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Project Title: CHECK POST VEHICLE MANAGEMENT

My project is about the management of vehicles in check posts. The way from Kurnool(Andhra Pradesh) to Hyderabad(Telangana) passes through the sheshachalam forest where about 7 check posts are there to stop the smuggling of Red Sandalwood. Travelers face a lot of problems waiting in the queue. It even takes more than 8hrs some days to clear the traffic at the check posts…..The way that connects Kurnool to Hyderabad via forest is a Double road but not a highway…Emergency services like ambulances and fire vehicles face a lot of problems to cross the queue at check post reach their destination which may cost lives of people. Civil servants, Ministers, and MLAs traveling this way face a lot of problems with traffic.

So, In these situations, my Project enables the check postmanagement to handle the traffic problems faced by people at least in a few check posts.

For example:

Check post 1:

At check post 1 as the vehicles arrive the person standing at the check post makes the entry of vehicle i,e whether the vehicle belongs to a normal citizen, Minister, emergency vehicle, civil servant, actor, etc in the device which uses my code.

The queue is created according to the priority of the vehicle say the priority for an emergency vehicle is given priority 1, Minister is given priority 2, MLA is given priority 3, a civil servant is given priority 4, Actor priority 5, Normal citizen priority 6.

If say N no.of citizens are entered into the check post their place in the queue is decided based on who entered in the queue first. The same is applied to citizens with greater priority also if the person with the same priority enters the queue they will be placed according to their time of entry i,e who comes first will be placed in the queue first.

Check post 2:

Now in check post 2, they need not wait in the queue because their queue is already prepared and the vehicles will be sent according to the list in the device. In this way, people who work for the common man will not face problems caused by traffic at least to some extent.

This project helps the check post-management to keep the track of vehicles and helps in traffic management.

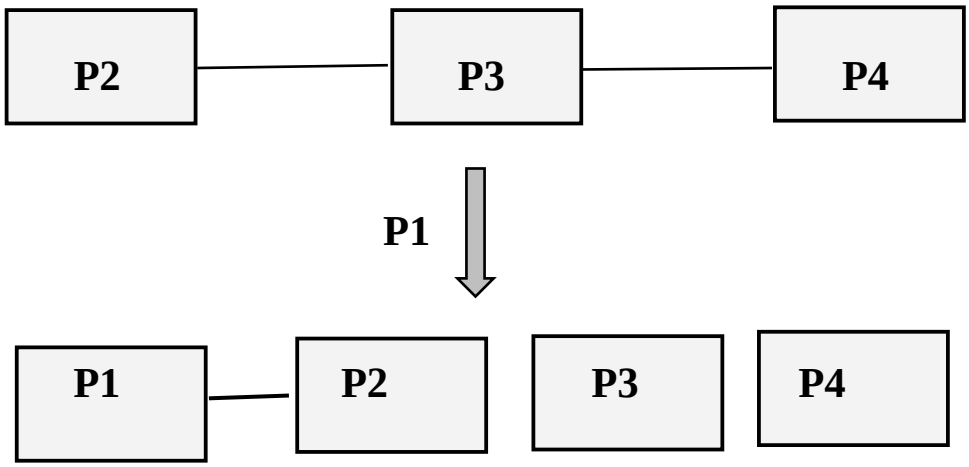
DATA STRUCTURE: **Priority Queue using Linked list**

The best possible data structure I found to solve this is a **priority queue using a linked list** because vehicles entering the check post are not fixed so I want to increase my data according to vehicles which are not possible using an array where size is fixed. The reason for taking the Priority queue is that accessing elements with the highest priority just takes an order of constant time i.e O(1). This is not possible with any data structure available. In the remaining cases where on that day if no vehicle of high priority did not come then common people with following the rule FIFO(first in first out)which is a very important property of queue where it can be done in O(1) time.

