IE 442

MRP Implementation Project

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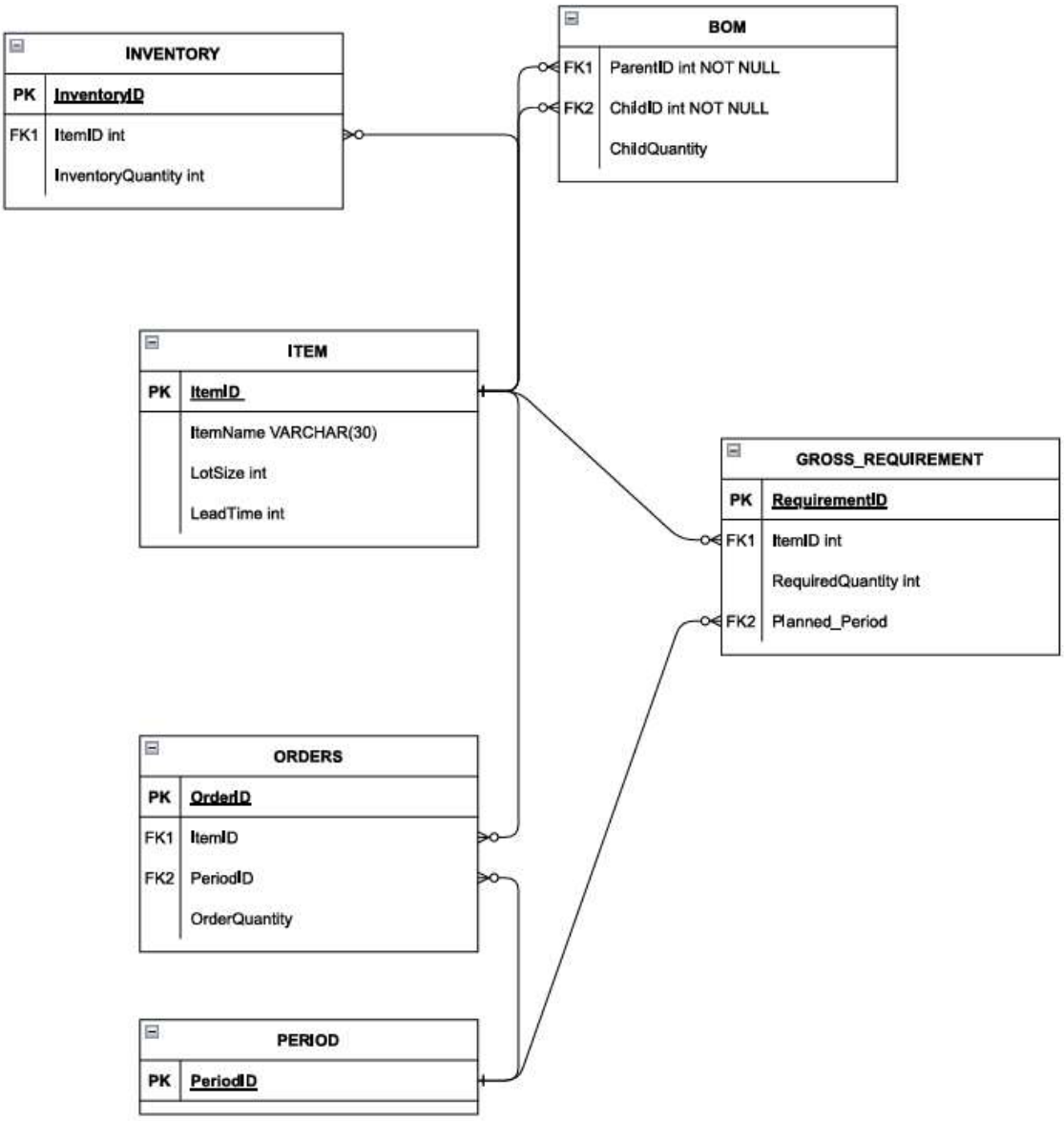
Github Repository Link: https://github.com/Ahmetcapar1/MRPProject.git

Streamlit App Link: https://mrpproject-fwjvjp5w288i9uqepbvtnt.streamlit.app/

Recording of UI Link:
https://drive.google.com/file/d/18_3fCryBc77FQ2A9Bp_sHnpw3NjmBerU/view?usp=drive_link

E-R Diagram



Relations

ITEM-BOM: In each Bill of Material row, there are 3 column one for parent item one for child item and one for quantity. But this item columns are foreign key so to define a BOM, the items inside it must be already defined as an ITEM.

ITEM-INVENTORY: For each inventory row keeps the inventory of an item so it has ItemID as a foreign key. If item is not defined it could not be added to the Inventory.

ITEM-GROSS_REQUIREMENT: For each requirement, there is an item and its quantity so it takes the ItemID as a foreign key.

PERIOD-GROSS_REQUIREMENT: Each requirement has a determined date and I called this as period, so it took PeriodID as a foreign key.

ITEM-ORDERS: For each order row include its ordered items so it take ItemID as a foreign key.

PERIOD-ORDERS: Each order has specific date and it is kept as a PeriodID so it is a foreign key.

MRP Calculations

With basic approach, my system create an empty Order table. Then it check the GrossRequirement if it presents in inventory if it is then decrease it from inventory if not create a new gross requirement for that item's child item. If that item has no child, then create an order for that item. The order's PeriodID is equal to that requirement's Planned_Period – that Item's Lead time. Also, order quantity must be a multiple of that item's lot size.