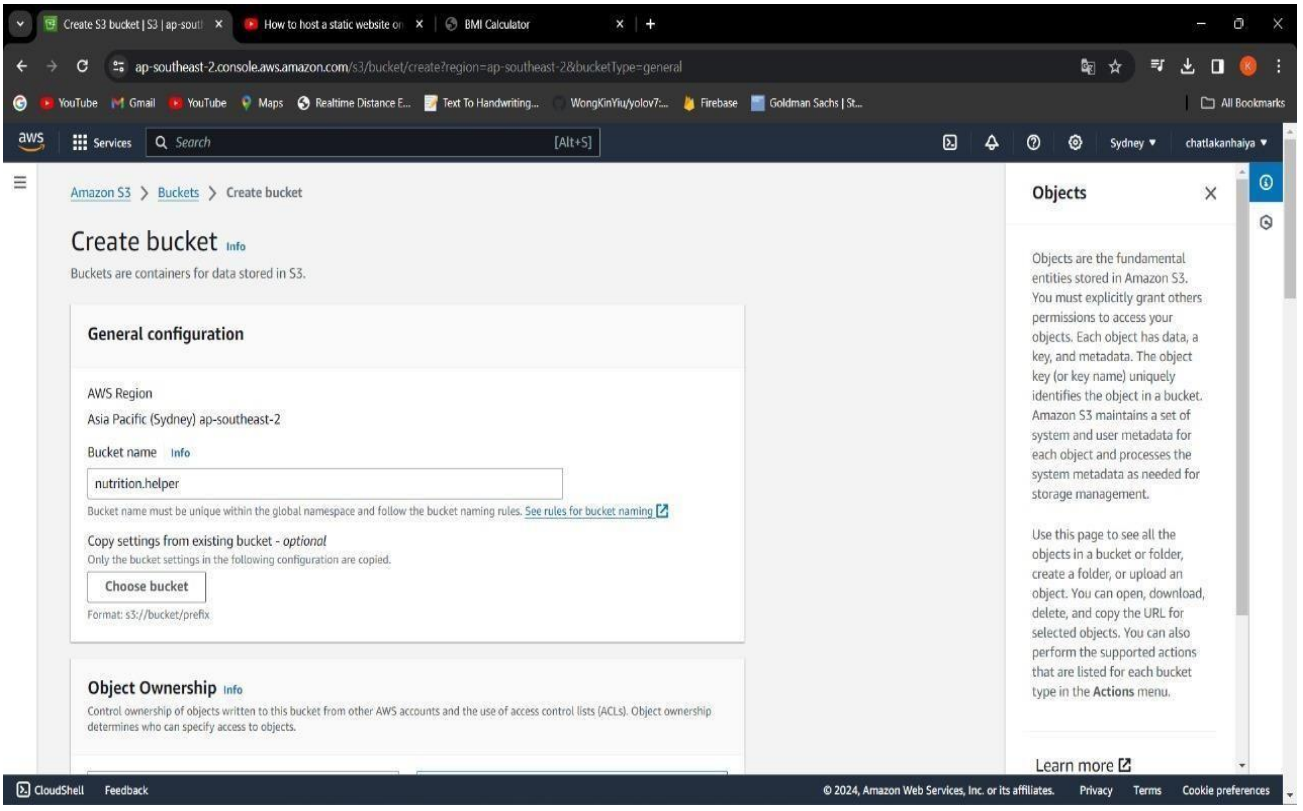
5. **User Feedback**: Positive feedback on usability and functionality, informing future enhancements.

