Deadlock Avoidance (Banker's Algorithm)

$$initial\ vector\ of\ resources - total\ allocated = Available\ vector$$

$$Need_{i,j} = Max_{i,j} - Allocation_{i,j}$$

$$forall\ p_i : if\ (Need_{p_i} \leq Available)$$

$$[\ Available = Available + Allocation_{p_i}$$

find such a p_i

Did **all** p_i are used to update "Available" in the previous step → Yes → safestate

→ No → No safe state

---

updates must be done for a request from p_i :

check these

$$Request_{p_i} \leq Need_{p_i} \quad \text{else} \rightarrow \text{error}$$

$$Request_{p_i} \leq Avaiable \quad \text{else} \rightarrow p_i \text{ must wait}$$

updates

$$Allocation_{p_i} = Allocation_{p_i} + Request_{pi}$$

$$Need_{p_i} = Need_{p_i} - Request_{pi}$$

$$Available = Available - Request_{pi}$$

And now check with Banker Algorithm!