

DATA STRUCTURE & ALGORITHM PROJECT

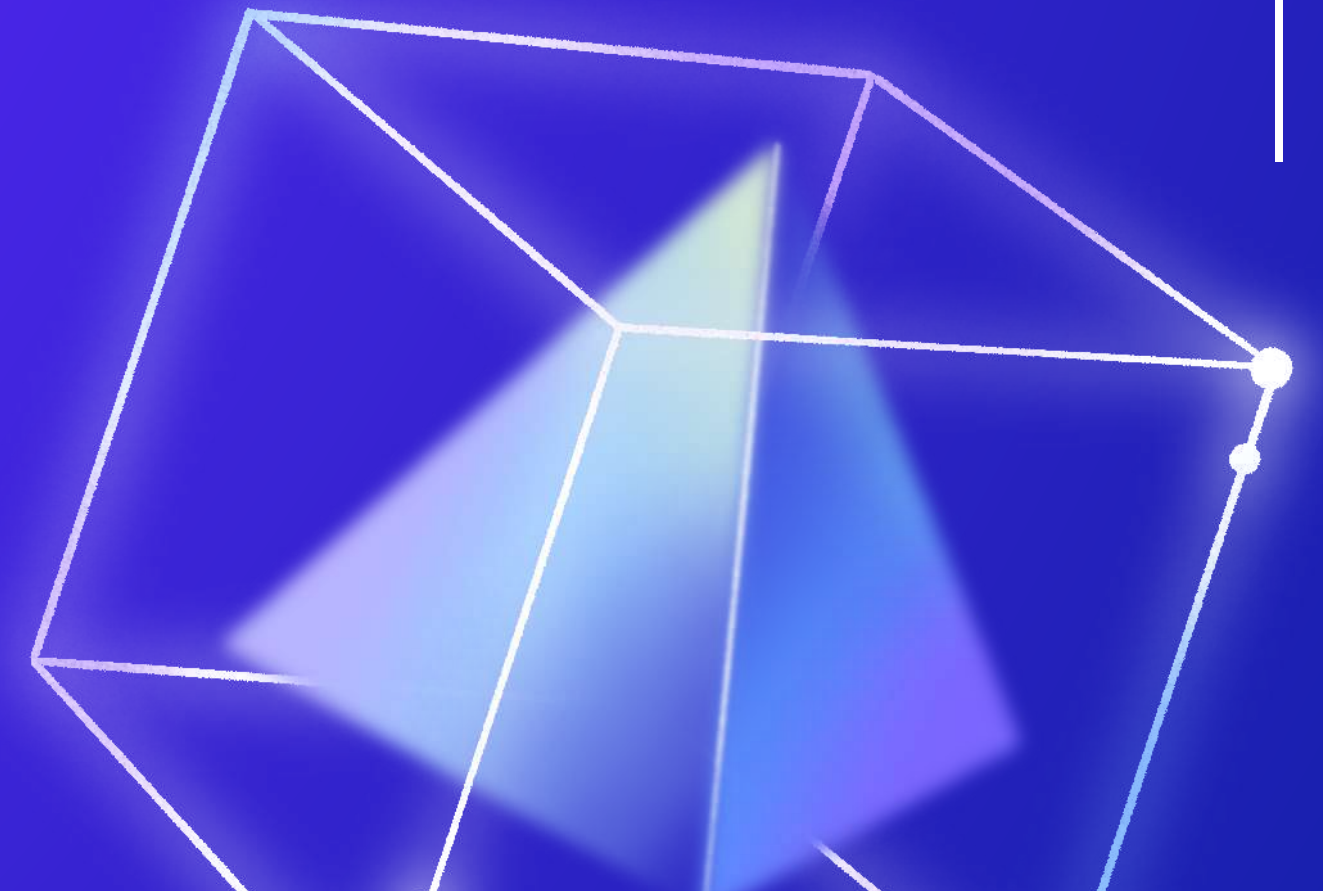
