

HACETTEPE UNIVERSITY
DEPARTMENT OF COMPUTER ENGINEERING

BBM203 PROGRAMMING LABORATORY

Experiment 3

REPORT



CAR PRODUCTION LINE SIMULATION

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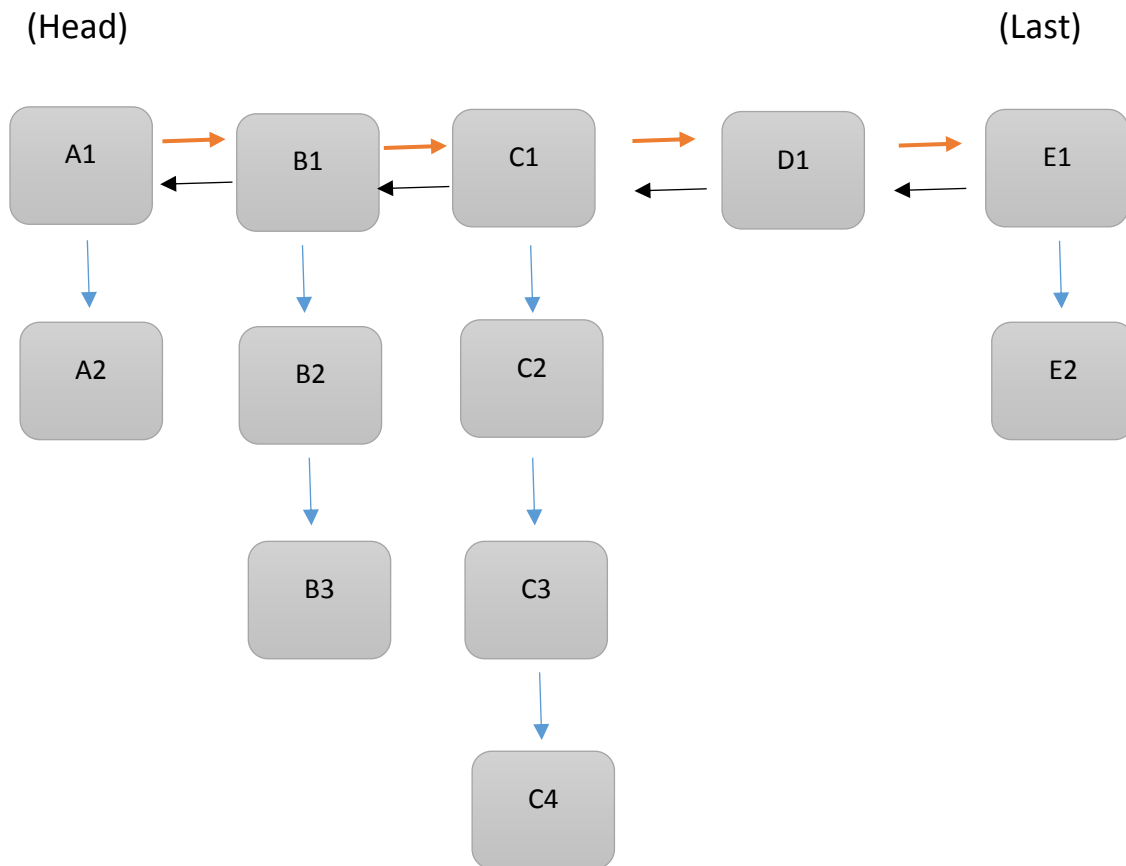
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1- DATA STRUCTURE

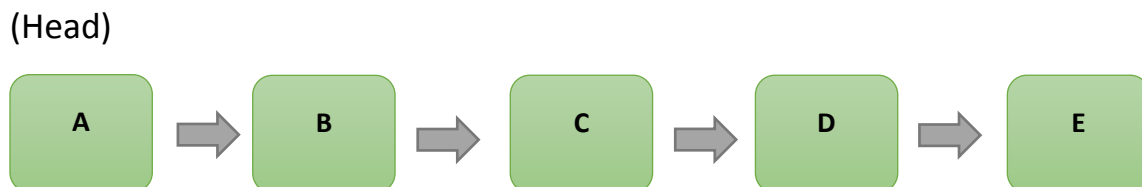
2- APPROACH

1-DATA STRUCTURE

Production line of car factory: Car factory is configured like follows. It is triple linked list. A1, B1..., E1 are departments. A2, B2, B3..., E2 are sibling departments.



Queue is created for not produced car list, produced car list, cars which are protected different departments (This list is used to print produced car of each department). A,B..., E are cars.



2-APPROACH

My approach is that the car production factory and departments is created according to “AddDept” commands. It is triple linked list as it is stated above data structure. Therefore, from head to last department and also last to head department can go. And, third department linked list is created for multiple sibling department with the same properties. In “PrintFactory” command, triple linked list is travelled and given desired output.

For all “Produce” command, two car list is created according to given produce command. When a new car is to be taken to the factory, it is taken from one of car list. The status of the cars in the second car list has been updated in every process moment. It was made to write the status of the car/cars when the report command came out for car/cars.

Report command is ordered according to ascending T and put report array. The “Report” commands are resulted of their T values in ascending order.

With the passage of time(Time was increased up to the largest reportT),

Firstly, if the production of the car is finished in the last department of the car production factory, the department is freed and the car is added to the list of produced cars.

Secondly, in last towards the head, if the departments (next department of previous department)is free, the production of the minimum start time car which is finished in the previous department of the car production factory is processed in the next free departments. The previous departments is freed.

Lastly, It is checked whether the start time of car is appropriate to star produce the car from car list. If it is, the car is taken to head of the factory.

In the three sections in above, also, the cars that the departments have produced is added to the list for each department. And, cars process by departments are recorded for each department.

For the polymorphic “Report” command,

In “Report” command of car/cars, the car/cars and their status are printed from car list.

In "Report" command of departments, all departments, their status and processed cars are printed from department list from last department to head department.