**Script Documentation: Weight Durations for Adult ICU Patients**

* **Overview**:  
  This script extracts weight data for adult ICU patients by combining various sources such as charted weight data, neonatal data, birth weights, and echocardiography data. The goal is to calculate patient weight over time with start and stop times for admission and daily weights, accounting for missing or erroneous data by backfilling gaps.
* **Key References**:  
  The script references ICU stay data (icustays), echocardiography data (echo\_data), and chart events (chartevents) from the MIMIC-III dataset to extract relevant weight measurements.
* **Logic Summary**:
  + Extracts neonatal weights (wt\_neonate).
  + Cleans and extracts birth weights (birth\_wt).
  + Extracts adult weight data for admissions and daily observations (wt\_stg).
  + Incorporates echo data to fill in missing patient weights (echo).
  + Consolidates weight data into a staging table (wt\_stg0, wt\_stg1, wt\_stg2).
  + Assigns start and stop times for weight measurements (wt\_stg2, wt\_stg3).
  + Handles missing weights at the beginning of ICU stays (wt\_fix).
  + Final output includes a backfilled weight table.
* **Process Steps**:
  + **Extract Neonatal Weights**:  
    Retrieves and processes weight values for neonates using itemid codes.
  + **Extract Birth Weights**:  
    Cleans and processes birth weight data for neonates using free-text and numeric entries.
  + **Extract Adult Weights**:  
    Processes adult weight values for admission and daily records.
  + **Include Echo Weights**:  
    Integrates weight data from echocardiography records when no charted weight is available.
  + **Assign Start/Stop Times**:  
    Calculates start and stop times for weight measurements using ICU stay information.
  + **Backfill Missing Data**:  
    Fills gaps in weight data at the start of ICU stays.
* **Output**:  
  Final table includes the following columns:
  + icustay\_id: Primary key from icustays, representing the ICU stay.
  + starttime: Start time of the weight observation.
  + endtime: End time of the weight observation.
  + weight: The recorded or imputed weight.
* **Primary Key**:
  + (icustay\_id, starttime): Composite key to uniquely identify weight observations for an ICU stay.
* **Foreign Key**:
  + icustay\_id references icustays.icustay\_id.

**Example Query**:  
  
SELECT \*

FROM weight\_durations

WHERE icustay\_id = 12345;

* **Important Notes**:
  + The script accounts for erroneous or missing data by excluding invalid weight values and backfilling weights where necessary.
  + Echo data is used only when no charted weight exists for a patient.
* **Conclusion**:  
  This script provides accurate start/stop times for weight measurements in ICU patients, ensuring more complete weight data by incorporating multiple sources and backfilling missing data.