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# JOHN BENDER

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512-492-5984

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## Required Skills:

(List skills needed) -  
Node, Web (HTML / JS / CSS)

## Preferred Team

### Communications:

Google Hangouts, Slack

## Data Sources:

Data requirements and potential sources include: (1) Clinical data as FHIR resources from electronic health records or health information organizations (This project will use synthetic clinical data from a test FHIR server); (2) Grocery purchase data from participating grocery stores (This project uses synthetic data modeled after the NutriSavings file sharing specification, USDA National Household Food Acquisition and Purchasing Survey (Food APS)), and USDA Branded Foods Database); (3) Personal dietary indicators (MyFitnessPal API integration, other personal dietary monitors, diet history surveys, and other data sources); and (4) Food environment indicators (Data from Factors Affecting Communities and Enabling Targeted Services (FACETS) to map individual addresses to census-tract-level social determinants of health indicators, grocery outlet preferences, and other data sources).

## Other Items:

Any US time zone

## Team Info:

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# NUTRIFHIR: BRINGING DIETARY INDICATORS TO THE

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The United States (U.S.) is experiencing a chronic disease epidemic. Healthy dietary and physical activity patterns can reduce chronic disease risk, reduce weight, and contribute to long-term health (United States Department of Agriculture, 2015; Jessri, Lou & L'Abbe, 2016). The estimated economic burden for diabetes, heart disease, and hypertension from 2008 to 2010 was \$228 billion, \$210 billion, and \$497 billion, respectively (Chatterjee, Kubendran, King & DeVol, 2014). Estimated excess absenteeism from work associated with diabetes ranged from 1.8% to 7% of total workdays in 2012 and estimated excess annual expenditures for a person diagnosed with diabetes is \$7,888 compared to a person without diabetes (American Diabetes Association, 2013).

An extensive literature review suggests behavioral dietary interventions have been successful in improving health outcomes for chronic disease, but are usually designed as short-term studies, rely on self-reported dietary intake, and do not engage healthcare providers. Given rapid adoption of the Health Level 7 Fast Healthcare Interoperability Resources (FHIR) in electronic health records (EHRs), we feel it timely to build a tool that integrates clinical data from the health environment with dietary data from outside the health environment to support new innovative dietary interventions. Our goals are to (1) expand dietary and nutrition information available to clinicians inside electronic health records, (2) expand clinical information available to registered dietitians in clinical and non-clinical settings, and (3) make it easy for clinics, hospitals, health information organizations, and public health agencies to engage grocery stores and food outlets for health promotion and diet monitoring programs. NutriFHIR is an open-source software application that is capable of integrating nutrition and dietary estimation data with clinical data for disease prevention programs. This semester, we seek to continue incorporating relevant clinical data into the app, and gain insight from nutritional epidemiology methods to incorporate relevant dietary indicators from personal diet and the food environment.

Partners or advisors include UTHealth Brownsville, located in the Rio Grande Valley (RGV) region of Texas, adjacent to the United States (US) – Mexico border with some of the most impoverished cities in the US based on the 2009-2013 US Census and a high prevalence of chronic disease, including approximately 28% diabetes, 49% obesity, and 32% hypertension in 2014; the Centers for Disease Control and Prevention; the Academy of Nutrition and Dietetics; NutriSavings; the University of Utah; and other subject matter experts.

A key strategy to improve the management and prevention of chronic disease is to monitor preventive health measures, like physical activity and eating habits. These measures should be integrated in the clinical environment and used by innovative cross-industry partnerships, like those between healthcare institutions and grocery stores. Applications such as this one can support diet intervention and monitoring programs, where nutritionists at grocery stores collaborate with providers at clinics and hospitals to make dietary recommendations to patients to improve their health.

Developer, Analyst, DBA, Project Manager. Allows one team of 4-6 members.

**Additional Collaborators:**

Additional collaborators include: (1) Centers for Disease Control and Prevention, Megan Harrison, MPH, RDN; (2) Various faculty, The University of Texas Health Science Center School of Public Health, Brownsville; and (3) other subject matter experts.

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## PROJECT OBJECTIVES

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The broad project objectives are: (1) Expand relevant dietary and nutrition information available to clinicians inside electronic health records, (2) Expand relevant clinical information available to registered dietitians in clinical and non-clinical settings, and (3) Enable clinics, hospitals, health information organizations, and public health agencies to engage grocery stores and food outlets for health promotion and dietary monitoring programs.

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## SUCCESSFUL PROJECT

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To be discussed...

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