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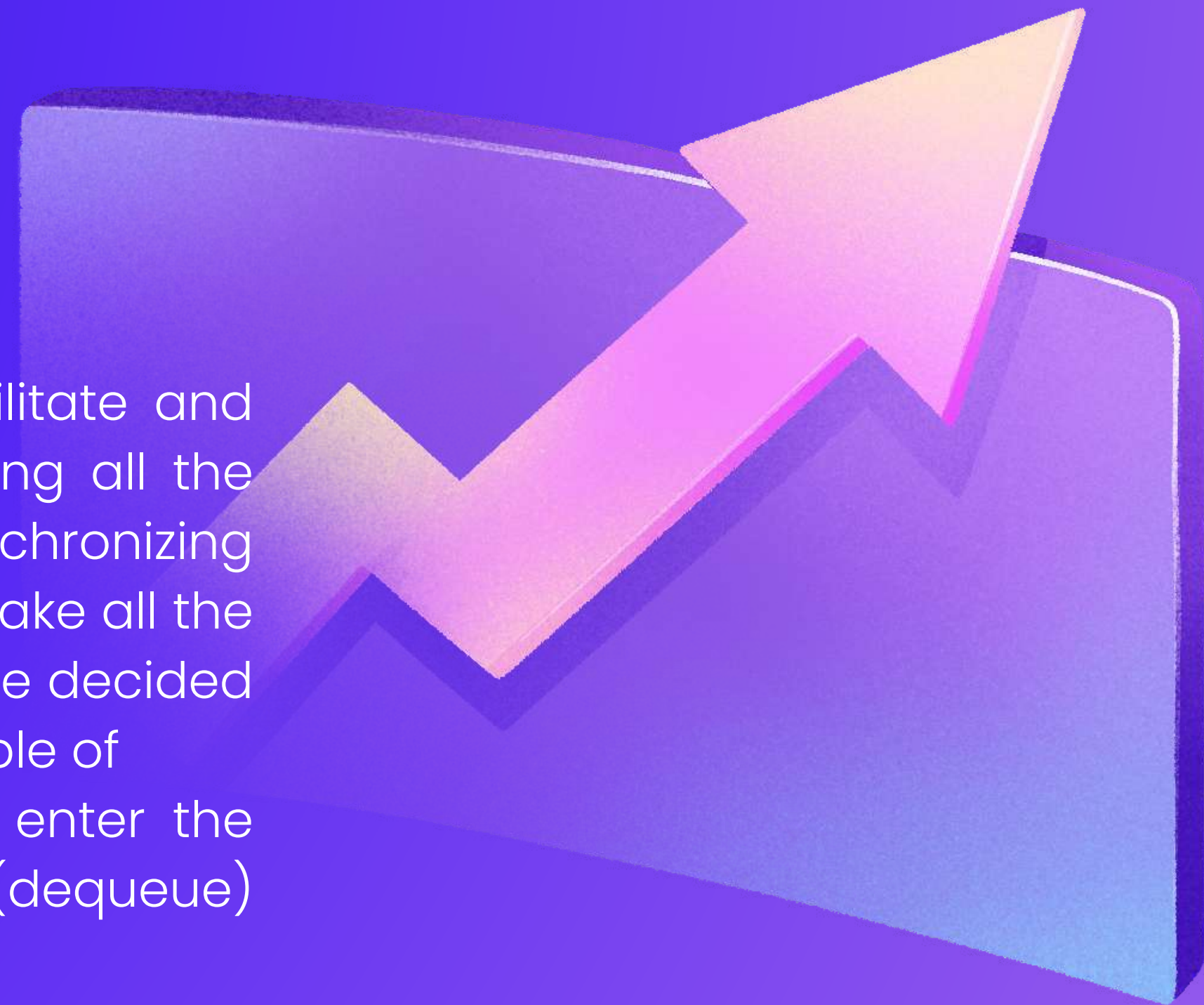
TABLE OF CONTENTS

