

Why

Now more than ever, mental health struggles have become apparent. Resources such as therapists and counselors have become distanced from their patients, and finding help can be a struggle. Day-by-day is an app that aims to fix that – using guidance from the American Psychiatric Association's Diagnostic and Statistical Manual of Mental Disorders, we have created an app that can monitor and recognize changes in a person's behavior indicative of potential illness, and connect them with professional help. With this easy to use app, we hope to promote awareness of mental health disorders and connect those in need with the help they deserve.

Pattern Recog

- Pattern recog was based off the DSM, used by professionals to diagnose mental disorders
- We've focused on three disorders: Major depressive disorder, general anxiety disorder, and bipolar I disorder
- The app tracks four main metrics: mood, energy, anxiety and sleep
 - These symptoms are common symptoms of mental disorder, and once a trend is found that matches a certain disorder further questions are asked pertaining to specific disorders
 - If enough evidence is gathered to suggest the user may be susceptible to a mental disorder, they are given resources for them to seek help

Basic Principle

The goal of the Pattern Recognition Engine is to detect and recognize various types of mental illnesses given a series of data points related to the user's wellbeing. For the purposes of demonstration, the Engine will be focusing on Major Depressive Disorder, Generalized Anxiety Disorder, and Bipolar Disorder I. The detectable symptoms and patterns should be guided by American Psychiatric Association's [Diagnostic and Statistical Manual of Mental Disorders, 5th edition](#).

Inputs

The Engine will have the following inputs

- Mood history (int)
- Anxiety history (int)
- Sleep quality history (int)
- Energy level history (int)

Major Depressive Disorder

- Five or more symptoms must be present during the same 2-week period
- One symptom must be depressed mood or loss of interest or pleasure
 - **Depressed mood most of the day, nearly every day**
 - Diminished interest or pleasure in most activities
 - Significant weight loss or gain
 - **Insomnia or hypersomnia**
 - Psychomotor agitation or retardation
 - **Fatigue or loss of energy**
 - Diminished ability to think or concentrate, indecisiveness
 - Recurrent thoughts of death, suicide
- Specific Questions
 - Have you been able to engage in one of your hobbies?
 - Have you had significant changes in weight?
 - Have you had difficulty concentrating?
 - Have you had recurrent thoughts of death or suicide?

Generalized Anxiety Disorder

- **Excessive anxiety or worry, occurring for the majority of days at least 6 months**
- Individual finds it difficult to control the worry
- Following symptoms for the majority of the days in the past 6 months
 - Restlessness
 - Easily fatigued
 - Difficulty concentrating, mind going blank

- Irritability
- Muscle tension
- **Sleep disturbance**
- Specific Questions
 - Have you had difficulty concentrating?
 - Have you been feeling tense or worked up?
 - Have you been finding it difficult to relax?

Bipolar I

- A distinct period of abnormally and persistently elevated, expansive, or irritable mood lasting at least 1 week, present most of the day, nearly all the days
- Three or more of the following
 - Inflated self-esteem or grandiosity
 - **Decreased need for sleep**
 - More talkative, or more pressure to keep talking
 - Flight of ideas or subjective experience that thoughts are racing
 - Distractibility
 - Increase in goal-directed activity
 - Excessive involvement in activity with painful consequences
- Major depressive episode: Symptoms must be present during the same 2-week period, and one of the symptoms must be depressed mood or loss of interest or pleasure
 - **Depressed mood most days**
 - Diminished pleasure in daily activities
 - Weight loss or gain
 - Insomnia or hypersomnia
 - Psychomotor agitation or retardation
 - **Fatigue or loss of energy**
 - Feelings of worthlessness or excessive or inappropriate guilt
 - Diminished concentration, indecisiveness
 - Recurrent thoughts of death
- Specific Questions
 - Have you had significant changes in weight?
 - Have you experienced a sudden lack of a need for sleep?
 - Have you experienced a sudden boost of energy in the past week?