





AI-NUTRITIONAL HEALTH SOLUTION

**ADVANCED HEALTHCARE
SOLUTION FOR PATIENT NUTRITION**

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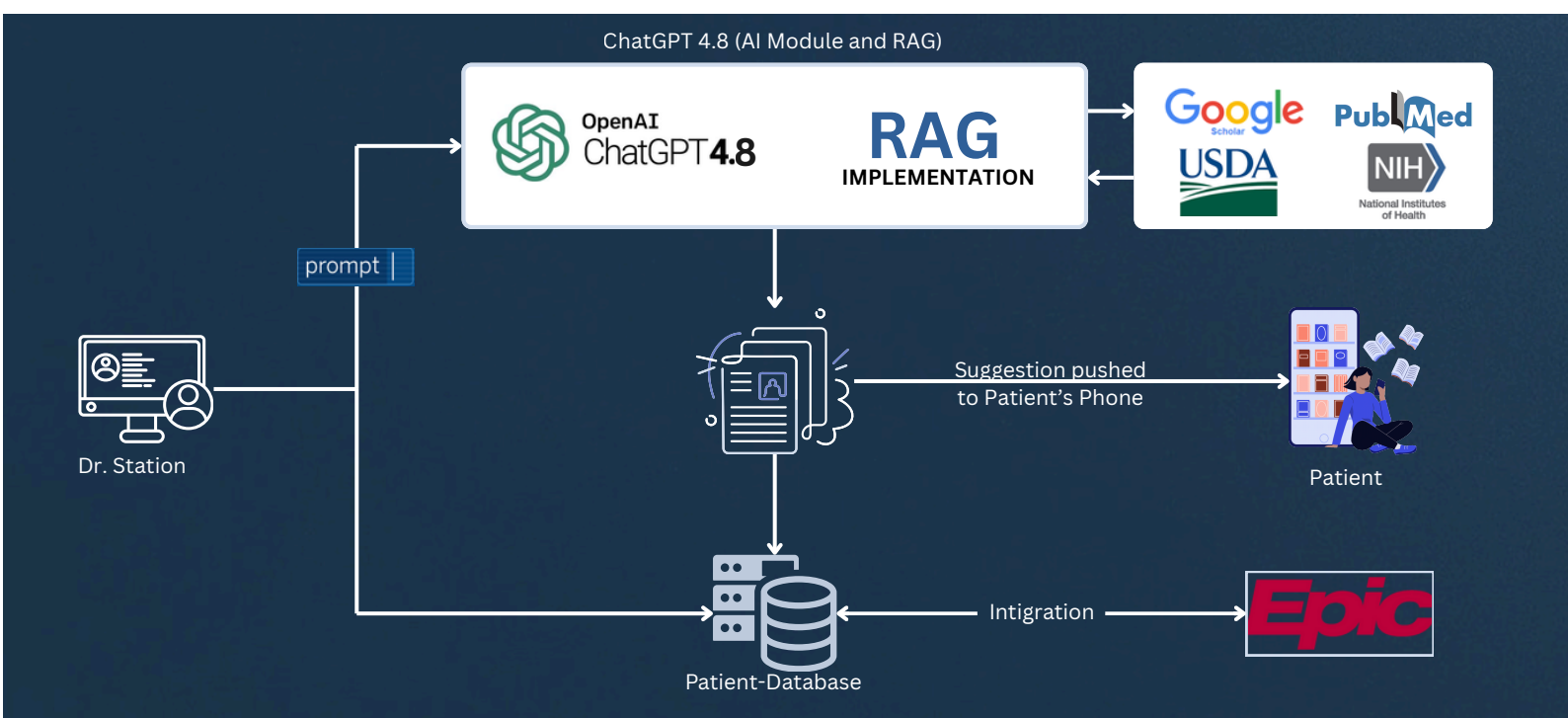
 1399 Wellington St. W,
Ottawa Ontario K1Y 2X1,
Canada

IMPROVED OUTCOMES | STREAMLINED DECISIONS | COST EFFICIENCY | PATIENT ENGAGEMENT | SYSTEM INTEGRATION

APPLICATION TO PROVIDE ADVANCED HEALTHCARE SOLUTIONS WITH A FOCUS ON NUTRITION-BASED PATIENT CARE

Healthcare revolutionising AI based nutrition based solution to transform power of nutrition in healthcare. Application that provides healthcare professionals with a comprehensive platform to deliver nutrition-based solutions tailored to individual patient needs, enabling better health outcomes and sustainable wellness.