• Project Description	01
• Project Design	02
• Data Structure Concept Employed & Execution of The Program	04



PROJECT DESCRIPTION

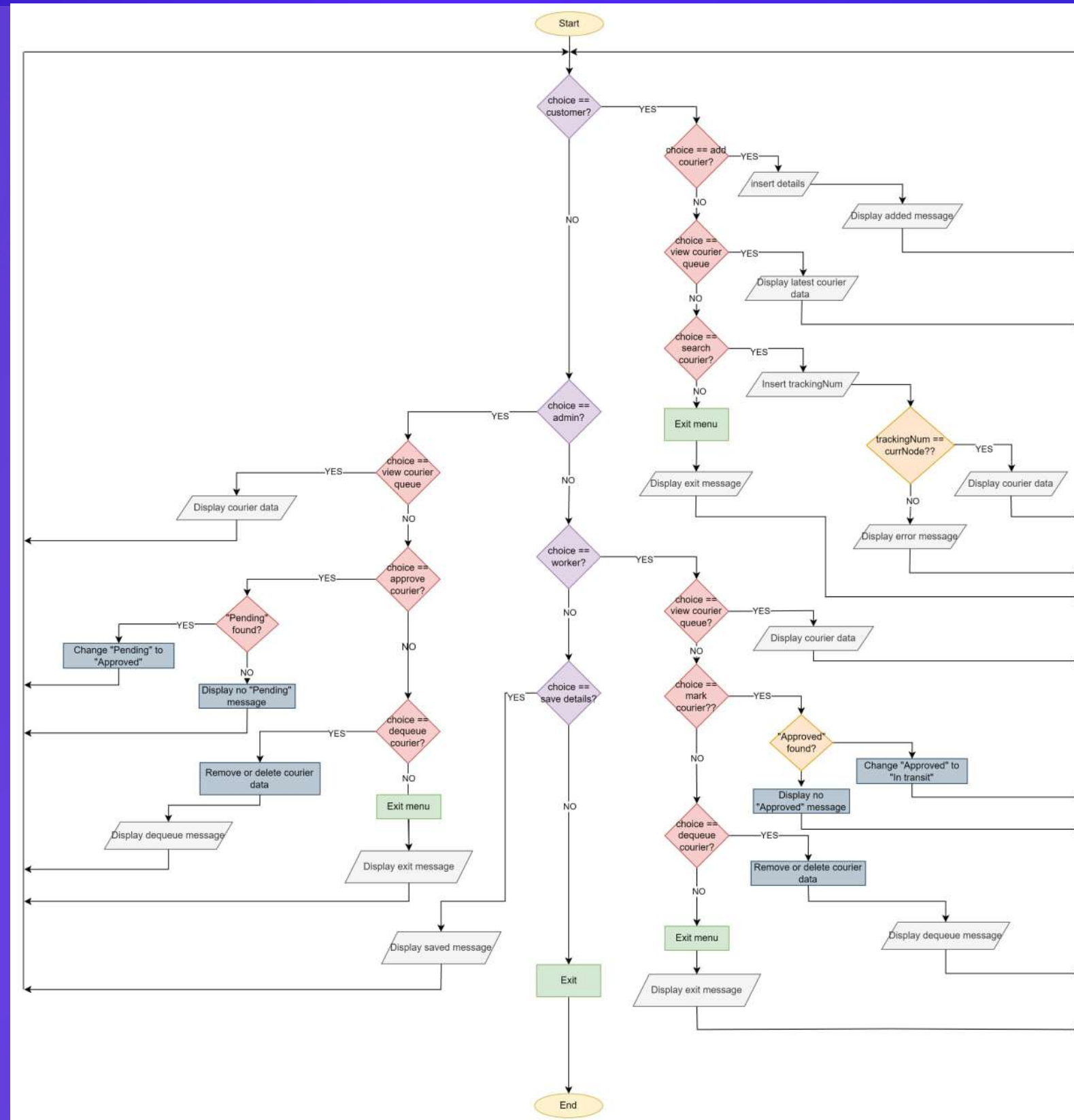
The courier management system is designed to facilitate and improve the courier services management by handling all the information that they receive from customers and synchronizing it with the updated delivery status for their parcel. To make all the process become a lot more easier than before, we have decided to use a Queue data structure that will follow the principle of "First In,First Out" (FIFO). As a result the first data to enter the system (enqueue) will also be the first data deleted (dequeue) from the system



