**Project Outcome**

The entire project was made to broadly focus on two issues **-**

1. To develop a medicine recommendation system through market basket analysis to counter the problem of medicine shortage
2. Study behavior of classifiers based on their accuracy in DNA classification

We implemented the project online on Google Colab and developed the algorithms in Python 3.

In the first part, we created a dataset that simulates the transaction data of a pharmacy's customers. Rows indicate each transaction and contain the list of drugs purchased by the individual in question, totalling 7500.

This dataset comprises E. Coli promoter gene sequences (DNA) with incomplete domain theory from the UCI Molecular Biology (Promoter Gene Sequences) dataset.

The description of the attribute is as follows -

1. One of {+/-}, indicating the class ("+" = promoter).

2. The name of the instance which is essentially a 1000+ sequence of nucleotides prepared by T. Record.

3. 3-59. The remaining 57 fields are the sequence, (p-50) to (p7). Each of these fields is filled by one of {a, c,g,t}.

This idea can be implemented for different use cases, some of which are: -

* Patients do not face the issue of shortage of medicines - they can get whatever medicine they want, at any time, due to the medicine recommendation
* Pharmacists can understand which medicines are being brought most, so that they can adequately stock them, thus not having to turn down customers and profiting from their business
* No shortage in medicine supply means elimination of medical black market, thus helping in growth of economy
* Study of classifiers would lead to better informed choices related to the use of medicines based on genetic characteristics

In future,the prototype can be enhanced by integrating UI/UX aspects for a more user-friendly application. The recommendation system benefits the general public and can be further refined to have a greater accuracy, work on larger datasets and handle varying data.

* + 1. Paper presented in International Conference on Robotics, Control and Computer Vision (ICRCCV 2022)

I Mitra, S Karmakar , KB Ray and T Kar , Apriori based medicine recommendation system, as Proceedings in: *International Conference on Robotics, Control and Computer Vision (ICRCCV),*Springer ,2022.

To be published by Springer as proceedings in Lecture Notes in Electrical Engineering series. (Communicated)

2. Book chapter titled **“**IoMT based Smart Health Monitoring: The Future of Health Care**”** in BDAF-IOT-2021 edited CRC Book entitled “***Big data analytics in Fog-enabled IoT Networks:* *towards a privacy and Security perspective approach***” . (Communicated)

I. Mitra, Y. Srivastava, KB Ray and T. Kar, “IoMT based Smart Health Monitoring: The Future of Health Care” in *Big data analytics in Fog-enabled IoT Networks : towards a privacy and Security perspective approach.*