Application provides a recommended grocery list and shows nearby stations / stores where they can find those groceries with online delivery options.



THIS APPLICATION LEVERAGES **AI/ML** MODELS TO ANALYZE PATIENT DATA AND MAKE DYNAMIC ADJUSTMENTS TO NUTRITION PLANS.

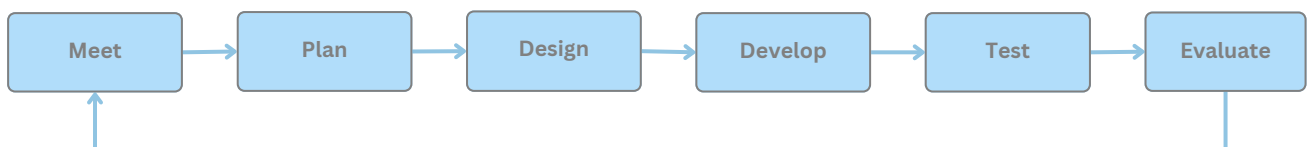
IT ENSURE CONTINUOUS TRAINING OF ALGORITHMS WITH REAL-WORLD DATA TO IMPROVE ACCURACY AND **RECOMMENDATIONS**

OBJECTIVE

Developing a Nutrition based patient care application for the aviation industry required a systematic and comprehensive approach that considers the unique operational and organizational characteristics of the industry.

This Nutrition based patient application that Techbit has built revolutionizes personalized healthcare by combining advanced artificial intelligence with expert nutritional guidance. Techbit-built SaaS application that leverages machine learning algorithms and natural language processing to analyze a user's health data, such as medical history, results, lifestyle habits, and biometric information, to generate evidence-based dietary recommendations.

AGILE SOFTWARE LIFE CYCLE



We followed Agile software development approach

CORE FUNCTIONALITY

- Patient Nutrition Assessment
- Personalized Nutrition Plans
- Patient Monitoring
- Nutrition Plans Shared via Link
- Integration with Health Records
- Data Analytics and Reports
- Authentic study references

85% SATISFACTION
AMONG HEALTHCARE
PROVIDERS

INCREASED EFFICIENCY
40% FOR CLINICIANS

KEY STEPS TEAM IDENTIFIED BEFORE DEVELOPING SOLUTIONS

CROSS-FUNCTIONAL TEAM

DevOps and PM's assigned for development of platform including Web Application and Architect.

IDENTIFIED & ASSESS FATIGUE RISKS

Conducted comprehensive assessment of the Doctors and Healthcare practitioners to identify the factors that contribute to patients dietary plan.

DEVELOPMENT OF POLICIES & PROCEDURES

Based on the assessment, we defined and developed policies and procedures addressing the identified risks including any allergies, past implants, operations and more.

STAKEHOLDER'S PRIORITY

Engaged with stakeholders in the Healthcare industry, including hospitals, doctors, practitioners, and clinics to make sure the best nutritional suggestions based on the prompted symptoms.

RESEARCH AND COMPLIANCE

MEDICAL GUIDELINES AND DATA

To ensure the nutrition algorithms and recommendations follow evidence-based guidelines (e.g., from the American Dietetic Association).

REGULATIONS

To ensure the application complies with HIPAA in the U.S. for handling healthcare data.

DATA SECURITY

To encrypt methods for sensitive data, user authentication (OAuth, JWT), and audit logs to track changes to sensitive patient information.

50% REDUCTION IN NUTRITION-RELATED COMPLICATIONS BY LEVERAGING PERSONALIZED NUTRITIONAL INTERVENTIONS.