PROJECT DESIGN

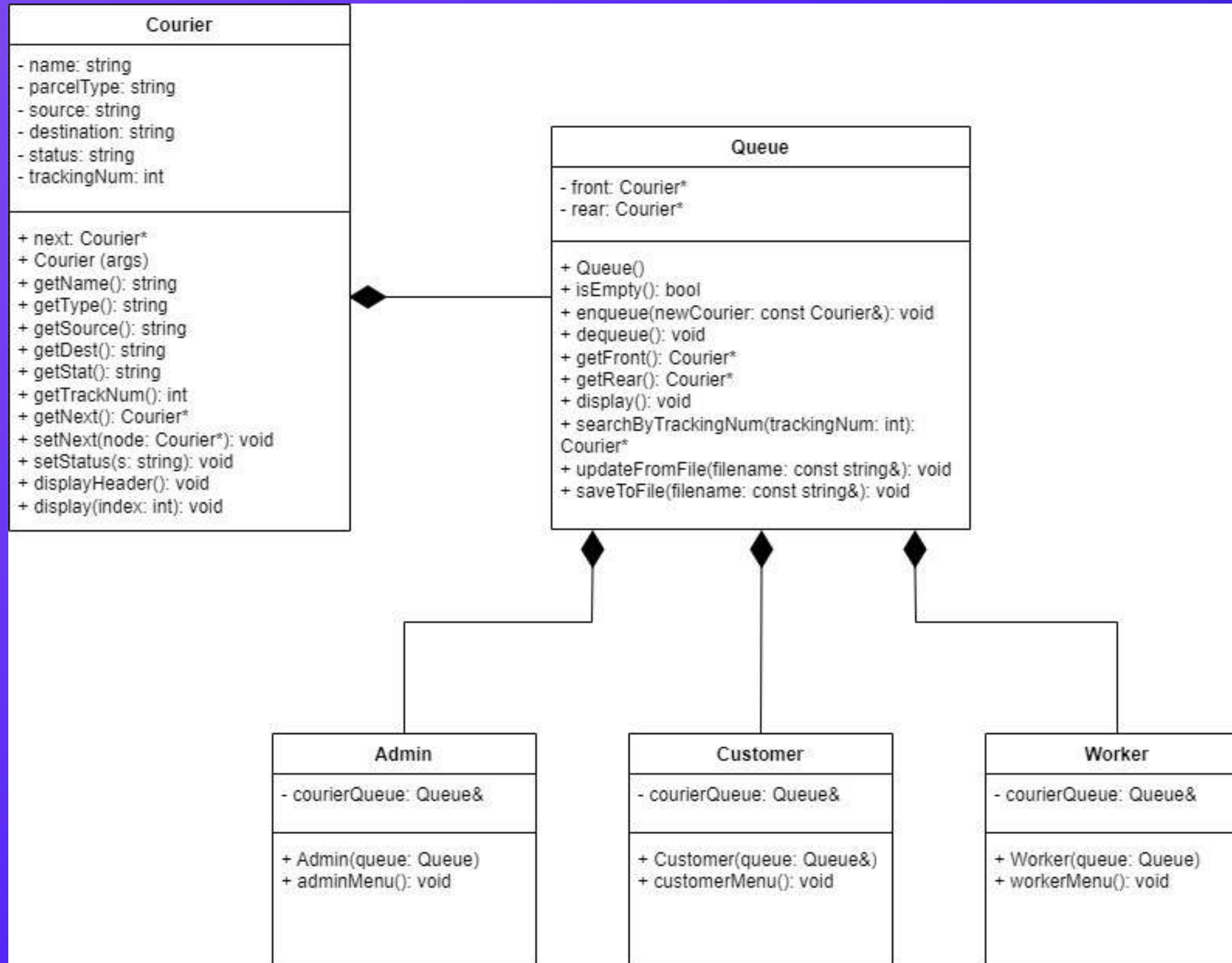


(01) FLOWCHART



CLASS DIAGRAM

02



DATA
STRUCTURED
CONCEPT
EMPLOYED &
EXECUTION OF
THE PROGRAM



(01) ADDING A NEW COURIER

1. GET THE OPTION FROM THE CUSTOMER MENU.

2. THE CUSTOMER MENU PROVIDES AN OPTION FOR CUSTOMERS TO ADD A NEW COURIER INTO THE QUEUE AT THE REAR.

2.1 THE ENQUEUE FUNCTION IN THE COURIER SERVICE SYSTEMS ALLOWS CUSTOMERS TO ADD NEW COURIERS TO THE SYSTEM.

2.1.1 CALLS THE 'ENQUEUE' FUNCTION IN THE 'QUEUE' CLASS TO ADD A NEW COURIER INTO THE SYSTEM.

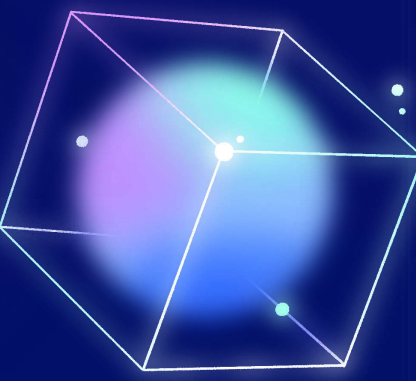
2.1.2 USER INPUTS COURIER DETAILS SUCH AS NAME, PARCEL TYPE, SOURCE, DESTINATION, TRACKING NUMBER.

