# Task 3.1

Text based data needs to pre processed before we can actually use it for creating some model or analyze it in depth. We need to convert the raw data into a sort of formatted and clean data so that our program can easily understand it without any issues.

* Since an upper-cased letter and a lower-cased letter are different (binary codes) we will try to reduce the number of unique characters like lower casing everything.
* Removing punctuations will also be helpful as most of the time it’s not required.
* Then we can start splitting the text into individual words like “Hi there” will be split into Hi and there
* After this we can expand contractions like can’t become cannot.

A lot more can be added to the list to convert the raw text-based data into a formatted data for proper analysis.

# Task 3.2

Reinforcement learning (RL) is a type of machine learning where an agent learns to make decisions by interacting with an environment to achieve a specific goal. The agent learns through trial and error, receiving feedback in the form of rewards or punishments based on the actions it takes. Basically, a toddler learning to walk learning from own mistakes and getting rewarded for every step it takes.

**Personalized Recommendations**: Platforms like YouTube use RL to recommend content to users by optimizing for engagement and satisfaction.

**How It Works**: The system learns user preferences by observing interactions (e.g., clicks, watch time) and adjusts recommendations accordingly. The RL model aims to maximize long-term user engagement by predicting and suggesting relevant content.