CHALLENGES

Team faced various challenges while developing an application as a Nutritional Health Solution that advanced healthcare solution.

Challenges as such as below;

- Integrating real-time patient data securely like HIPAA.
- Personalized nutrition-based solution algorithms.
- Seamless interoperability with existing EHR systems
- Architecture for healthcare professionals for actionable insights.

Developing an application for Healthcare solutions that focused on patient nutrition required lots of research and ground analysis, which team built as they faced various challenges which team sorted well.

The most challenging part was Complex Integration with Research Databases as connecting to and utilizing research databases like PubMed, USDA, NIA or others requires handling large volumes of unstructured data, maintaining API connections, and ensuring the accuracy and credibility of sourced information. Such as below;

- Research data must be up-to-date, relevant, and filtered appropriately to avoid overwhelming users with irrelevant results.
- Licensing or access restrictions limit data retrieval and added complexity.
- Reading content from cloud PDF to fetch relevant solutions in response to the Prompt.

And challenge for team was to ensure the AI model's accuracy and personalization for nutritional suggestions based on the prompted data.

Next challenge was for team to keep the check for AI model that they built must interpret complex health data, such as;

- Medical condition (Allergies, Chronic, Medications etc)
- Processing complex queries
- RAG integration
- Scaling large data loads
- Latency with concurrency heavy computing Requirements
- Data Privacy with AI fairness
- Compliance regulations (HIPAA, GDPR, health data standards)
- Unstructured Data Processing and API Rate Limits
- Real-time integration with large research databases
- Dietary restrictions and more.

APPROACH

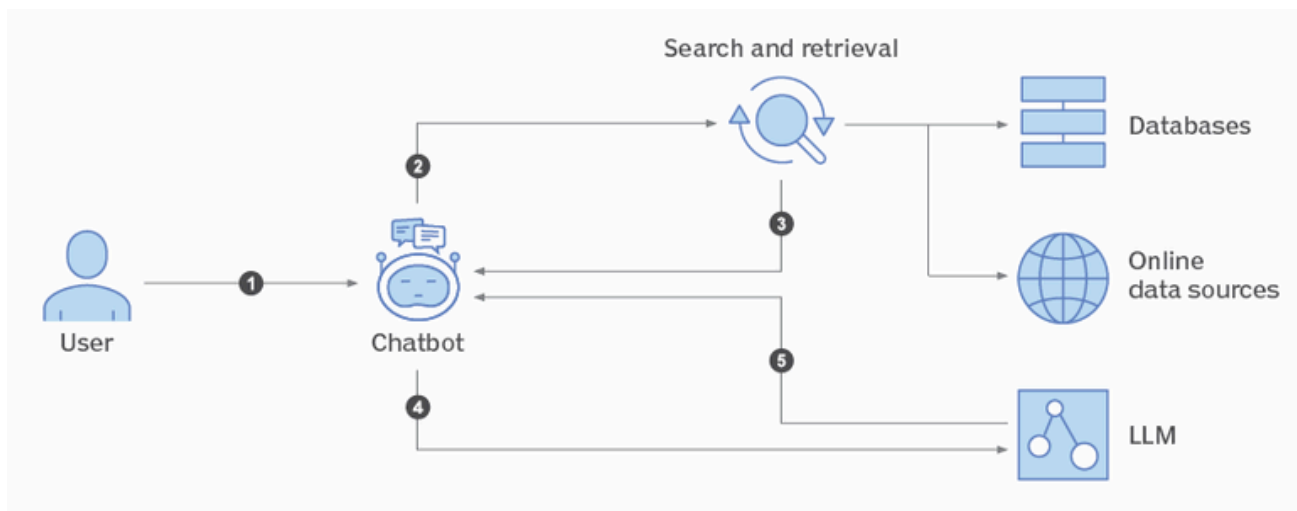
Team adopted a modular and scalable approach to build this AI-backed nutrition-based suggestions application along with nutrition tools leveraging machine learning models to provide personalized dietary recommendations.

FHIR APIs were used for seamless integration with EPIC system, ensuring real-time data sharing to secure the platform with HIPAA-compliant encryption and OAuth 2.0 authentication.