2.1.3 THE STATUS WILL BE AUTOMATICALLY SET TO "PENDING" BY DEFAULT.

2.1.4 THE COURIER IS ADDED TO THE REAR OF THE COURIER QUE (FOLLOW QUEUE RULE).

2.1.5 RETURN BACK TO THE CUSTOMER MENU.

INSERT NEW COURIER'S DATA (ENQUEUE)



```
===== Customer Menu =====
```

1. Add Courier
2. View Courier Queue
3. Search Courier by Tracking Number
4. Exit

```
Enter your choice: 1
```

```
Enter Courier details:
```

```
Name: Puteri Syakilla
```

```
Parcel Type: Mail
```

```
Source: Sarawak
```

```
Destination: Kuala Lumpur
```

```
Tracking Number: 008765
```

```
Courier added successfully with status 'pending'.
```

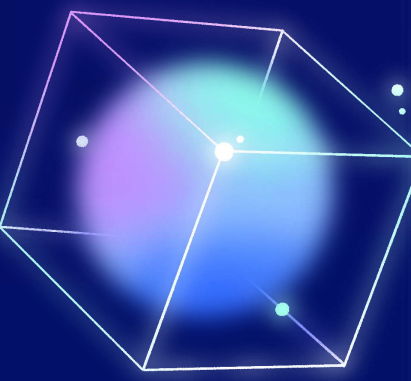


02

UPDATING AND REMOVING FROM QUEUE

1. GET THE OPTION FROM THE ADMIN AND WORKER MENU.
2. FROM THE ADMIN MENU, THE COURIER STATUS CAN BE UPDATED FROM "PENDING" TO "APPROVED".
 - 2.1 ITERATES THROUGH THE COURIER QUEUE TO FIND THE FIRST COURIER WITH STATUS "PENDING".
 - 2.1.1 IF FOUND, CHANGE THE STATUS FROM "PENDING" TO "APPROVED".
 - 2.1.2 NOTIFIES THE APPROVAL TO THE ADMIN.
 - 2.2 IF NO STATUS "PENDING" IS FOUND
 - 2.2.1 NOTIFY THE ADMIN THAT THERE ARE NO MORE PENDING STATUS TO APPROVE.
3. FROM THE WORKER MENU, THE COURIER STATUS CAN BE UPDATED FROM "APPROVED" TO "IN TRANSIT".
 - 3.1 ITERATES THROUGH THE COURIER QUEUE TO FIND THE FIRST COURIER WITH STATUS "APPROVED".
 - 3.1.1 IF FOUND, CHANGE THE STATUS FROM "APPROVED" TO "IN TRANSIT".
 - 3.1.2 NOTIFIES THE CHANGE TO THE WORKER.
 - 3.2 IF NO STATUS "APPROVE" IN FOUND
 - 3.2.1 NOTIFY THE WORKER THAT THERE ARE NO MORE APPROVED STATUS TO BE CHANGED TO IN TRANSIT.
4. FROM THE ADMIN MENU, THE COURIER QUEUE CAN BE DELETED (DEQUEUE)
 - 4.1 THE COURIER AT THE FRONT IS REMOVED FROM THE COURIER QUEUE.
5. FROM THE WORKER MENU, THE COURIER QUEUE CAN BE DELETED (DEQUEUE)
 - 5.1 THE COURIER AT THE FRONT IS REMOVED FROM THE COURIER QUEUE.
6. RETURN BACK TO THE ADMIN/WORKER MENU.

REMOVING COURIER'S DATA (DEQUEUE)



==== Admin Menu ====

1. View Courier Queue
2. Approve Courier
3. Dequeue Courier
4. Exit

Enter your choice: 3

Dequeued a courier.

