

Project title: Application of AI in the Detection of Gastroesophageal Reflux Disease (GERD)

12 Questionnaire for GERD Diagnosis

1. Do you experience heartburn?
2. Do you feel bloating in your stomach?
3. Does your stomach feel heavy after meals?
4. Do you find yourself subconsciously rubbing your chest with your hand?
5. Do you feel sick after meals?
6. Do you experience heartburn specifically after meals?
7. Do you notice any unusual (e.g., burning) sensation in your throat?
8. Do you feel full while eating meals?
9. Do you have difficulty swallowing, with some things getting stuck?
10. Do you experience bitter liquid (acid) coming up into your throat?
11. Do you burp frequently?
12. Do you experience heartburn when you bend over?

Frequency Scale for the Symptoms of Gastroesophageal Reflux Disease (FSSG score) Classification

- If the FSSG score is between 0 and 7 (inclusive), it indicates **No GERD**.
- If the FSSG score is exactly **8**, it indicates **GERD** (presumably indicating the presence of GERD but at a lower severity level).
- If the FSSG score is between **9 and 18** (inclusive), it indicates **GERD1** (presumably indicating mild GERD).
- If the FSSG score is between **19 and 28** (inclusive), it indicates **GERD2** (presumably indicating moderate GERD).
- If the FSSG score is between **29 and 38** (inclusive), it indicates **GERD3** (presumably indicating moderately severe GERD).
- If the FSSG score is between **39 and 48** (inclusive), it indicates **GERD4** (presumably indicating severe GERD).

Model Evaluation: Logistic Regression

Dataset: 66 Patients, from Tokyo University, Japan

- Accuracy: **95.65 %**
- Loss: **0.1852**

Correlation between GERD LEVEL and 12 questions

Attributes	GERD LEVEL
Getting heartburn while bending over (Q12 of FSSG)	0.476457582
Unusual sensation in the throat (Q7 of FSSG)	0.520496832
Feeling sick after meals (Q5 of FSSG)	0.561050218
Bitter liquid coming up to the throat (Q10 of FSSG)	0.573765996
Feeling full while eating the meals (Q8 of FSSG)	0.577515595
Stomach getting bloated (Q2 of FSSG)	0.61152367
Getting heartburn after meals (Q6 of FSSG)	0.636379019
Burping a lot (Q11 of FSSG)	0.645092912
Rubbing the chest with hands (Q4 of FSSG)	0.652334857
Something getting stuck in swallowing (Q9 of FSSG)	0.655276023
Getting heartburn (Q1 of FSSG)	0.662961863
Stomach feeling heavy (Q3 of FSSG)	0.673414754
Criteria of FSSG score (0: <8, 1: >=8)	0.909707694
FSSG score	0.934801644
GERD LEVEL	1