Instructions: This assessment is designed to test Data Engineering skills at different levels. Applicants are encouraged to submit their responses even if they are incomplete. The test is designed in a way to emulate real-world problems. The challenge descriptions are intentionally vague and questions are expected.

After you have had time to review the data in the database, schedule a time (approximately half an hour) with us to go over the questions you have about the requests or clarifications you feel you need to complete the requests. If further questions come up, please feel free to email them to us. Once you are done, upload your code to a private git repository and share it with us. We'll then review your solution and schedule the technical interview where we will discuss the solution with you and ask any further questions we have for you.

Challenge 1: Building a Cohort (SQL)

To start, we'd like you to build a query to generate a cohort for a study. The study is assessing how various factors contribute to the outcome of patients diagnosed with heart failure.

DE_Challenge_DB.zip contains a SQLite database. In this database, you should see 8 tables containing data for all patients who were admitted to the hospital during the month of June 2000. We'd like you to start by writing a SQL query to generate a cohort for the study. All patients in the study should have a diagnosis of Heart Failure (HF) or Cardiac Dysfunction and should have a lab result for Troponin at some point during their admission.

Challenge 2: Gathering Retrospective Data (Jupyter/Pandas)

We also need the retrospective data to do the analysis on. For this, we need observations every 12 hours for each of the patients in the cohort throughout the month of June 2000. For each of these observations, we need the following data

- The ratio of discharged patients over the previous 4 hours to the number of nurses in the patient's unit
- The ratio of nurses to patients in the patient's unit
- The patient's latest Tropinin lab value
- The patient's latest B-type natriuretic peptide (BNP) lab value