## **ASSIGNMENT 4**

# **COURIER MANAGEMENT SYSTEM**

**AKILESH K** 

## Task 1

```
1.
def check_order_status():
  connection = create_connection()
  if connection:
    try:
      cursor = connection.cursor()
       Courierid=int(input("enter the courierid:"))
       query=("SELECT status FROM courier WHERE courierid = %s")
       cursor.execute(query,(Courierid,))
       result = cursor.fetchone()
       print(status)
       if result:
         status = result[0]
         if status == "Delivered":
           print("The order has been delivered.")
         elif status == "In Transit":
           print("The order is still being processed.")
         elif status == "Shipped":
           print("The order has been shipped.")
         elif status == "Cancelled":
           print("The order has been cancelled.")
         else:
```

print("Invalid order status. Please check the status again.")

```
else:
    print("Order not found.")

except Error as e:
    print(f"Error retrieving order status: {e}")

finally:
    connection.close()
```

PS C:\Users\Akilesh K\OneDrive\Documents\python class\hallenge\petpals'; & 'C:\Users\Akilesh K\AppData\Local -2023.22.1\pythonFiles\lib\python\debugpy\adapter/../. sign\courier\_management\methods\_courier.py' enter the courierid:101
The order has been shipped.

courierid	sendername	senderaddress	receivername	receiveraddress	weight	status	trackingnumber	deliverydate
101	John Sender	123 Main St, CityA	Alice Receiver	456 Oak St, CityA	2.30	Shipped	TNX123	2023-03-01
102	Bob Sender	789 Elm St, CityB	Eva Receiver	987 Pine St, CityB	3.50	In Transit	TNX456	2023-03-03
103	Charlie Sender	321 Maple St, CityC	Grace Receiver	654 Cedar St, CityC	1.80	Delivered	TNX789	2023-03-05
104	David Sender	567 Birch St, CityD	Helen Receiver	876 Spruce St, CityD	4.20	Shipped	TNX987	2023-03-07
105	Emma Sender	987 Willow St, CityE	Ivan Receiver	234 Oak St, CityE	2.70	Delivered	TNX654	2023-03-09

```
2.
```

```
def categorize_parcel(weight):
    category = None

switch_case = {
      0 < weight <= 5: "Light",
      5 < weight <= 20: "Medium",
      weight > 20: "Heavy"
}

category = switch_case.get(True, "Invalid Weight")
```

```
return category
try:
  weight = float(input("Enter the weight of the parcel: "))
except ValueError:
  print("Invalid input. Please enter a valid numeric value for weight.")
  exit()
category = categorize_parcel(weight)
print(f"The parcel with weight {weight} is categorized as {category}.")
 sign\courier_management\test.py'
 Enter the weight of the parcel: 6
 The parcel with weight 6.0 is categorized as Medium.
3.
import re
def validate_customer_information(data, detail):
  if detail.lower() == 'name':
    if re.match("^[A-Za-z]+(?: [A-Za-z]+)*$", data):
      return True
    else:
      return False
  elif detail.lower() == 'address':
    if re.match("^[A-Za-z0-9\s]+$", data):
      return True
    else:
      return False
  elif detail.lower() == 'phone number':
    if re.match("^d{3}-d{4}, data):
      return True
```

```
else:
     return False
 else:
   print("Invalid detail provided.")
   return False
 Name Validation: True
 Address Validation: True
 Phone Number Validation: True
4.
def assign_courier(shipments, couriers):
 for shipment in shipments:
   best_match = None
   min_distance = float('inf')
   for courier in couriers:
     distance = calculate_distance(shipment.location, courier.proximity)
     if distance < min_distance and shipment.weight <= courier.load_capacity:
       min distance = distance
       best match = courier
   if best match:
     best match.assigned shipments.append(shipment)
     print(f"Shipment {shipment.id} assigned to Courier {best_match.id}")
 PS C:\Users\Akilesh K\OneDrive\Documents\python clas
 hallenge\petpals'; & 'C:\Users\Akilesh K\AppData\Loc
 -2023.22.1\pythonFiles\lib\python\debugpy\adapter/..
 sign\courier_management\test.py'
Shipment 101 assigned to Courier 1
 Shipment 102 assigned to Courier 1
 Shipment 103 assigned to Courier 2
```

