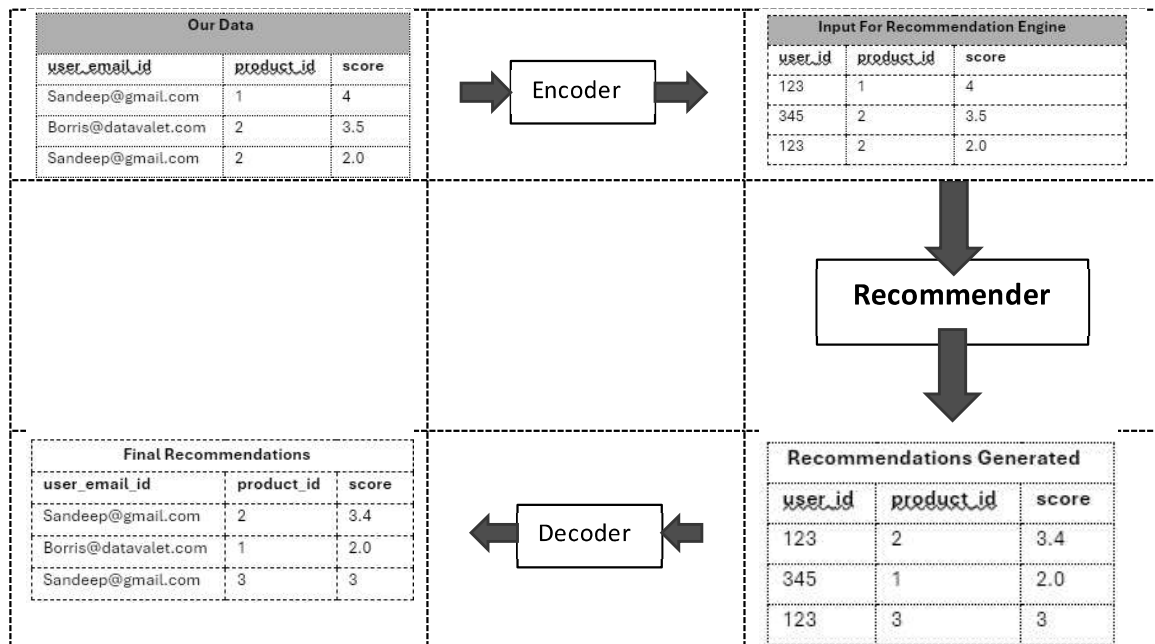We need to build a recommendations system. We already have a program/engine which takes in the user data in a csv file having three columns **user_id, product_id, score** and saves the result into another csv file containing three columns: **user_id, product_id, recommendation_score**. The data type expected by the recommentations for user_id and product_id column is integer. The data type column in the output csv is also the integer.

We do have our data in the csv with three columns: user_email_id, product_id, score. The only problem is that we have an email address as a user identifier which is string not number. We need to convert this email address to integer, feed the data to recommendation engine and once recommendation engine generates the data we need to convert this integer to email address back.

Here is the entire flow of the process.



*You need to write two programs one is **Encoder** and other is **Decoder**. Both should read files to read and write data.*