1. **Project Title : Covid PDS Plus** - Cure the Chaos

Visit Our Website : https://covid-pds.herokuapp.com/

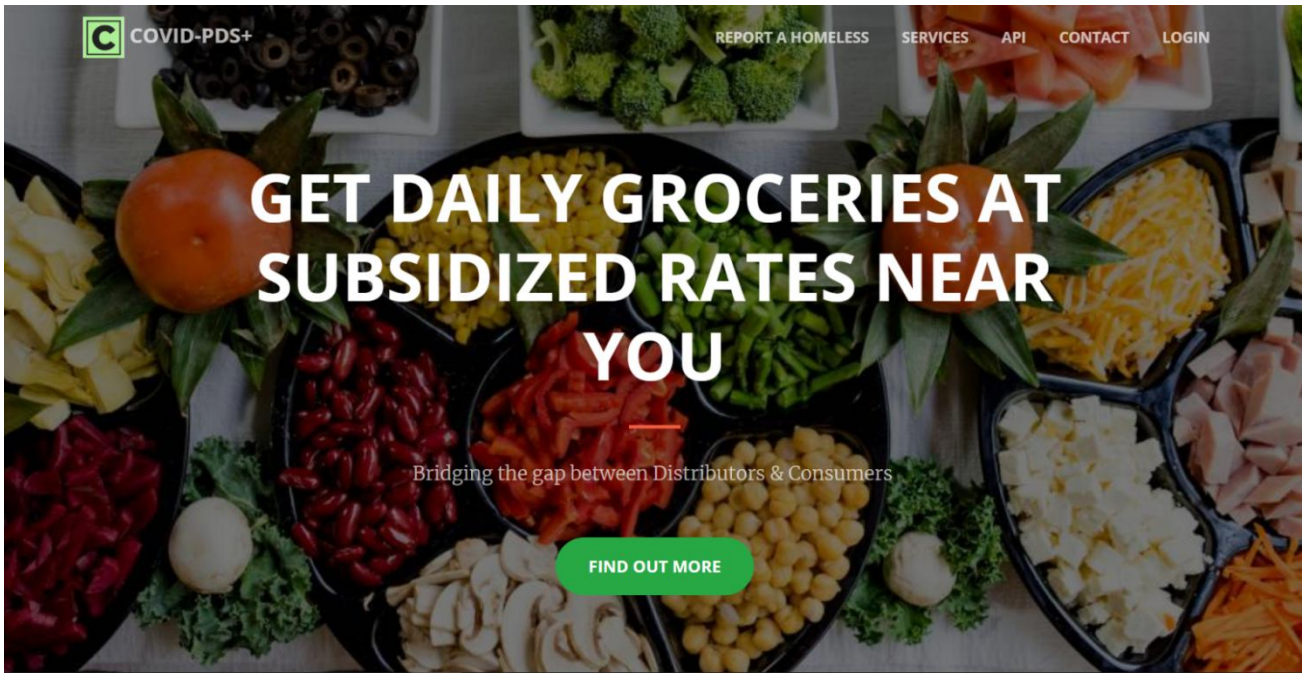

Figure 1: The Website.

2. **Gist About the Project :**

"*A prototype build of an e-PDS and healthcare application created using an end-to-end complete technologically enabled platform to connect the stakeholders i.e. People, Government, NGOs, which works in real-time, such that social distancing and other measures are kept in check.*"

The integration and implementation of the source code by the developer with the necessary requirements of society is essential. It is done by the Operations Manager, with use of Docker/Kubernetes for container deployment of the website, and Jenkins for system based automation i.e CI/CD.

Therefore it is an end-to-end completely automated CI/CD enabled Web Platform aimed at the pandemic restoration made using almost all DevOps Tools such as Jenkins, AWS, Git & GitHub, Shell & Python scripting, AWS, GCP, Docker, Dockerfiles, Kubernetes, Nginx, EKS etc.