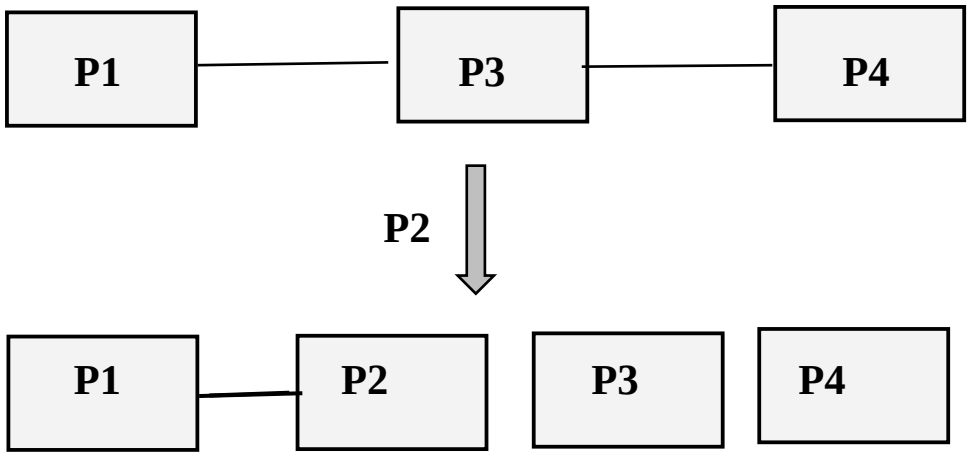
Examples using diagrams:

- Say people with priorities be p1,p2,p3,p4,p5,p6.

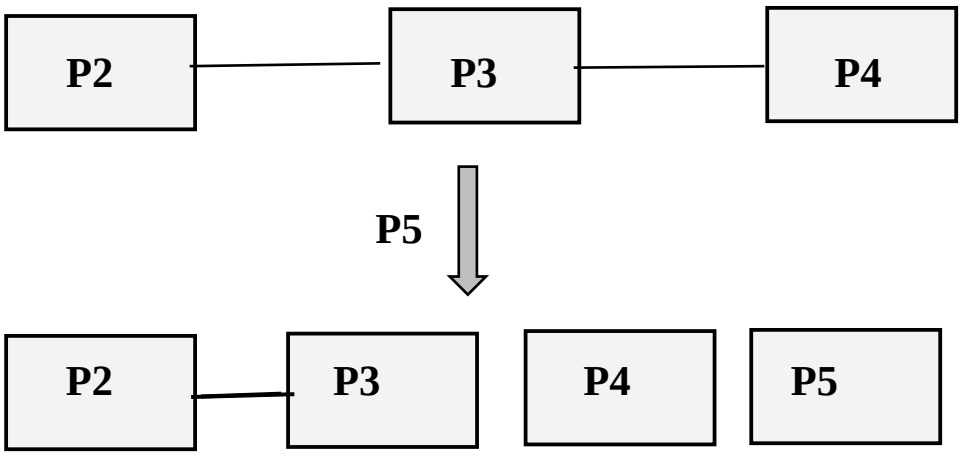
Case 1:



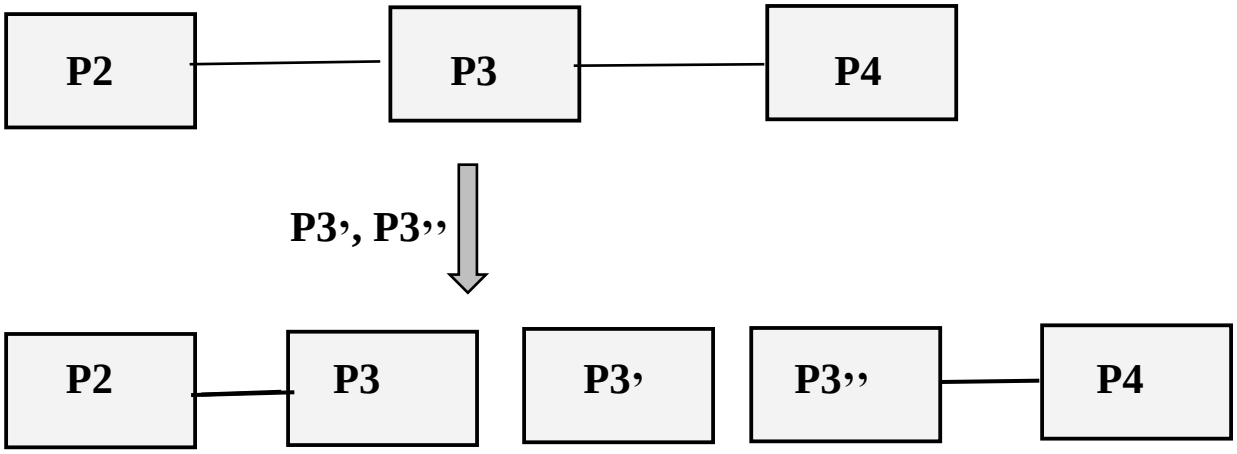
Case 2:



Case 3:



Case 4:


P2
P3
P4
P3', P3''
P2
P3
P3'
P3''
P4