Problem Statement: 01

Domain: Healthcare for Patients (post procedure)

Build an application for a hospital. The application should be a post procedure healthcare virtual agent which proactively help patients that have undergone surgery. The bot should proactively remind patients to follow their prescription. It must also remind them to perform specific exercises as well as. If it notices distress, it should immediately contact the hospital and handover the conversation to a live hospital staff. The virtual agent must notify patients of their next visit. After the visit if the patient has any questions regarding his/her treatment, the bot must be able to answer basic questions. The hospital administration should be able to make minor changes to the answers of the basic questions.

Problem Statement: 02

Domain: Smart-News using AI

There are many news media claiming them as one of the best. But often people mostly won't rely on a single source of news/media; hence they have to read through multiple news articles for the correct and relevant news which consumes a lot of time. Also, fake news has come to an all time high these days. Statistics shown by different media houses are individually not reliable considering the political affiliation of media houses. Develop an application for one stop solution for the news/media audience that displays the content in a consolidated user-friendly view and hence would reduce the time and effort of the end-user. The application must have different categories and the trusted media houses flagged by the user to fetch the news related to that category. The application should detect the possible fake news and flag them accordingly. Include a feature for up votes/down votes for every news article and should also maintain the field of interest provided by the user and use that data for personalizing their feeds. The statistical data collected from different sources should be presented in a graphical form for easy and simplistic UI. The application should have a chatbot that can take input from the users and provide them with relevant data collected from different articles. For example, if he users asks “How many runs did Kohli score today?”, the application should only provide the relevant details and then can be redirected to the full article.

Problem Statement: 03

Domain: ML in skincare

Due to different environmental andpersonal factors, a lot of people are suffering from skin diseases. Many skindiseases need screening by an expert dermatologist. Due to lack ofmedicalfacilities available in the remote areas, the patients usually ignore early symptoms whichmay worsen the situation as the time progresses. To avoid this,early detection of these diseases are important to help cure the disease at the early stage. Develop anandroid app which allows the user to click pictures of the infected area and suggests the user about the medical condition of the skin. Create a multiclass deep learning model to differentiate between healthy skin vs skin suffering from a disease. The app should be able to detect human skin and then classify the skin diseases into the following main classes Acne, Eczema, Melasma etc.

Some of the suggested data sources are:
https://www.isic-archive.com/#!/topWithHeader/onlyHeaderTop/gallery

https://medicine.uiowa.edu/dermatology/education/clinical-skin-diseaseimages

http://www.dermnet.com

You can also use any open data sources available.

Problem Statement: 04

Domain: COLLEGE-APPLICATION for Parents

Build an application for college. The application should be a Chatbot wherein the parents can login and see the overall progress of their ward. The parent can question the application in a human interact able manner. Consider an example where the parent asks “What are the subjects this semester?” the application should return all the subjects his ward has this SEM. After interacting with the chatbot, if the parents find that their ward’s performance is poor then they should have a provision to send a message to the concerned teacher in charge and receive response on the same. The application should also provide the various events/workshops details that are being conducted throughout the year through push notification. The application should be able to push notification like results and attendance also parents should be able to digitally sign the results through the application. The information related to placements, fees should also be accessible through the application. The college officials/teachers should also be able to send customized messages about the student to their parents through the application either one to one or as a broadcast.

Note: ALL THE DATA REQUIRED FOR RESULTS/ATTENDANCE ARE IN MYSQL DATABASE.

Father Conceicao Rodrigues Memorial Hackathon

30th – 31st March 2019

Problem Statement: 05

Domain: Machine Learning for Food Classification

A challenge for all food lovers ;)
The challenge is to develop an algorithm that would classify a given recipe food image into one of the pre-defined categories of recipe with high precision. The Labelled dataset is provided for supervised training and mapping to different food categories. You can use any image classification algorithm of your choice.
Have minimum 15 Food categories of your choice like example - Pizza, Burger, Bread, Cakes, Fruits, Drinks etc.
Data - You can take any dataset which contains sufficient amount of food images to train your model. Your data should contain food as well as non-food images.

Huge repo of food dataset can be found here -
[+] https://www.vision.ee.ethz.ch/datasets_extra/food-101/

Feel free to use your own dataset.
Challenge -
For a given image, you model should be able to -
1. Identify an image and classify it into food & non-food image.
2. For food images, further classify the dish into pre-defined food categories and if the image doesn't match any of the categories add it to a 'New Dish' Category.
3. Detailed classification of dishes like - Mushroom Pizza, Chicken Pizza or Paneer Pizza etc.
4. The application must keep track of users eating habits based on photos clicked, gap between meals and give suggestions on the calorie consumptions, health related stats etc
5. Because exercise is so important when it comes to health, include workout plans to help burn calories.

Hint - You can consider using supervised algorithms like Convolutional Neural Network (CNN) by using TensorFlow library which supports rich user-friendly API's like Keras.