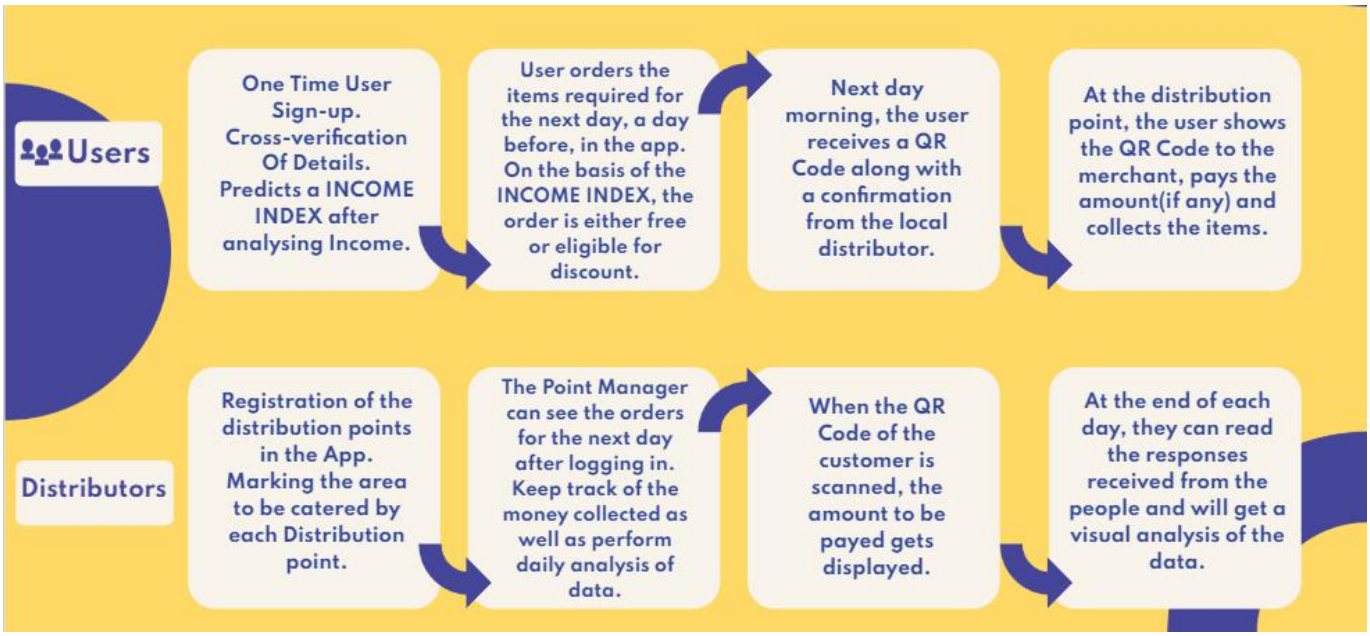

Figure 2: Application Workflow.

3. **Technologies Used :**

- The integration and implementation of the source code by the developer with the necessary requirements of society is essential. It is done by the Operations Manager, with use of Docker/Kubernetes for container deployment of the website, and Jenkins for system based automation i.e CI/CD. Fig. 4 therefore represents the integration of the ML Models with the Web Architecture.
- An individual's annual income results from various factors. Intuitively, it is influenced by the individual's education level, age, gender, occupation, and etc.
- It is essential that the income take into consideration all factors to necessitate the use of the code to as a Classification Model.

- The first model used calculates the cost of sheltering, while the second model calculates required area as well as costs of housing the population (registered to the website/application).
- Several Classifier models are used to segregate and predict the people of one economic/financial class to the other, to avoid discriminatory treatment towards them as same with respect to their economic background.
- The most important step used is the use of Deep Learning concepts and Open Computer Vision for purposes of verification. An audio file and age classifiers are used to avoid wrongful addition of data, which can corrupt the database in terms of information gain.
- The deep learning models implemented can also be used to train or educate the people in these testing times. ASHA (Accredited Social Health Activist) workers also can be trained by using the various models, for example handwashing, hygiene, cleanliness etc.
- Made use of Pytorch/Tensorflow-Keras deep learning libraries to enhance the linear models using Gradient Descent and Back-propagation. Further we have used the opencv (i.e 'cv2') DNN (Deep Neural network) models, for purposes of verifying against pranks while entering data. For example, the youth of today can play a prank to enter their age as over 80, for both monetary and/or social benefit, but the audio sound (which classifies people above or below the age of 35) segregates them. Further the GAN (Generative Adversarial Network) age determination model will further bring the number to a closer value.

