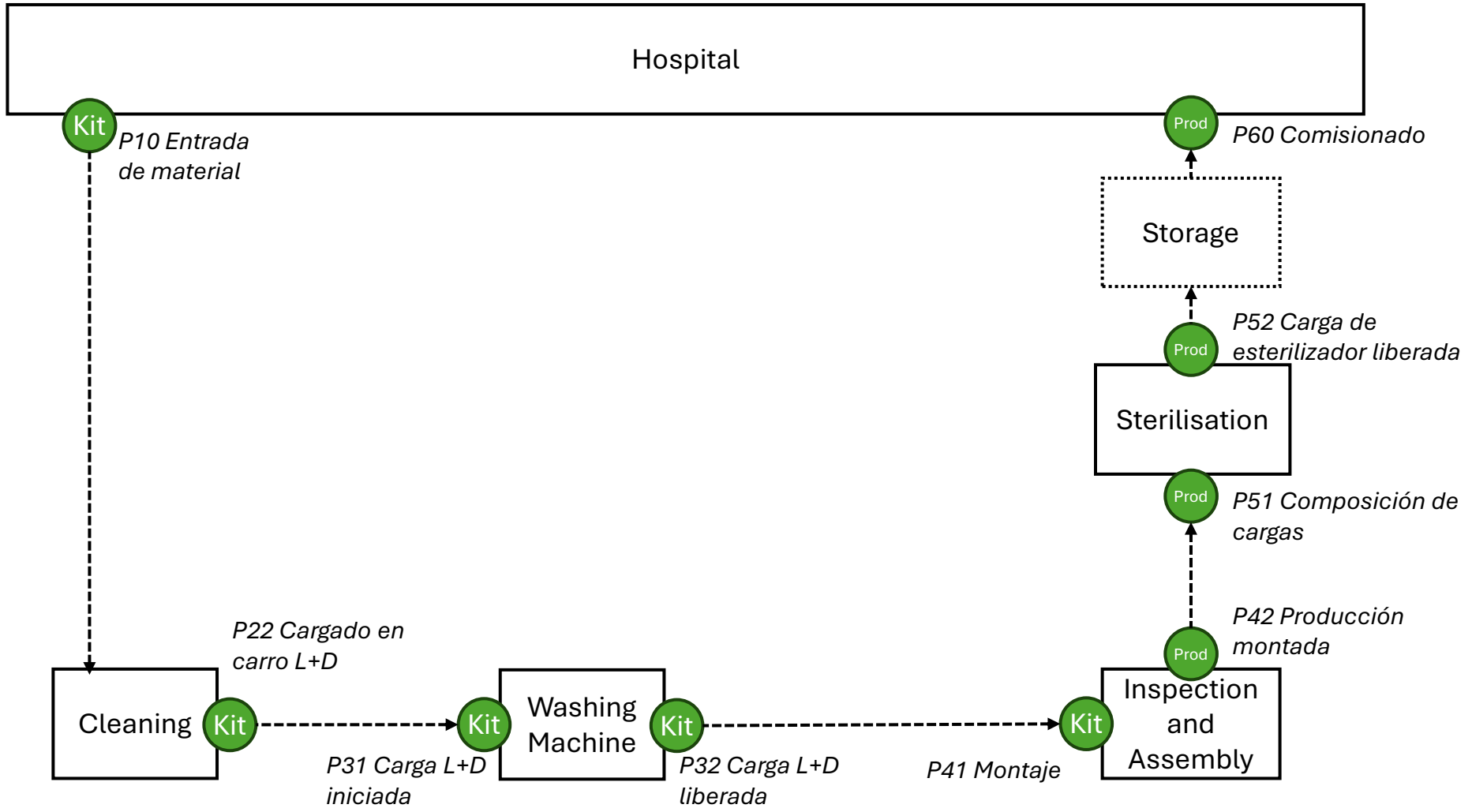
Background Information

- The process has the objective of cleaning, maintaining, and sterilizing medical instrument kits.
- A *medical device kit* is a collection of several medical instruments that together are used in a surgery in the hospital.
- The process follows the steps shown on the slide “Factory Layout”
  - Used (dirty) kits leave the hospital at P10
  - They are then cleaned and put onto a kart (P22)
  - The kits are then put into a washing machine (P31) and removed from the washing machine (P32) after washing completed
  - Each kit is then taken apart into the individual instruments (P41) which are inspected and assembled together back into a kit (P42)
  - The re-assembled kits are then placed into a sterilizer (P51) and later removed from the sterilizer (P52) when sterilization is completed
  - Sterilized kits remain in storage until they are needed by the hospital (P60)
  - When a kit then has been used by the hospital it will come back for cleaning via P10

Factory Layout



The data

- The data in prepared_data.zip contains event records of medical device kits, one file for each of the points shown in the factory layout.
- Each record in a file describes that a particular kit has passed this particular point in the factory. The record when a kit passed the point is sometimes done through scanning a bar-code and sometimes by workers entering the information manually.
- The columns describe the various features recorded with the kit
  - Fecha de seguimiento = day of scanning
  - Hora de seguimiento = hour/minute of scanning
  - Usuario = worker who did the scanning
  - Nombre punto de control = name of the scanning point in the process
  - Cant. = number of instruments in a kit
  - Tipo de objeto = type of object scanned
  - Codigo = type of kit
  - N/S = if there exist several kits of the same type, this number distinguishes different kits
  - Nombre / Descripcition = a more human-readable name for the kit type and number
  - Nombre produccion = a bar code identifier that is printed and put on the kit at some point during the process
  - Several other columns

The question/assignment

- To apply Process Mining techniques on this data, it is essential that we can reconstruct the movement of each individual kit through the process from the event records.
- For this, we need the event records to provide a unique identifier for each physical kit, i.e.,
  - the same physical kit is always recorded with the same identifier values (the kit does not change identifiers)
  - when we see a particular identifier value, it always refer to the same physical kit (no two kits share the same identifier)
- The identifier can be a single value/column or a combination of values/columns
- The process owner told us that the combination of Codigo+N/S would uniquely identify a kit, but we suspect that this not correct, i.e., the combination of Codigo+N/S does not uniquely identify a kit.
- **Task:** analyze the event records in the provided data and provide evidence (tables, figures, graphs, …) that illustrate whether Codigo+N/S uniquely identifies a kit or not.
- Prepare a short presentation (5mins) that presents your approach and findings