Team used cloud-based infrastructure for scalability and implement an NLP-powered search for accessing research data (e.g., PubMed). Prioritize responsive design, usability testing, and accessibility compliance for optimal user experience.

NUTRITIONAL HEALTH SOLUTION





Team used Retrieval-Augmented Generation (RAG) for information retrieval with generative models to enhance the capabilities of AI systems that allow the context of an AI system to search for matches between nutrition recommendations and symptoms in peer-reviewed literature.

PROCESSES AND OTHER FEATURES

DENSE PASSAGE RETRIEVAL(DPR)

Used dense retrieval models like DPR (Dense Passage Retriever) for documents containing.

UI Bot INTEGRATION

Developed a UI Bot to automate the downloading of research papers and peer-reviewed articles for training the AI system.

Elasticsearch/FAISS

Used tools like Elasticsearch or FAISS to index the corpus for efficient retrieval.

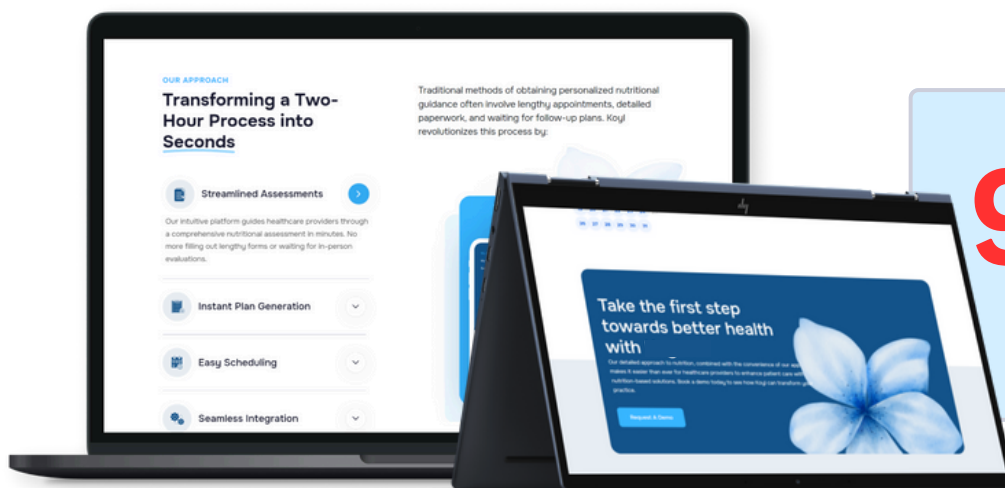
CORPUS CREATION

Built a comprehensive corpus of peer-reviewed articles on nutrition and symptoms to continuously update the database.

BUSINESS SOLUTION

As a result, Team Techbit built an AI-based intelligent software platform that transformed traditionally two-hour-long process for dietitians into mere seconds, putting advanced dietary solutions at doctors' fingertips. It enables clinicians to input a patient's illness, disease, or pain and instantly receive a range of holistic nutrition solutions that offer multiple methods for patients to adopt the recommendations effectively.

By integrating seamlessly with traditional medication, this nutritional health solution we built provides a comprehensive and multi-faceted approach to treating patients whereas it enhances coordination between doctors and dietitians, leveraging cutting-edge technology to improve patient outcomes and advance the paradigm of holistic healthcare.