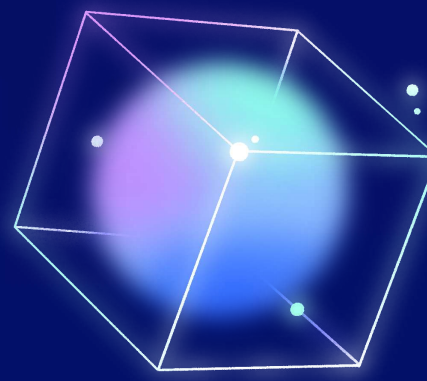
==== Admin Menu ====

1. View Courier Queue
2. Approve Courier
3. Dequeue Courier
4. Exit

Enter your choice: 1

No.	Tracking Number	Name	Parcel Type	Source	Destination	Status
[1]	498678	Mohd Ali	Ball	Sarawak	Sabah	In transit
[2]	789092	Jessica Luvia	Phone	Perak	Senai	Delivered
[3]	234539	Rahman Putra	Laptop	Kuala Lumpur	Ayer Hitam	In transit
[4]	876565	Emily Lisa	Watch	Pasir Gudang	Tangkak	Out for Delivery
[5]	432121	Kamal Kamarudin	Hat	Ipoh	Sabah	Delivered
[6]	567837	Aisha Sofea	Glasses	Rompin	Sungai Petani	In transit
[7]	987602	Mohammed Omar	Camera	Karak	Alor Gajah	Pending
[8]	8765	Puteri Syakilla	Mail	Sarawak	Kuala Lumpur	Pending

UPDATING COURIER'S DATA (ADMIN)



==== Admin Menu ====

1. View Courier Queue
2. Approve Courier
3. Dequeue Courier
4. Exit

Enter your choice: 2

Courier with Tracking Number 987602 approved.

Courier with Tracking Number 8765 approved.

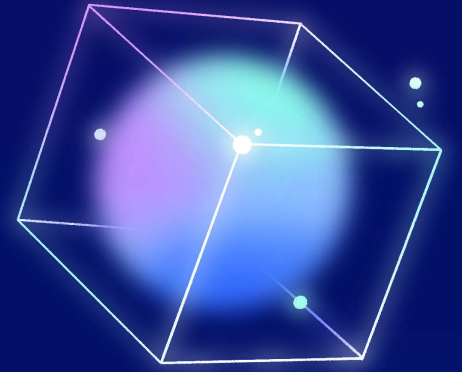
==== Admin Menu ====

1. View Courier Queue
2. Approve Courier
3. Dequeue Courier
4. Exit

Enter your choice: 1

No.	Tracking Number	Name	Parcel Type	Source	Destination	Status
[1]	498678	Mohd Ali	Ball	Sarawak	Sabah	In transit
[2]	789092	Jessica Luvia	Phone	Perak	Senai	Delivered
[3]	234539	Rahman Putra	Laptop	Kuala Lumpur	Ayer Hitam	In transit
[4]	876565	Emily Lisa	Watch	Pasir Gudang	Tangkak	Out for Delivery
[5]	432121	Kamal Kamarudin	Hat	Ipoh	Sabah	Delivered
[6]	567837	Aisha Sofea	Glasses	Rompin	Sungai Petani	In transit
[7]	987602	Mohammed Omar	Camera	Karak	Alor Gajah	Approved
[8]	8765	Puteri Syakilla	Mail	Sarawak	Kuala Lumpur	Approved

UPDATING COURIER'S DATA (WORKER)



===== Worker Menu =====

1. View Courier Queue
2. Mark Courier as In transit
3. Dequeue Courier
4. Exit

Enter your choice: 2

Courier with Tracking Number 987602 marked as in transit.

Courier with Tracking Number 8765 marked as in transit.

===== Worker Menu =====

1. View Courier Queue
2. Mark Courier as In transit
3. Dequeue Courier
4. Exit

Enter your choice: 1

No.	Tracking Number	Name	Parcel Type	Source	Destination	Status
[1]	498678	Mohd Ali	Ball	Sarawak	Sabah	In transit
[2]	789092	Jessica Luvia	Phone	Perak	Senai	Delivered
[3]	234539	Rahman Putra	Laptop	Kuala Lumpur	Ayer Hitam	In transit
[4]	876565	Emily Lisa	Watch	Pasir Gudang	Tangkak	Out for Delivery
[5]	432121	Kamal Kamarudin	Hat	Ipoh	Sabah	Delivered
[6]	567837	Aisha Sofea	Glasses	Rompin	Sungai Petani	In transit
[7]	987602	Mohammed Omar	Camera	Karak	Alor Gajah	In transit
[8]	8765	Puteri Syakilla	Mail	Sarawak	Kuala Lumpur	In transit

