**Câu 1:** Bạn có thể dự đoán liệu một bệnh nhân có nên được điều trị bệnh tâm thần của mình hay không theo các giá trị thu được trong tập dữ liệu?

Quy trình như sau:

1. Library and data loading
2. Data cleaning
3. Encoding data
4. Covariance Matrix. Variability comparison between categories of variables
5. Some charts to see data relationship
6. Scaling and fitting
7. Tuning
8. Evaluating models
9. Logistic Regression
10. KNeighbors Classifier
11. Decision Tree Classifier
12. Random Forests
13. Bagging
14. Boosting
15. Success method plot
16. Creating predictions on test set
17. Submission
18. Conclusions

**Data:** [**link**](https://drive.google.com/file/d/1if36X5c6nYxzEJybh0JzvDxXYJzkoeTy/view?usp=sharing)

This dataset contains the following data:

* Timestamp
* Age
* Gender
* Country
* state: If you live in the United States, which state or territory do you live in?
* self\_employed: Are you self-employed?
* family\_history: Do you have a family history of mental illness?
* treatment: Have you sought treatment for a mental health condition?
* work\_interfere: If you have a mental health condition, do you feel that it interferes with your work?
* no\_employees: How many employees does your company or organization have?
* remote\_work: Do you work remotely (outside of an office) at least 50% of the time?
* tech\_company: Is your employer primarily a tech company/organization?
* benefits: Does your employer provide mental health benefits?
* care\_options: Do you know the options for mental health care your employer provides?
* wellness\_program: Has your employer ever discussed mental health as part of an employee wellness program?
* seek\_help: Does your employer provide resources to learn more about mental health issues and how to seek help?
* anonymity: Is your anonymity protected if you choose to take advantage of mental health or substance abuse treatment resources?
* leave: How easy is it for you to take medical leave for a mental health condition?
* mental*health*consequence: Do you think that discussing a mental health issue with your employer would have negative consequences?
* phys*health*consequence: Do you think that discussing a physical health issue with your employer would have negative consequences?
* coworkers: Would you be willing to discuss a mental health issue with your coworkers?
* supervisor: Would you be willing to discuss a mental health issue with your direct supervisor(s)?
* mental*health*interview: Would you bring up a mental health issue with a potential employer in an interview?
* phys*health*interview: Would you bring up a physical health issue with a potential employer in an interview?
* mental*vs*physical: Do you feel that your employer takes mental health as seriously as physical health?
* obs\_consequence: Have you heard of or observed negative consequences for coworkers with mental health conditions in your workplace?
* comments: Any additional notes or comment