98% Patient Satisfaction

IMPROVED PATIENT OUTCOMES

AI-DRIVEN INSIGHTS

SEAMLESS EHR/EMR INTEGRATION

ACCESS TO RESEARCH

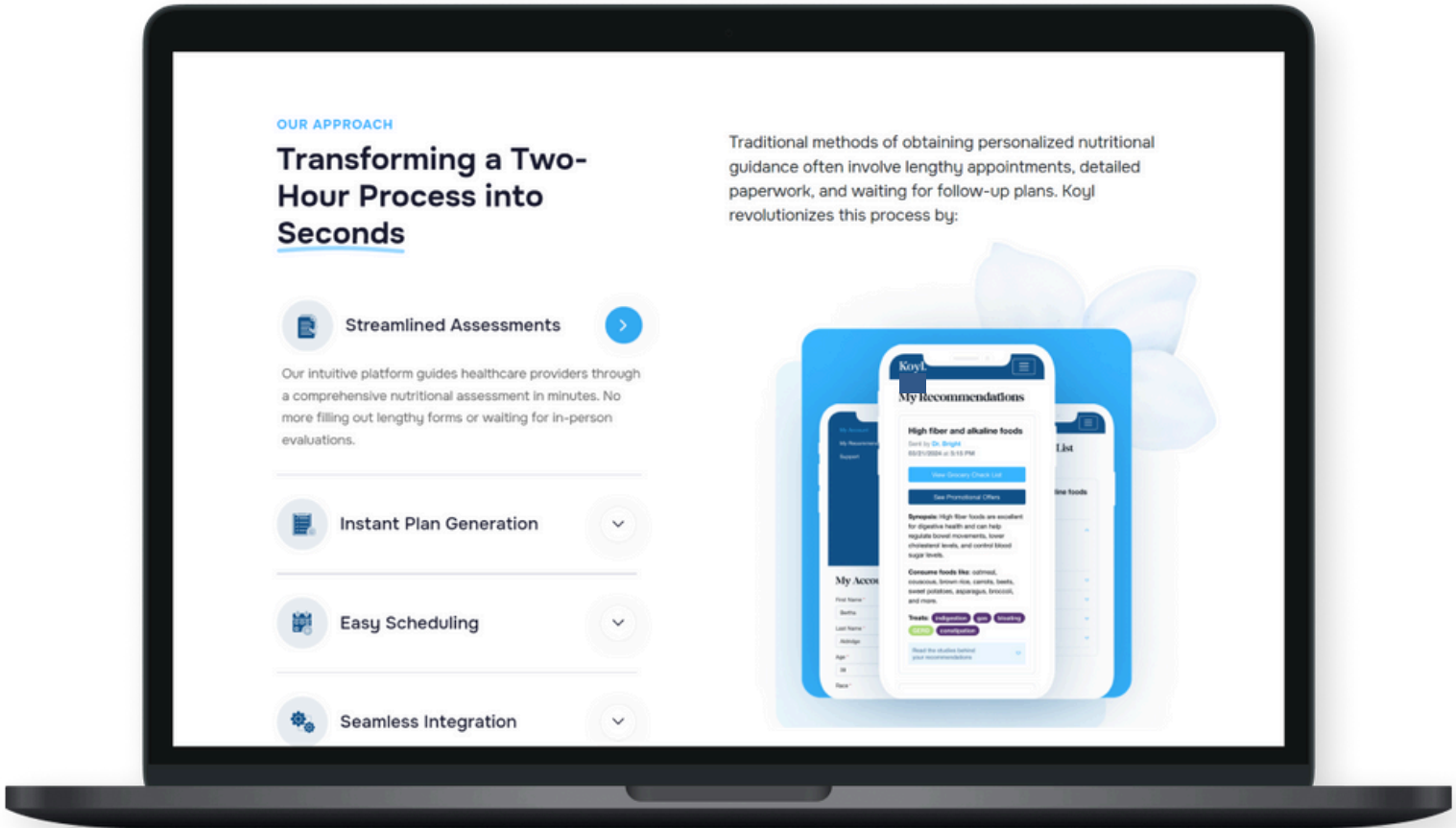
PERSONALIZED NUTRITION PLANS

ENHANCED DECISION-MAKING

ENHANCED PATIENT ENGAGEMENT

REGULATORY COMPLIANCE (HIPAA AND GDPR COMPLIANCE)

COST AND TIME EFFICIENCY



Dashboard

Patients

Account

Support

Search Symptoms and Diseases

Search...

Press enter or add a comma between each symptom or disease

Saved Recommendations

Disease	Symptoms	Recommendations	Actions
Acid Reflux Disease, GERD	Heartburn, Gas	Root vegetables	View Share Remove
-	Heartburn, Gas, Indigestion, C...	Whole grains, root vegetables...	View Share Remove
Irritable Bowel Syndrome (IBS)	Diarrhea	Whole grains, root vegetables...	View Share Remove

Welcome, Dr. Bright!

