1. Obtain/generate digital stream network

2. Define/generate basic stream units (segments or catchments)

3. Attribute data to stream units

4. Aggregate upstream attributes

   A. Acquire the complete list of stream units from the database

       - Read from the database and establish immediate upstream list (parents[]) and immediate downstream list (children[]) for each stream unit
       - Each unit has an All-Parents[] list and a visited-parent-count counter

       Identify headwater stream units, which are those without any immediate upstream units:
       - Insert them into Queue[] for calculation

       For each stream unit \( u \) in Queue[0, 1, 2, ...]

           Calculate the upstream summaries (e.g. sum, area-weighted, maximum, or minimum values) using the All-Parents[] list for the unit

           For each downstream unit \( c \) in children[] of the stream unit \( u \)

               - Add \( u \)'s All-Parents[] list and \( u \) to \( c \)'s All-Parents[] list
               - Increase \( c \)'s visited-parent-count by one

               If \( c \)'s visited-parent-count equals the number of units in \( c \)'s parent[] list, insert \( c \) into the Queue[]