🗒️ Column Descriptions (Inferred from Dataset)

Column Name	Description / Meaning
`ID`	A unique identifier for each individual record. Not used in modeling.
`A1_Score` to `A10_Score`	Responses (0 = no, 1 = yes) to 10 screening questions from the **AQ-10** (Autism Spectrum Quotient) test. These questions assess social behavior, attention, and communication.
`age`	Age of the individual. If originally `age_desc` was "18 and more", it may have been encoded or transformed later.
`gender`	Gender of the individual (`m` = male, `f` = female).
`ethnicity`	Ethnic background (e.g., “White-European”, “Latino”, “Others”). May include missing values.
`jaundice`	Whether the individual had jaundice at birth (`yes`/`no`). Jaundice has been studied in autism risk factors.
`austim`	Whether an autism diagnosis has already been made or suspected (`yes`/`no`). Sometimes used as a correlated label or comparison.
`contry_of_res`	Country of residence of the individual.
`used_app_before`	Whether the person has used the autism screening app before. May affect response quality.
`result`	The total or weighted result from the AQ-10 quiz (may be a computed score). Could be a number from a scoring algorithm.
`age_desc`	Age group, likely a string like "18 and more". May be redundant if `age` is numerical.
`relation`	The relation of the respondent to the individual (e.g., `Self`, `Parent`, `Health Care Professional`, `Others`).
`Class/ASD`	**Target variable**: Whether the individual is likely to have autism. `1` = ASD, `0` = non-ASD. This is what the model is trying to predict.

🧠 What Are A1–A10 Scores?

These are **binary-encoded answers** to 10 specific screening questions, each one associated with **autistic traits** such as:

A#_Score	Screening Question (Approximate)	Trait Measured
A1_Score	"I often notice small sounds when others do not."	Sensory sensitivity
A2_Score	"I usually concentrate more on the whole picture than the details."	Attention to detail (reverse)
A3_Score	"I find it easy to do more than one thing at once."	Executive function (reverse)
A4_Score	"If there is an interruption, I can switch back very quickly."	Cognitive flexibility (reverse)
A5_Score	"I find it easy to 'read between the lines' when someone is talking to me."	Social communication (reverse)
A6_Score	"I know how to tell if someone listening to me is getting bored."	Theory of mind (reverse)
A7_Score	"When I'm reading a story, I find it difficult to imagine what the characters might do next."	Imagination
A8_Score	"I find it difficult to work out people's intentions."	Theory of mind
A9_Score	"I find it easy to imagine what someone is thinking or feeling."	Empathy (reverse)
A10_Score	"I find it difficult to make new friends."	Social relationships

⚙️ How the Scoring Works

- Each response is converted into a **0 or 1**:
    - `1` → Indicates presence of an autistic trait
    - `0` → Indicates absence (or opposite) of the trait
- Final `result` score = **Sum or weighted sum** of all 10 scores

    - In some implementations, a score **≥ 6** indicates that further testing may be recommended
    - ALWAYS REMEMBER ……

⚠️ — Correlation Isn't Everything

- **Low correlation doesn’t always mean useless.**
    - Models like XGBoost can capture **nonlinear** relationships
- Features might be useful **in combination** with others
- Use it as a **first-pass filter**, not a final judgment