NUTRITION ASSISTANT APPLICATION

LITERATURE SURVEY

DOMAIN NAME: CLOUD APP DEVELOPMENT

TEAM ID: PNT2022TMID29541

BATCH: B7 - 1A3E

TEAM LEADER: SNEHA B [510419106024]

TEAM MEMBER 1: UMA G [510419106030]

TEAM MEMBER 2: SALMA E [510419106021]

TEAM MEMBER 3: SEVANTHI R [5104191060022]

TEAM MEMBER 4: KIRUTHIGA S [510419106012]

PAPER 1: Smartphone Applications for promoting Healthy Diet and Nutrition

Published year: January 2015

Author: Steven S. Coughlin

Journal name: Jacobs Journal of Food and Nutrition

Summary: Rapid developments in technology have encouraged the use of smartphones in health promotion research and practice. Although many applications (apps) relating to diet and been tested in research studies in order to determine their effectiveness in promoting health. A total of 193 articles were identified in the bibliographic searches. By screening abstracts or full-text articles, a total of three relevant qualitative studies and 9 randomized controlled trials were identified. In qualitative studies, participants preferred applications that were quick and easy to administer, and those that increase awareness of food intake and weight management. In randomized trials, the use of smartphone apps was associated with better dietary compliance for lower calorie, low fat and high fiber foods and higher physical activity levels(p=0.01-0.02) Which resulted in more weight loss (p=0.042-<0.0001)

Methodology used: Smartphone Applications

PAPER 2: Cloud-Based Meta learning System for Predictive Modeling of Biomedical Data

Published year: April 2014

Author: R. Colomo-Palacios and V. Stantchev

Journal Name: Faculty of Organizational Sciences

Summary: Rapid growth and storage of biomedical data enabled many opportunities for predictive modeling and improvement of healthcare processes. On the other side analysis of such large amounts of data is a difficult and computationally intensive task for most existing data mining algorithms. This problem is addressed by proposing a cloud -based system that integrates Meta learning framework for ranking and selection of best predictive algorithms for data at hand and open source big data technologies for analysis of biomedical data.

Methodology used: Cloud App Development

PAPER 3: Effects of Food Assistance and Nutrition programs on Nutrition and Health

Published Year: October 2004

Author: Mary Kay Fox, Biing-Hwan Lin and William Hamilton

Journal Name: Economic Research Service

Summary: This report provides a summary of a comprehensive review and synthesis of published research on the impact of USDA's domestic food and nutrition assistance programs on participants' nutrition and health outcomes. The outcome measures reviewed include food expenditures, household nutrient availability, dietary intake, other measures of nutrition status, food security, birth outcomes, breastfeeding behaviors, immunization rates, use and cost of health care services, and selected non health outcomes, such as academic achievement and school performance (children) and social isolation (elderly). The report is one of four volumes produced by a larger study that includes Volume 1, Research Design; Volume 2, Data Sources; Volume 3, Literature Review; and Volume 4, Executive Summary of the Literature Review. The review examines the research on 15 USDA food assistance and nutrition programs but tends to focus on the largest ones for which more research is available: food stamps, school feeding programs, and the Special

Supplemental Nutrition Program for Women, Infants, and Children (WIC). Over half of USDA's budget - $41.6 billion in fiscal year 2003 - was devoted to food assistance and nutrition programs that provide low-income families and children with access to a healthy diet.

Methodology Used: Cloud App Development

PAPER 4: A Review of Selected Nutrition and Health Surveys in Indi

Published Year: November 2018

Author: Komal Rathi

Journal Name: Centre for Promotion of Nutrition Research

Summary: Assessment of the status of health and nutrition of a population is imperative to design and implement sound public health policies and programmes. The various extensive national health and nutrition surveys provide national-level information on different domains of health. These provide vital information and statistics for the country, and the data generated are used to identify the prevalence and risk factors for the diseases and health challenges faced by a country. This review describes the various national health and nutrition surveys conducted in India and also compares the information generated by each of these surveys. These include the National Family Health Survey, District Level Household Survey, Annual Health Survey, National Nutrition Monitoring Bureau Survey, Rapid Survey on Children and Comprehensive National Nutrition.