(03) SEARCHING THE COURIER

1. GET THE OPTION FROM THE CUSTOMER MENU.
2. FROM THE OPTION, COURIER INFORMATION WILL BE SEARCHED BY TRACKING THE TRACKING NUMBER ENTERED FROM THE CUSTOMER.
 - 2.1 ITERATES THROUGH THE QUEUE, COMPARING THE ATTRIBUTES OF EACH COURIER TO THE CORRESPONDING SEARCH KEY
 - 2.1 IF THE COURIER FOUND
 - 2.1.1 DISPLAY THE COURIER INFORMATION WITH THE SEARCH KEY.
 - 2.2 IF THE COURIER NOT FOUND
 - 2.2.1 NOTIFIES THE CUSTOMER THAT THERE IS NO INFORMATION FOR THE COURIER WITH THE CORRESPONDING SEARCH KEY.
3. RETURN BACK TO THE CUSTOMER MENU.

SEARCHING COURIER'S DATA BY INSERTING TRACKING NUMBER



==== Customer Menu ====

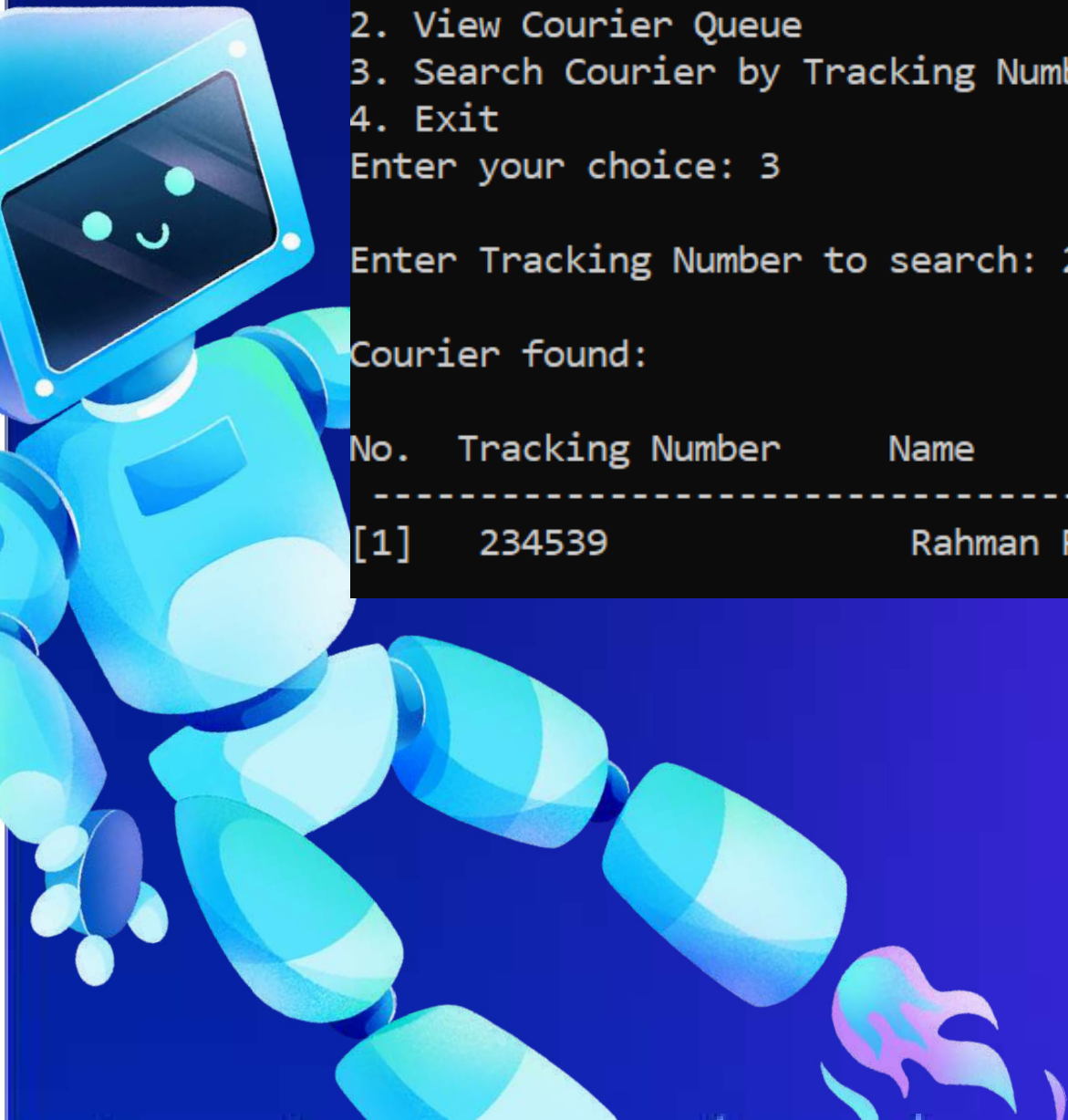
1. Add Courier
2. View Courier Queue
3. Search Courier by Tracking Number
4. Exit