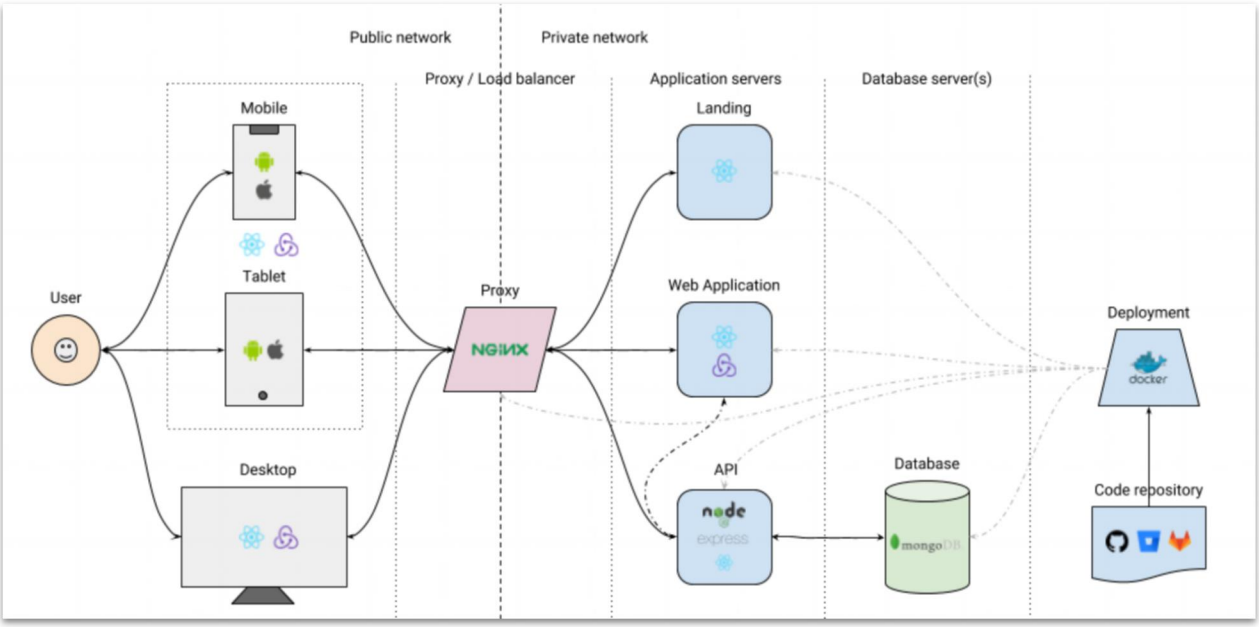

Figure 3: The Web Architecture.

