

## **HELPING HANDS**

Datathon 2021

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### **What is Our Project About?**

Suicide has been an intractable public health problem despite advances in the diagnosis and treatment of major mental disorders. Studies have shown that youth are likely to disclose suicidal thoughts and risk factors online and on social media. For example, a study examining emergency room assessments of suicidality found that adolescents were likely to report suicidal ideations not only verbally, but also via electronic means, which included posts on social networking sites, blog posts, instant messages, text messages, and emails.

Online expression of distress and suicidality may not be disclosed to physicians. It is unclear to what extent such online expressions are comparable to suicidal risk as elicited by physicians, and we were interested to lend out our Helping Hand to the youth and aid in recognizing the state of their mind. Here we develop a machine learning approach based on Reddit and Twitter data that predicts individual level future suicidal risk based on online social media data prior to any mention of suicidal thought.

### **How does our project work? And how will it impact society positively?**

Our project is intended to be used primarily by doctors or therapists of the people who think they are undergoing mental stress or have been diagnosed/identified to be facing it. It has been found through mental health assessment tests that rather than taking objective answers like "Strongly Agree" or "Strongly Disagree" as input, a more general text response that asks about the participant's experiences or lives in general can be a better indicator of the mental state of the person's mind.

Our model takes in this text response, and predicts the possibility of whether the person has suicidal thoughts or not. With improvement with accuracy of the model (which currently stands at roughly 90%), we can increasingly trust its results and rely on it. This will help identify people who potentially carry suicidal thoughts and they can be helped out by their doctors or therapists.