Methodology Used: Cloud App Development

PAPER 5: Research on Food Assistance for Nutritional Impact(REFANI)

Published Year: March 2015

Author: Bridget Fenn

Journal Name: The Groundwork for Refani's Global Research Framework

Summary: The REFANI literature review identifies existing evidence on the use of Cash Transfer Programmes (CTPs) and the impact of CTPs on acute malnutrition in humanitarian contexts. The review is structured as follows: Section A discusses the global burden of acute malnutrition; Section

B highlights traditional food based interventions; Section C explores cash-based interventions and the emergence of CTPs within humanitarian programmes; and finally, the existing evidence from CTP interventions is explored in Section D. Importantly, the REFANI literature review identifies key gaps that remain in our collective knowledge base. In particular, the review finds that, although complicated given that the impact pathways of CTPs are numerous and context-specific, a greater work is necessary. More evidence is also needed on a range of CTP design features (e.g. timing, duration, amount and frequency), modalities (e.g. cash or vouchers), and recipient targeting criteria. Finally, very little is known about the sustainability of such programmes and their cost effectiveness, especially over the course of the post-intervention period.

Methodology Used: Cloud app development

PAPER 6: Personalized Nutrition

Published Year: 2019

Author: John Bronlund

Journal Name: Trends in Personalized Nutrition

Summary: The new digital age, sometimes referred to as the Fourth Industrial Revolution, is changing how food is perceived, purchased, and used by the consumer. This has implications for convenience, diet, and health. The Internet of Things (IoT) has more than 15 billion devices connected, a number that is expected to increase to 20 billion by 2020. These devices include, for example, smart refrigerators that can order supplies online from the supermarket. Ordering of food, meal plans, and diet will become increasingly managed by smart devices, and decisions supporting personalized nutrition will be increasingly part of this Personal wearable devices (including smartphones) are tracking levels of energy expenditure and other aspects of health, which in turn can provide device-supported advice about dietary needs. Devices will soon be able to record consumption of different foods by an individual in nonintrusive ways, supported by smart packaging and smart pantries. Artificial intelligence will be deployed to provide decisions (or decision support) about food purchasing and meal planning, based on food preferences, long-term personal nutrition planning, and temporal changes relating to physical activity and recent consumption patterns.

Methodology Used: Cloud App Development

PAPER 7: Personalized Nutrition Education to the Adherence to Dietary and Physical Activity Recommendations

Published Year: 2019

Author: Pablo Veiga-Herreres

Journal Name: Trends in Personalized Nutrition

Summary: In recent years, there has been a significant increase worldwide in the prevalence and incidence of non-communicable diseases both in children and adults. There is a strong relationship between lifestyle and health, and unhealthy dietary patterns, limited physical activity, and harmful alcohol and tobacco consumption are strongly associated with risk of disease and death. Most of the population does not meet the national dietary and physical activity recommendations. Food choice is a complex process that is influenced by different determinants that must be taken into account in the design of a nutrition education intervention. Traditional nutrition education approach has been considered ineffective, therefore there is a need to design and apply new models to support people to adhere to the dietary and physical guidelines. Personalized nutrition education plays a key role in the promotion of healthy eating habits, active lifestyle, and related health behaviors. However, it should be based on scientific evidence, by identifying the factors that determine dietary behavior change at the individual, family, and community levels and using the appropriate behavior change strategies. The development of nutritional education intervention needs planning, which begins with the knowledge of the nutritional situation of the individual in order to establish the diagnosis of the situation and to be able to intervene effectively. The Nutrition Education DESIGN procedure is a systematic stepwise behaviorally-focused and theory-based process to design effective strategies for personalized nutrition education. This procedure consists of defining the specific behavior goal, exploring the determinants of change, selecting appropriate theories to establish an adequate action plan, motivating individual and translate intentions into action. It aims to set general objectives in consensus with the individual, generate the action plan, and design the evaluation of the intervention.