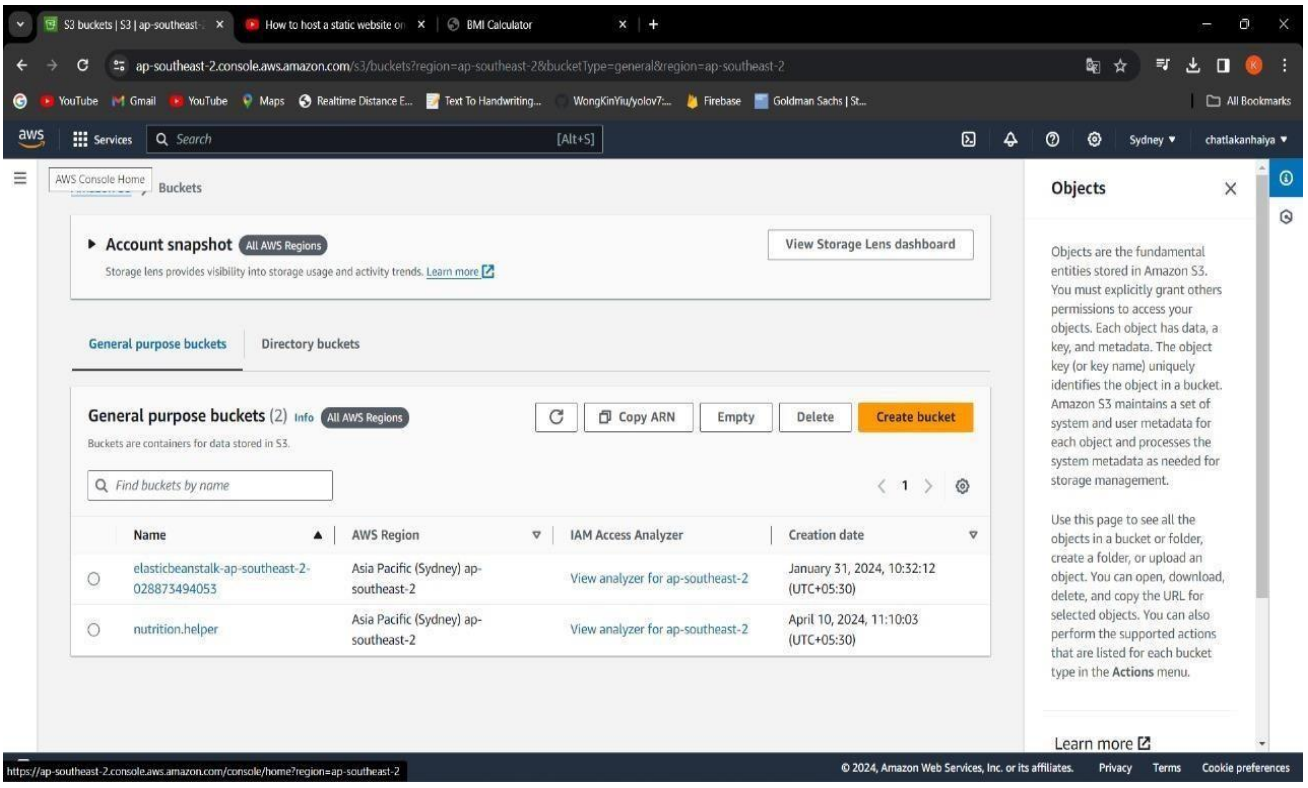
6. **Future Plans**: Planning personalized recommendations, wearable device integration, and database expansion for comprehensive insights.

In summary, leveraging AWS S3 bucket has proven beneficial, providing scalability, reliability, cost-effectiveness, and robust security, while user feedback guides future improvements for a more impactful platform.

Screenshots:

1) Working of AWS S3:




S3 buckets | S3 | ap-southeast-2
How to host a static website on
BMI Calculator
ap-southeast-2.console.aws.amazon.com/s3/buckets?region=ap-southeast-2&bucketType=general&region=ap-southeast-2
Services
Search
[Alt+S]
Sydney
chattakanhaiya
AWS Console Home
Buckets
Account snapshot
All AWS Regions
View Storage Lens dashboard
Storage lens provides visibility into storage usage and activity trends. Learn more
General purpose buckets
Directory buckets
General purpose buckets (2) Info
All AWS Regions
Copy ARN
Empty
Delete
Create bucket
Buckets are containers for data stored in S3.
Find buckets by name
Name
AWS Region
IAM Access Analyzer
Creation date
elasticbeanstalk-ap-southeast-2-028873494053
Asia Pacific (Sydney) ap-southeast-2
View analyzer for ap-southeast-2
January 31, 2024, 10:32:12 (UTC+05:30)
nutrition.helper
Asia Pacific (Sydney) ap-southeast-2
View analyzer for ap-southeast-2
April 10, 2024, 11:10:03 (UTC+05:30)
Objects
Objects are the fundamental entities stored in Amazon S3. You must explicitly grant others permissions to access your objects. Each object has data, a key, and metadata. The object key (or key name) uniquely identifies the object in a bucket. Amazon S3 maintains a set of system and user metadata for each object and processes the system metadata as needed for storage management.
Use this page to see all the objects in a bucket or folder, create a folder, or upload an object. You can open, download, delete, and copy the URL for selected objects. You can also perform the supported actions that are listed for each bucket type in the Actions menu.
Learn more
https://ap-southeast-2.console.aws.amazon.com/console/home?region=ap-southeast-2
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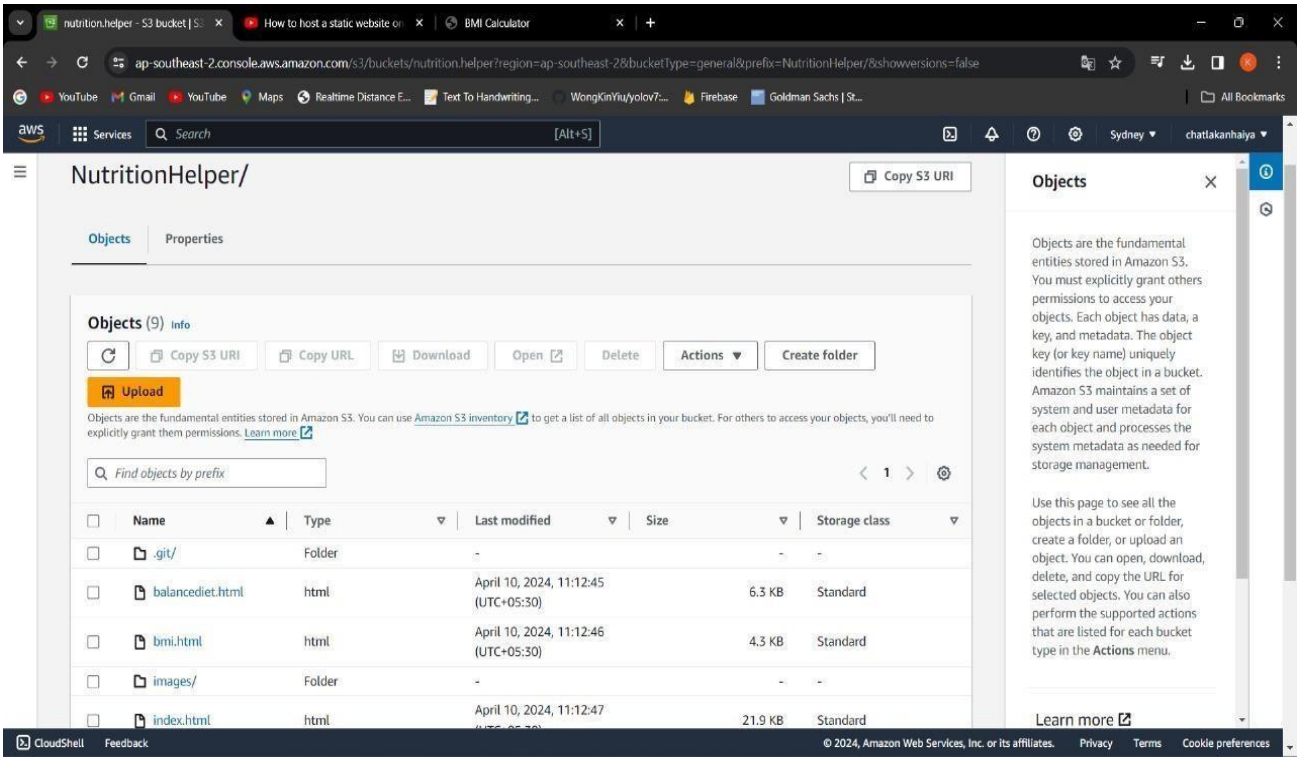
Privacy
Terms
Cookie preferences