Enter your choice: 3

Enter Tracking Number to search: 234539

Courier found:

No.	Tracking Number	Name	Parcel Type	Source	Destination	Status
[1]	234539	Rahman Putra	Laptop	Kuala Lumpur	Ayer Hitam	In transit



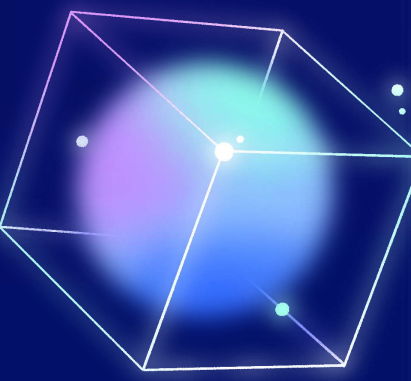
(04) DISPLAYING THE COURIER

1. GET THE OPTION FORM THE CUSTOMER, ADMIN AND WORKER MENU.
 2. DISPLAY THE CONTENT IN THE COURIER QUEUE STARTING FROM FRONT TO REAR.
 3. RETURN BACK TO THE CUSTOMER/ADMIN/WORKER MENU
-

(05) SAVE COURIER INFORMATION

1. GET THE OPTION IN THE MAIN MENU.
2. SAVE THE LATEST COURIER QUEUE TO THE FILENAME "COURIER.TXT".
3. RETURN BACK TO THE MAIN MENU.

DISPLAYING COURIER'S DATA



===== Customer Menu =====

1. Add Courier
2. View Courier Queue
3. Search Courier by Tracking Number
4. Exit

Enter your choice: 2

No.	Tracking Number	Name	Parcel Type	Source	Destination	Status
[1]	548821	Muhammad Abduh	Shoes	Pulau Pinang	Melaka	Delivered
[2]	498678	Mohd Ali	Ball	Sarawak	Sabah	In transit
[3]	789092	Jessica Luvia	Phone	Perak	Senai	Delivered
[4]	234539	Rahman Putra	Laptop	Kuala Lumpur	Ayer Hitam	In transit
[5]	876565	Emily Lisa	Watch	Pasir Gudang	Tangkak	Out for Delivery
[6]	432121	Kamal Kamarudin	Hat	Ipoh	Sabah	Delivered
[7]	567837	Aisha Sofea	Glasses	Rompin	Sungai Petani	In transit
[8]	987602	Mohammed Omar	Camera	Karak	Alor Gajah	Pending
[9]	8765	Puteri Syakilla	Mail	Sarawak	Kuala Lumpur	Pending

SAVE COURIER'S DATA INTO INPUT FILE

==== Main Menu ====

1. Customer Menu
2. Admin Menu
3. Worker Menu
4. Save Courier Data to File
5. Exit

Enter your choice: 4

Courier data saved to file (COURIER.TXT).

Mohd Ali,Ball,Sarawak,Sabah,In transit,498678
Jessica Luvia,Phone,Perak,Senai,Delivered,789092
Rahman Putra,Laptop,Kuala Lumpur,Ayer Hitam,In transit,234539
Emily Lisa,Watch,Pasir Gudang,Tangkak,Out for Delivery,876565
Kamal Kamarudin,Hat,Ipoh,Sabah,Delivered,432121
Aisha Sofea,Glasses,Rompin,Sungai Petani,In transit,567837
Mohammed Omar,Camera,Karak,Alor Gajah,In transit,987602
Puteri Syakilla,Mail,Sarawak,Kuala Lumpur,In transit,8765

THANK YOU!

