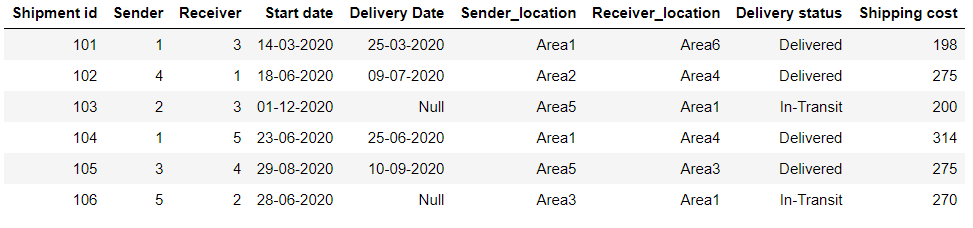
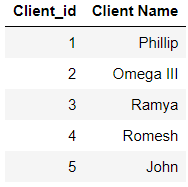
**ITP Mini Project**

**Courier Management System**

For a seamless eCommerce shopping experience, it is essential to deliver the product promptly to the customer. And that’s where a professional courier service plays a vital role. 'FastTrack' courier company stores the relevant data of its clients and parcels in the form of dictionary. Create a dictionary for storing shipment information in key-value pairs. Shipment id is used as a key and list of other attributes like sender, receiver, start date, Delivery Date, Sender\_location, Receiver\_location, Delivery status, Shipping cost is associated with shipment id. Use the data shown in the table below.



Use below table to refer to client’s data. Please note that a client can be a sender or receiver.



**Q1. Create a Dictionary of lists to store the information of shipments given in the table**

d1={101:{'Sender':1,'Receiver':3,'Start date':'14-03-2020','Delivery date':'25-03-2020','Sender location':'Area 1','Receiver location':'Area 6','Delivery status':'Delivered','Shipping cost':198}, 102:{'Sender':4,'Receiver':1,'Start date':'18-06-2020','Delivery date':'09-07-2020','Sender location':'Area 2','Receiver location':'Area 4','Delivery status':'Delivered','Shipping cost':275}, 103:{'Sender':2,'Receiver':3,'Start date':'01-12-2020','Delivery date':'Null','Sender location':'Area 5','Receiver location':'Area 1','Delivery status':'In Transit','Shipping cost':200}, 104:{'Sender':1,'Receiver':5,'Start date':'23-06-2020','Delivery date':'25-06-2020','Sender location':'Area 1','Receiver location':'Area 4','Delivery status':'Delivered','Shipping cost':314}, 105:{'Sender':3,'Receiver':4,'Start date':'29-08-2020','Delivery date':'10-09-2020','Sender location':'Area 5','Receiver location':'Area 3','Delivery status':'Delivered','Shipping cost':275}, 106:{'Sender':5,'Receiver':2,'Start date':'28-06-2020','Delivery date':'Null','Sender location':'Area 3','Receiver location':'Area 1','Delivery status':'In Transit','Shipping cost':270}}

**Q2. Create a Dictionary of to store the information of clients given in the table.**

d2 = {1:'Phillip',2:'Omega lll',3 :'Ramya',4:'Romesh',5:'John'}

### Q3. Write a code to replace client’s id with their respective name in shipment dictionary using a loop and dictionary comprehension

result = {}

for key, value in d1.items():

new\_value = {k: d2[v] if k in ('Sender', 'Receiver') else v for k,v in value.items()}

result[key] = new\_value

print(result)

dictionary comprehension-

result = {key:{k: d2[v] if k in ('Sender', 'Receiver') else v for k,v in value.items()} for key, value in d1.items()}

### Q4. Print all shipment details that are sent by Phillip

### phillips = list(filter(lambda value: value['Sender'] == 'Phillip',

### dict1.values()))

### print(phillips)

### Q5. Print all shipment details that are received by Ramya

### phillips = list(filter(lambda value: value['receiver'] == 'Phillip',

### dict1.values()))

### print(phillips)

### Q6. Print all shipments which are in 'In-Transit' status

### phillips = list(filter(lambda value: value['delivery'] == 'Phillip',

### dict1.values()))

### print(phillips)

### Q7. Print all shipments which are delivered within 7 days of courier Start date

for v in a.values():

if v["Delivery date"] == "Null":

continue

start = datetime.strptime(v["Start date"], "%d-%m-%Y")

delivery = datetime.strptime(v["Delivery date"], "%d-%m-%Y")

if (delivery - start).days <= 7:

print(v)

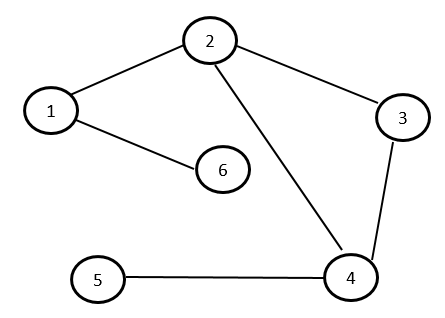
### Q8. Print all shipments which are delivered after 15 days of courier start date or not yet been delivered.

### Q 9. Write a function find\_all\_routes to display all possible routes from senders location to receivers location given in the dictionary for each shipment.[¶](http://localhost:8888/notebooks/Desktop/NPV_Content/ITP_mini%20Project/ITP_Mini%20Project.ipynb#Write-a-function-find_all_routes-to-display-all-possible-routes-from-senders-location-to-receivers-location-given-in-the-dictionary-for-each-shipment.)

### Graph data structure is used to represent network of pickup and delivery nodes. Consider a below graph diagram for given nodes in the table where sender location and receiver location is represented by node with number.

### Connection between two nodes shows route exists between those areas. E.g there exists a path from area 1 to area 2 but there is no direct route between area1 and area5. please note that this routes are bidirectional.

### To reach to area5 from area1 , delivery person can take any route like 1-2-4-5 or 1-2-3-4-5



Any graph like the one shown above can be represented by matrix shown below. presence of 1 represents the route between nodes and 0 represents there is no direct route exist between the nodes. Create matrix for the network shown above and using this matrix find all possible routes from A to B.