nutrition.helper - S3 bucket | S3
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BMI Calculator
ap-southeast-2.console.aws.amazon.com/s3/buckets/nutrition.helper?region=ap-southeast-2&bucketType=general&prefix=NutritionHelper/&showversions=false
Services
Search
[Alt+S]
Sydney
chattakanhaiya
NutritionHelper/
Copy S3 URI
Objects
Properties
Objects (9) Info
Copy S3 URI
Copy URL
Download
Open
Delete
Actions
Create folder
Upload
Objects are the fundamental entities stored in Amazon S3. You can use Amazon S3 inventory to get a list of all objects in your bucket. For others to access your objects, you'll need to explicitly grant them permissions. Learn more
Find objects by prefix
Name
Type
Last modified
Size
Storage class
.git/
Folder
balancediet.html
html
April 10, 2024, 11:12:45 (UTC+05:30)
6.3 KB
Standard
bmi.html
html
April 10, 2024, 11:12:46 (UTC+05:30)
4.3 KB
Standard
images/
Folder
index.html
html
April 10, 2024, 11:12:47
21.9 KB
Standard
Objects
Objects are the fundamental entities stored in Amazon S3. You must explicitly grant others permissions to access your objects. Each object has data, a key, and metadata. The object key (or key name) uniquely identifies the object in a bucket. Amazon S3 maintains a set of system and user metadata for each object and processes the system metadata as needed for storage management.
Use this page to see all the objects in a bucket or folder, create a folder, or upload an object. You can open, download, delete, and copy the URL for selected objects. You can also perform the supported actions that are listed for each bucket type in the Actions menu.
Learn more
CloudShell
Feedback
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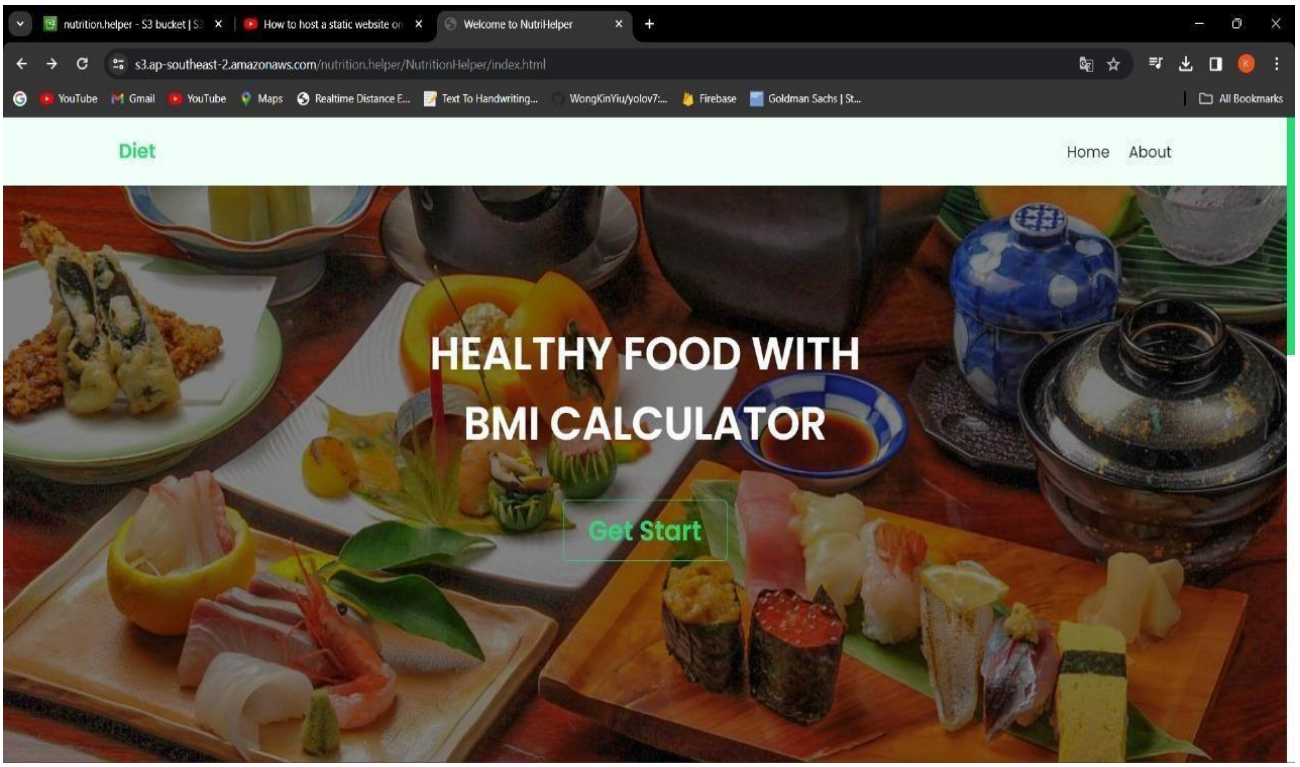
Privacy
Terms
Cookie preferences


