

Crohn's Disease Activity Tracker

DEVELOPMENT OF A CROHN'S DISEASE ACTIVITY INDEX

National Cooperative Crohn's Disease Study

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Needing a single index of degree of illness in Crohn's disease, the National Cooperative Crohn's Disease Study group collected data prospectively from 187 visits of 112 patients with Crohn's disease of the small bowel, colon, or both. Information on 18 predictor variables was gathered at each visit. In addition, the attending physician rated his over-all evaluation of how well the patient was doing and compared the patient's status

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erepr/CDAT

CDAT CROHN'S DISEASE
ACTIVITY TRACKER



Manage your Crohn's Disease Flareup
Track your daily protocol

I am a

Patient

Doctor

What's Crohn's Disease?

- Crohn's disease is a type of inflammatory bowel disease (IBD). It causes **inflammation of your digestive tract**.
- Crohn's disease can be both painful and debilitating, and sometimes may lead to **life-threatening complications**.
- **5M** people affected worldwide.
- This is a lifelong condition, While there's **no known cure** for Crohn's disease, therapies can greatly reduce its signs and symptoms.



Worsening Symptoms ? 🥵

- Abdominal Wall Tear
- Intestinal Obstruction
- Intestine Kink or Hernia
- Loss of Blood from Fissure
- Severe Malnutrition
- Sepsis 💀



Why logged symptoms?



- Detect Early Failure and seek urgent medical attention before it becomes **fatal**.
- Disease often comeback with more severity.
- To save money by cutting down expensive treatment options like biologics.
- Disease management is highly personalized.
- Not 2 Crohnie are the same, different folks require different protocol.

No two Patients are the same



Mobile App Features

- Daily log of symptoms related to Crohn's Disease.
- Disease activity indicated by severity score.
- Urgent medical assistance through App.
- Symptoms are classified by the model based on Gastroenterologist input.
- Model trained on data labelled by Gastroenterologist.

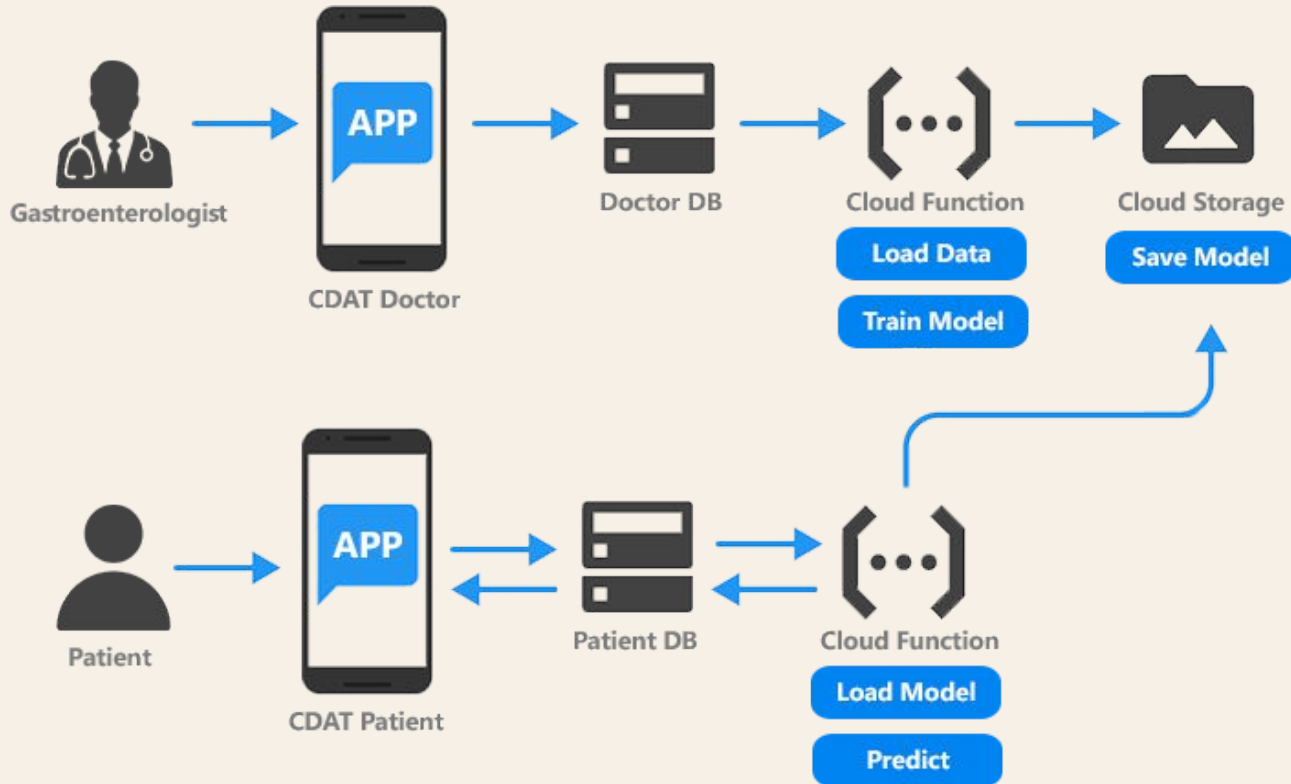


How PyTorch was used?



- **No ground truth data** was available therefore generated synthetic data, modelled after **Gastroenterologists** input.
- Doctors input data was utilized for training the model.
- Patients input data was used for inferencing purpose.
- Model was trained using **TabNet Classifier**.
- Model was deployed using **FastAPI on AWS EC2**.
- Ngrok for local testing.
- Mobile Application build using **Flutter**.

Flowchart



Future Works



- **Federated Learning** (HIPAA Compliant)
- Elemental Diet Protocol (Promising Results)
- Include **Colon Cancer**
- Like Minded **Community Support**

Thank You 😊