Coimbatore Institute Of Technology, Coimbatore -14
Career Guidance and Counselling Cell
&
Department of Computing

The DoughVinci Code

Problem Statement 1

Statement a)- Last Mile Delivery Batching. 60 marks

Description:

It is crucial in today's last-mile delivery ecosystem to optimize for speed, and cost efficiencies. Smarter algorithms play a crucial role in the ecommerce marketplace deliveries We need to group/batch the delivery of multiple items to the same rider without losing time.

Here are several scenarios where we need smart operational research algorithms.

Rule # 1:

- Two orders
- From the same kitchen.
- To the same customer.
- Ready at the same time (10 mins apart).
- Assign the pick-up to the same rider.

Rule # 2:

- Two orders.
- From two different kitchens (1 km apart).
- To the same customer.
- Ready at the same time (10 mins apart).
- Assign the pick-up to the same rider.

Rule # 3:

- Two orders.
- From the same kitchen.
- To two different customers (1 km apart).
- Ready at the same time (10 mins apart).
- Assign the pick-up to the same rider.

- Rule # 4:

- Two orders.
- To the same customer.
- 2nd kitchens pick up on the way to the customer.
- Ready at the time the rider reaches the second kitchen (10 mins apart).
- Assign the pick-up to the same rider.

Rule # 5:

- Two orders.
- 2nd customers drop on the way to the 1st customer (Vice Versa).
- 2nd kitchens pick up on the way to the customer.
- Ready at the same time (10 mins apart or by the time rider reaches the kitchen).
- Assign the pick-up to the same rider.

Rule # 6:

- Two orders.
- From the same kitchen.
- 2nd customers drop on the way to the customer 1st (Vice Versa).
- Ready at the same time (10 mins apart).
- Assign the pick-up to the same rider.

Statement b) - Automated Code Reviews and Quality Assurance. 40 marks

Description:

Develop Al-powered tools to analyse code changes and automatically identify potential bugs, security vulnerabilities, or coding best practice violations. This could help streamline the code review process and improve overall code quality. For instance: Al-powered code review tool that automatically scans code changes for bugs, security flaws, and coding best practices. This tool provides instant feedback to developers, streamlining the review process and enhancing overall code quality. By leveraging this tool, the team ensures that only high-quality code is merged into the project, reducing the risk of bugs and vulnerabilities. Additionally, the tool learns from past review, continuously improving its analysis and further enhancing code quality over time.