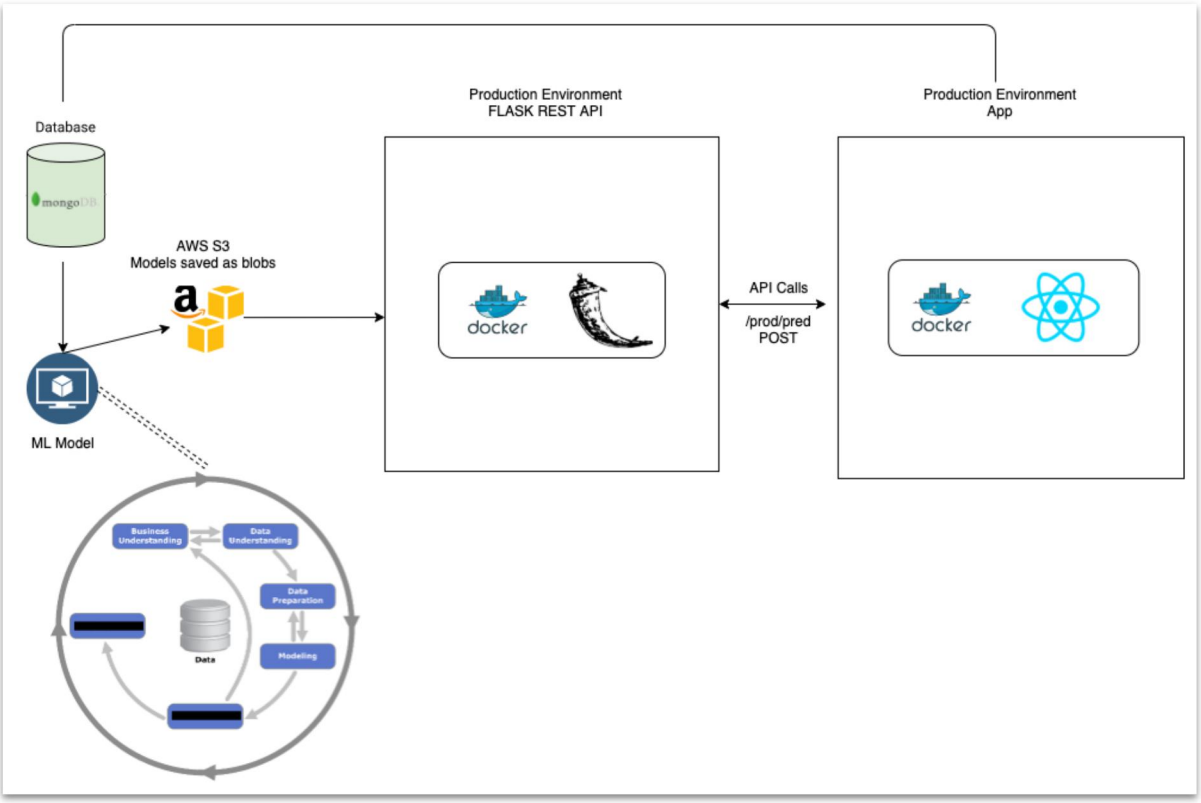

Figure 4: Integrating the ML Model with Web Application.

4. Target Market :

- The Poor & Middle Class:

The Daily Wage Workers are the most affected due to the lock-down situation. We are taking the opportunity of providing them food at low cost considering their economic condition.

- The Homeless:

These people have high chances of getting contaminated due to their surrounding hygiene. We are therefore encouraging citizens to report such cases in our Application. This information is shared with the Local Authorities/NGOs, to provide them with residence.

5. Conclusion :

This project has an aim to provide an easy, effective and complete technology enabled way for the public distribution of food, finding homes for the homeless, providing At-Home treatment to the ones affected by the pandemic, as well as monitoring the Covid spread keeping in mind the concept of Social Distancing.

A remarkable challenge in the making of an e-PDS and healthcare platform has been keeping an eye on social distancing as well as maintaining a connect between the government and NGOs with the people in need. In this project, we are able to find a highly well oriented and powerful solution towards the same. “Covid PDS Plus”, our implementable solution to the Covid-19 Pandemic, is completely technology enabled and works in real-time. Thus providing food and shelter to the needy and In-House Patient Triaging to the ones affected in places where healthcare facilities are unavailable through the Phase 2: “Covid Healthcare Plus”.

6. Future Scope :

Phase 2 : COVID - Healthcare Plus (Towards Social Welfare)

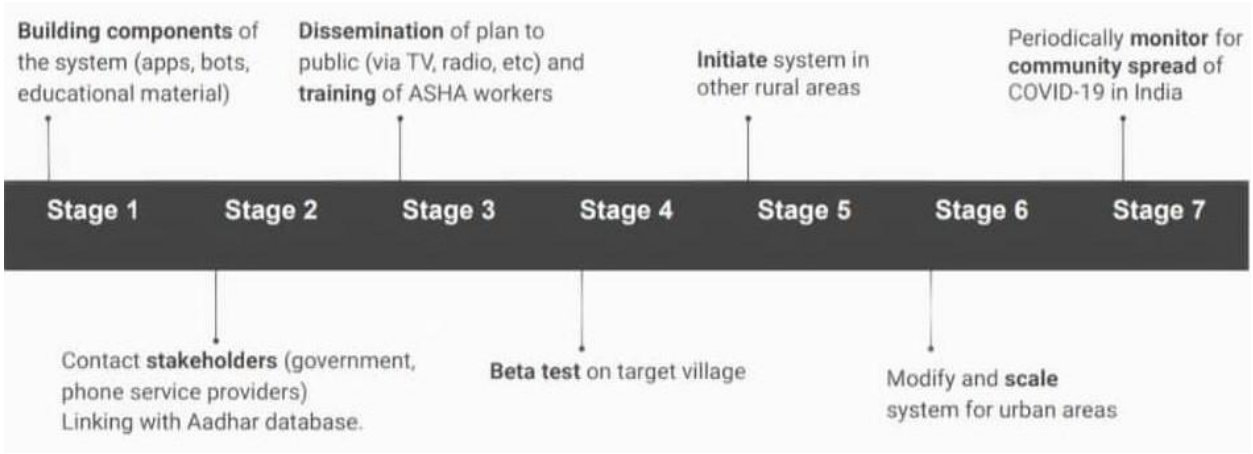

Figure 5: COVID - Healthcare Plus Implementation.

The Revenue earned from the e-PDS platform is to be used towards social welfare as COVID Healthcare Plus in Phase 2 of business model as Social Responsibility. Here the implementation caters the target market Rural India. In-house treatment is to be provided to COVID positive cases where healthcare facilities aren’t available. ASHA (Accredited Social Health Activist) workers are to be appointed and trained, to provide At-Home Patient Triaging, to the COVID Positive cases in Rural India. And the COVID-19 spread is to be periodically monitored.

LinuxWorld DevOps Project:

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