Dashboard

Patients

Account

Support

Welcome, Dr. Bright!

Recommendations for:

indigestion

gas

bloating

GERD

constipation

← Back to search

Most recommended

High fiber and alkaline foods

Share

Saved

Synopsis:

High fiber foods are excellent for digestive health and can help regulate bowel movements, lower cholesterol levels, and control blood sugar levels.

Consume foods like:

oatmeal, couscous, brown rice, carrots, beets, sweet potatoes, asparagus, broccoli, and more.

Treats:

indigestion

gas

bloating

GERD

constipation

Also recommended

Watery foods

Share

Save

Synopsis:

Eating foods that contain a lot of water can dilute and weaken stomach acid.

Consume foods like:

celery, cucumber, watermelon, lettuce, and more.

Treats:

indigestion

constipation

Dr. Recommendation Page

Dashboard

Patients

Account

Support

Welcome, Dr. Bright!

Jane Doe

← Back to search

Patient Details

Patient at:

Piedmont Gastroenterology

Assigned to:

Dr. Bright

Email:

email@email.com

Last appointment:

03/21/2024

Sign up date:

12/21/22

Age:

39

Sex:

Female

Race:

White

Weight:

134 lbs

Known Allergies:

Peanuts

Check-in Log

03/29/2024 thru 04/05/2024

☺ Participated

03/21/2024 thru 03/28/2024

☹ Didn't Participate

03/13/2024 thru 03/20/2024

☹ Didn't check-in

03/06/2024 thru 03/12/2024

☺ Participated

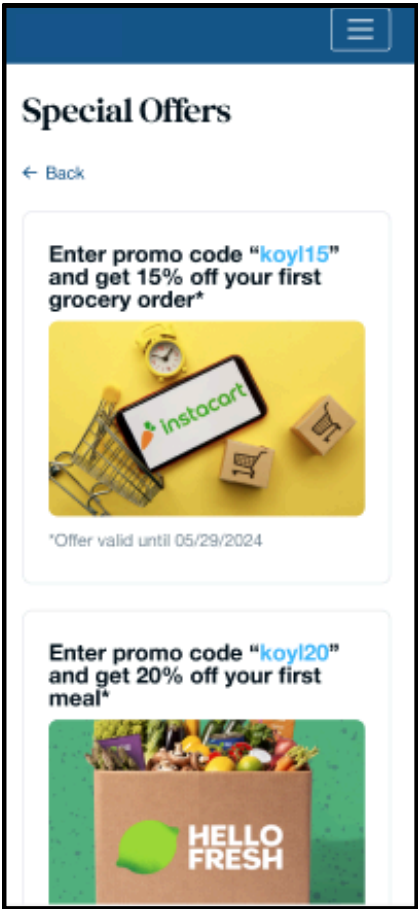
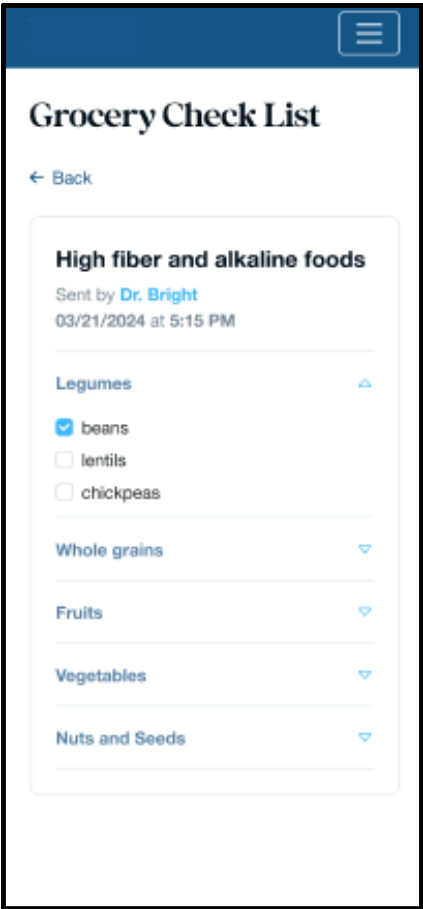
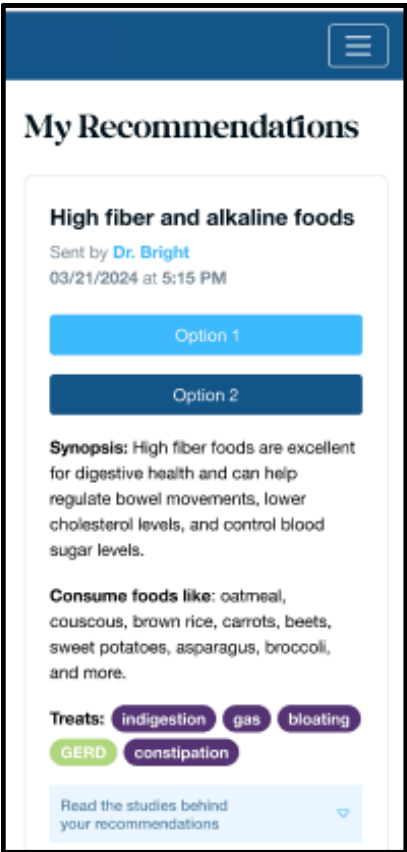
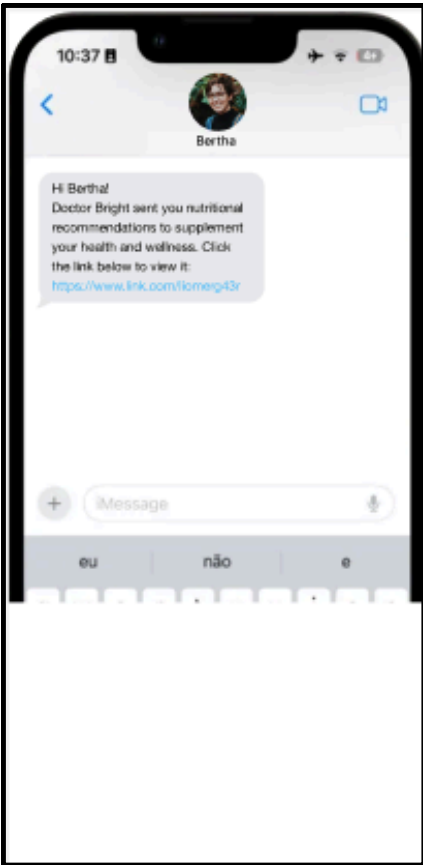
Past Recommendations

Sort by:

Ascending

Patient Info/History Page

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Patient Interface

Benefits and impact of healthcare nutrition solution:

Time Efficiency

- Reduces a 2-hour nutrition planning process to mere seconds
- Eliminates lengthy paperwork and waiting periods for in-person evaluations
- Cuts assessment time to minutes through streamlined digital processes

OPERATIONAL IMPROVEMENTS

- 100% paperless workflow through digital integration
- Real-time updates and progress tracking
- Instant generation of personalized healthcare plans
- Complete integration with existing hospital systems

HEALTHCARE PROVIDER BENEFITS

1. Clinical Efficiency

- Reduces consultation preparation time by approximately 75%
- Streamlines dietary plan creation from hours to minutes
- Immediate access to evidence-based recommendations

2. Patient Care Enhancement

- Comprehensive nutrition solutions covering multiple conditions as such Indigestion, Gas, Bloating, GERD, Constipation

3. Resource Optimization

- Eliminates the need for multiple software systems, Reduces administrative overhead and Provided instant access to research-backed dietary guidelines

INTEGRATION CAPABILITIES

- Compatible with all major hospital management systems
- Seamless integration with existing clinical workflows
- Direct connection between doctors and dietitians
- Real-time data sharing and analytics

**REACH-
OUT TO US**





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Go Digital
Save Trees



Do Innvoative.
ReThink