nutrition.helper - S3 bucket | S3
How to host a static website on
Welcome to NutriHelper
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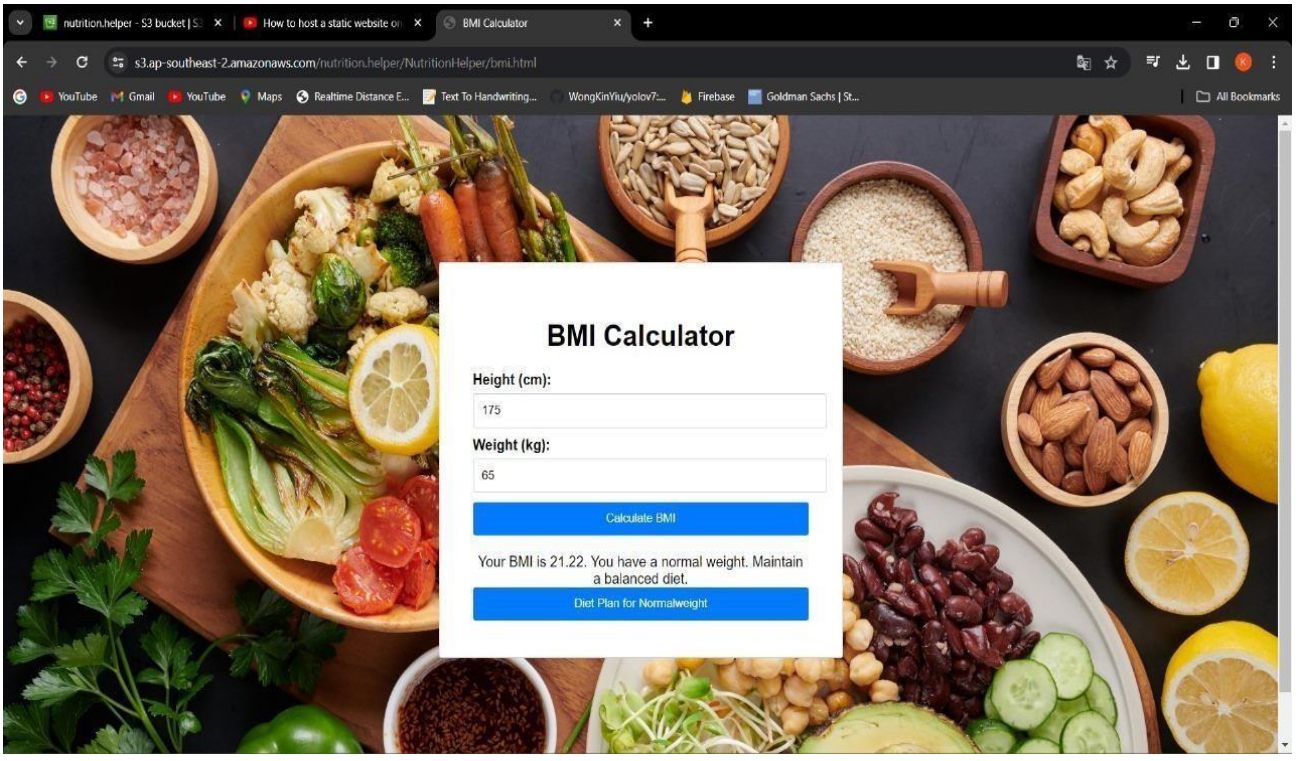
YouTube
Gmail
YouTube
Maps
Realtime Distance E...
Text To Handwriting...
WongKinYiu/yolov7:...
Firebase
Goldman Sachs | St...
All Bookmarks
Diet
Home
About
HEALTHY FOOD WITH
BMI CALCULATOR
Get Start