Methodology used: Cloud app development

PAPER 8: **Workout Assistant and Fitness Guide**

Published Year: December 2021

Author: Pratik Dhende

Journal Name: International Journal of Engineering Research and Technology (IJERT)

Summary: Nowadays virtual assistant is playing a very important role in our daily activities and has become an inseparable part of our lives. As per the Clutch survey report that was published in 2019, almost 27% of people are using AI virtual assistants for performing their day-to-day activities. AI is an emerging field that we aim to explore through this project of AI-based workout assistants. In our work, we introduce Fitcercise, an application that detects the user's exercise pose counts the specified exercise repetitions and provides personalized, detailed recommendations on how the user can improve their form. The application uses the MediaPipe to detect a person's pose, and afterwards analyses the geometry of the pose from the dataset and real-time video and counts the repetitions of the particular exercise.

Methodology used: Cloud App Development

PAPER 9: Effect of Supplemental Nutrition Assistance Program Education

Published Year: May 2019

Author: Melissa K Maulding

Journal Name: SNAP-ED

Summary: The Supplemental Nutrition Assistance Program–Education (SNAP-Ed) is the nutrition promotion component of SNAP, formerly known as food stamps. SNAP-Ed assists low-income populations in the United States improve dietary intake and reduce food insecurity through nutrition education. This narrative review summarizes current investigations of SNAP-Ed's effectiveness at improving food security and dietary outcomes, and it can help inform future policy and implementation of the program. There was stronger evidence for SNAP-Ed as an effective means of improving food security (n = 4 reports) than for its effects on nutrition or dietary outcomes (n = 10 reports). Inconsistency in measurement tools and outcomes and a lack of strong study designs characterized the studies that sought to evaluate the effectiveness of SNAP-Ed at improving nutrition or dietary outcomes. Additional rigorous study designs in diverse population groups are needed to strengthen the evidence. In the face of reduced financial SNAP benefits, SNAP-Ed may play an important role in helping to eliminate food insecurity and improve dietary outcomes and, ultimately, the health of low-income Americans.

Methodology used: Cloud App Development

PAPER 10: Nutrition Science Research

Published Year: 2021

Author: Jaroslaw Sak

Journal Name: BBMRI

Summary:: Artificial intelligence (AI) as a branch of computer science, the purpose of which is to imitate thought processes, learning abilities and knowledge management, finds more and more applications in experimental and clinical medicine. In recent decades, there has been an expansion of AI applications in biomedical sciences. The possibilities of artificial intelligence in the field of medical diagnostics, risk prediction and support of therapeutic techniques are growing rapidly. The aim of the article is to analyze the current use of AI in nutrients science research. The literature review was conducted in PubMed. A total of 399 records published between 1987 and 2020 were obtained, of which, after analyzing the titles and abstracts, 261 were rejected. In the next stages, the remaining records were analyzed using the full-text versions and, finally, 55 papers were selected. These papers were divided into three areas: AI in biomedical nutrients research (20 studies), AI in clinical nutrients research (22 studies) and AI in nutritional epidemiology (13 studies). It was found that the artificial neural network (ANN) methodology was dominant in the group of research on food composition study and production of nutrients. However, machine learning (ML) algorithms were widely used in studies on the influence of nutrients on the functioning of the human body in health and disease and in studies on the gut microbiota. Deep learning (DL) algorithms prevailed in a group of research works on clinical nutrients intake. The development of dietary systems using AI technology may lead to the creation of a global network that will be able to both actively support and monitor the personalized supply of nutrients

Methodology used: Cloud App Development