MENTAL HEALTH CARE SYSTEM

Problem Statement and Project Overview: -

America's mental health crisis is rising which is an imminent challenge confronted by people across the country today. One in every five persons faces issues pertinent to mental health. The most widely reported concerns include, but are not limited to, depression, anxiety, schizophrenia, addiction. It has been seldom evidenced that despite the government expenditure on health (in excess to that in other countries), mental health patients are not provided with desired treatments and that the standard of mental health care can certainly not be tantamounted to its other physical counterparts.

Reportedly, half of the mental ailments are developed in early teens and three quarters by the age of 24. Given the progression at early ages, such diseases pose a serious threat in the face of a reduced life expectancy. Almost 46.4 percent of population in United States experience mental health issues during their lifetime.
With Obama Care, every person in United States is entitled to a minimum health insurance that includes mental health insurance as well. The problem pivots around the inability of the masses to get access to quality treatment and facilities even after being eligible with the insurance. The present health care system has loopholes and does not treat mental health illness in a similar approach as physical health.

The project undertaken herewith, if implemented, will help increase the efficiency of coverage and streamline the treatment processes in hospitals for every patient, thereby, making it easier for the patients to understand and access their insurance and then avail it to their benefit.

Our model will help alleviate the major mental healthcare problems as elucidated below:

1) Overall suicide rate raised to 19.1%

2) Frequent denial of insurance in mental health when compared to physical health

3) Insurance companies often finding cracks in the "Non-Quantitative Limit" which allows them to deny claims based on "Medical Necessity". Instantiating below:

Bloomberg found that between Billings, MT and Bismarck, ND there is only 1 physiatrist in that entire area. Being backlogged with 1800 appointments, cannot accommodate further.

Other issues with Healthcare system:

- Inadequate Insurance coverage.
- Scarcity of medical providers.
- Fraudulent record sharing practices.
- Challenges with availing insurance despite having the required coverage.
- Insurance Fraud.
- Expensive treatment when not covered by insurance
- Inaccessibility to information on prescriptions.

Application key functionalities: -

Our application will address the aforementioned issues:

The key functionalities are as follows:

1) Only verified doctors will be added to our directory.
2) Analyze the geographical data to build medical facilities within radius of 50 miles for every patient.
3) Suggesting the number of doctors servicing a region based on the backlog of appointments.
4) Implement a feedback system for patients to improve the quality of healthcare.
5) If a doctor suggests a treatment for a patient, then insurance company cannot decline the insurance under "Medical Necessity"
6) Help insurance companies in standardizing the medical procedures and associated costs for different ailments thereby estimating accurate premiums.

Proposed Entities: -

1) Lab Assistant
2) Doctor
3) Medical Coder
4) Admin
5) Claim Handler
6) Adjuster/Reviewer
7) Care Taker

Ecosystem Architecture: -

```
                                    ┌─────────────────────┐
                                    │  HealthCare Provider │
                                    └─────────────────────┘
                                              │
                                              ▼
                                    ┌─────────────────────┐
                                    │     Organization     │
                                    └─────────────────────┘

┌─────────────────────┐  ┌─────────────────┐  ┌──────────────────────────┐  ┌──────────────────────┐  ┌─────────────────────┐
│  Employee Directory  │  │  User Directory  │  │ Infrastructure Organization │  │  Admin Organization │  │  Lab Organization   │
└─────────────────────┘  └─────────────────┘  └──────────────────────────┘  └──────────────────────┘  └─────────────────────┘
          │                       │
          │                       ▼
          │              ┌─────────────────┐          ┌─────────────────┐
          │              │  User Acoount    │─────────▶│   Work Queue     │
          ▼              └─────────────────┘          └─────────────────┘
┌─────────────────┐              │                             │
│     Employee     │             ▼                             ▼
└─────────────────┘     ┌─────────────────┐          ┌─────────────────┐
                        │      Role        │          │  Work Request    │
                        └─────────────────┘          └─────────────────┘

        ┌──────────────┐      ┌──────────┐      ┌──────────────┐
        │ Lab assistant │      │  Admin   │      │  Care Taker   │
        └──────────────┘      └──────────┘      └──────────────┘
```

```
                    ┌─────────────────────┐
                    │  Insurance Provider │
                    └─────────────────────┘
                               │
                               ▼
                    ┌─────────────────────┐
          ┌─────────│    Organization     │─────────────────────┐
          │         └─────────────────────┘          │          │
          ▼                    ▼                      ▼
┌───────────────────┐ ┌───────────────────┐ ┌───────────────────┐
│ Admin Organization│ │ Billing Organization │ │ Claims organization│
└───────────────────┘ └───────────────────┘ └───────────────────┘
     │          │
     ▼          ▼
┌──────────────┐ ┌──────────────┐
│   Employee   │ │     User     │
│  Directory   │ │  Directory   │
└──────────────┘ └──────────────┘
        │               │
        ▼               ▼
┌──────────────┐ ┌──────────────┐      ┌──────────────┐
│   Employee   │ │ User Acoount │─────▶│  Work Queue  │
└──────────────┘ └──────────────┘      └──────────────┘
                        │                      │
                        ▼                      ▼
                 ┌──────────────┐      ┌──────────────┐
            ┌────│     Role     │───┐  │ Work Request │
            │    └──────────────┘   │  └──────────────┘
            │      │        │       │
            ▼      ▼        ▼       ▼
       ┌────────┐┌──────┐┌────────┐┌────────┐
       │ Claim  ││Admin ││Reviewer││Billing │
       │Handler ││      ││        ││        │
       └────────┘└──────┘└────────┘└────────┘
```