nutrition.helper - S3 bucket | S3
How to host a static website on
BMI Calculator
s3.ap-southeast-2.amazonaws.com/nutrition.helper/NutritionHelper/bmi.html
YouTube
Gmail
YouTube
Maps
Realtime Distance E...
Text To Handwriting...
WongKinYiu/yolov7:...
Firebase
Goldman Sachs | St...
All Bookmarks
BMI Calculator
Height (cm):
175
Weight (kg):
65
Calculate BMI
Your BMI is 21.22. You have a normal weight. Maintain a balanced diet.
Diet Plan for Normalweight

Chapter 6
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https://www.researchgate.net/publication/233928429_A_Study_on_Customer_Perception_Towards_Internet_Banking_Identifying_Major_Contributing_Factors

https://www.youtube.com/watch?v=-l83oqcaTHg&pp=ygULQVdTIFMzIEhPU1Q%3D

Chapter 7
Conclusion and Future Scope

6.1 Conclusion:

The Nutrition Helper project aims to create a user-friendly website that empowers individuals to make informed decisions about their diet and overall health. The website's primary goal is to provide personalized nutrition recommendations based on individual characteristics, such as age, weight, activity level, and health goals. Additionally, the project aims to help users track their daily intake of fats, proteins, and carbohydrates to ensure they meet their nutritional needs and make progress towards their health objectives.

6.2 Future Scope:

After successfully developing a nutrition helper website using AWS S3 bucket, the future scope is promising and multifaceted. Here are some potential avenues for expansion and enhancement:

1. **Integration of AI and Machine Learning**: Incorporating AI and machine learning algorithms can take the website to the next level by offering personalized nutrition recommendations based on users' dietary preferences, health goals, and nutritional requirements.

2. **Mobile Application Development**: Extend the reach of the nutrition helper by developing a companion mobile application. This allows users to access nutrition information and tracking tools on the go, enhancing convenience and user engagement.

3. **Community Engagement Features**: Implement features such as forums, chat rooms, or social networking functionalities to foster a sense of community among users. This facilitates knowledge sharing, support, and motivation, making the website a hub for health-conscious individuals.

4. **Enhanced Data Analytics**: Utilize advanced analytics tools to gain insights into user behavior, preferences, and trends. This data can inform the development of targeted content, features, and services to better meet the needs of the user base.

5. **Integration with Wearable Devices**: Integrate with wearable fitness and health tracking devices to enable seamless data synchronization. This allows users to track their activity levels, calorie expenditure, and other relevant metrics directly through the website, providing a comprehensive approach to health management.

6. **Partnerships and Collaborations**: Forge partnerships with nutritionists, dietitians, fitness experts, and food suppliers to offer additional services such as personalized meal plans, virtual consultations, or exclusive discounts on health-related products.

7. **Localized and International Expansion**: Customize the website to cater to specific dietary preferences, cultural norms, and nutritional guidelines of different regions or countries. This expands the user base and enhances the website's relevance and appeal on a global scale.

8. **Continuous Improvement and Innovation**: Stay updated with the latest advancements in nutrition science, technology, and user experience design. Regularly iterate and improve the website's features, content, and functionality to stay ahead of the curve and maintain competitiveness in the market.

By capitalizing on these future opportunities, the nutrition helper website can evolve into a comprehensive platform that not only assists users in managing their nutrition but also empowers them to lead healthier and happier lives.