## Task 2

```
5.
def display_orders(customer_id, orders):
  customer_orders = []
  for order in orders:
    if order['customer_id'] == customer_id:
      customer_orders.append(order)
  if customer_orders:
    print(f"Orders for Customer ID {customer_id}:")
    for order in customer_orders:
      print(f"Order ID: {order['order_id']}, Product: {order['product']}, Amount: {order['amount']}")
  else:
    print(f"No orders found for Customer ID {customer id}")
 sign\courier_management\test.py
 Enter Customer ID to display orders: 101
 Orders for Customer ID 101:
 Order ID: 1, Product: Laptop, Amount: 1200.0
 Order ID: 3, Product: Tablet, Amount: 300.0
6.
def track_courier(courier):
  print(f"Courier {courier.courier_id} is en route to {courier.destination}.")
  while not courier.reached_destination():
    courier.update_location()
```

```
print(f"Current Location: {courier.current_location}")
    time.sleep(1)
  print(f"Courier {courier_id} has reached its destination at {courier.destination}.")
TASK 3
7.
def display_tracking_history(parcel):
  print(f"Tracking history for Parcel {parcel.parcel_id}:")
  for idx, location in enumerate(parcel.tracking_history, start=1):
    print(f"{idx}. {location}")
8.
def find_nearest_courier(order_location, couriers):
  nearest_courier = None
  min_distance = float('inf')
  for courier in couriers:
    if courier.is_available:
       distance = calculate_distance(order_location, courier.current_location)
       if distance < min_distance:
         min_distance = distance
         nearest_courier = courier
  return nearest_courier
9.
class ParcelTracker:
  def __init__(self):
```

```
self.parcel_data = [
       ["TN001", "Parcel in transit"],
       ["TN002", "Parcel out for delivery"],
       ["TN003", "Parcel delivered"],
       ["TN004", "Parcel in transit"],
    ]
  def track_parcel(self, tracking_number):
    for parcel_info in self.parcel_data:
       if parcel_info[0] == tracking_number:
         status = parcel_info[1]
         self.display_tracking_message(status)
         return
    print("Tracking number not found.")
  def display_tracking_message(self, status):
    if status == "Parcel in transit":
       print("Parcel is in transit.")
    elif status == "Parcel out for delivery":
       print("Parcel is out for delivery.")
    elif status == "Parcel delivered":
       print("Parcel has been delivered.")
tracker = ParcelTracker()
tracking_number = input("Enter parcel tracking number: ")
```

```
sign\courier_management\test.py
Enter parcel tracking number: TN001
Parcel is in transit.
10.
import re
def validate_customer_info(data, detail):
  if detail == "name":
    if data.isalpha() and data.istitle():
      return True
    else:
      return False
  elif detail == "address":
    if all(char.isalnum() or char.isspace() for char in data):
      return True
    else:
      return False
  elif detail == "phone_number":
    phone_number_pattern = re.compile(r'^\d{3}-\d{4}\')
    if phone_number_pattern.match(data):
      return True
    else:
      return False
  else:
    print("Invalid detail. Use 'name', 'address', or 'phone_number'.")
```

```
name_result = validate_customer_info("John Doe", "name")
print("Name is valid." if name_result else "Name is not valid.")
address_result = validate_customer_info("123 Main St", "address")
print("Address is valid." if address_result else "Address is not valid.")
phone_result = validate_customer_info("123-456-7890", "phone_number")
print("Phone number is valid." if phone_result else "Phone number is not valid.")
sign\courier management\test.py
Name is not valid.
Address is valid.
Phone number is valid.
PS C:\Users\Akilesh K\OneDrive\D
11.
def format_address(street, city, state, zip_code):
  formatted_street = ''.join(word.capitalize() for word in street.split())
  formatted_city = city.capitalize()
  formatted_state = state.capitalize()
  formatted_zip_code = f"{zip_code[:5]}-{zip_code[5:]}" if len(zip_code) == 9 else zip_code
  formatted_address = f"{formatted_street}, {formatted_city}, {formatted_state}
{formatted_zip_code}"
  return formatted_address
```

```
hallenge\petpals'; & 'C:\Users\Akilesh K\AppData\Local\Programs\Python\Pyth
 -2023.22.1\pythonFiles\lib\python\debugpy\adapter/../..\debugpy\launcher
 sign\courier management\test.py'
Formatted Address: 123 Main Street, Example city, Sample state 12345-6789
12.
 def generate_order_confirmation_email(self):
    email_subject = "Order Confirmation"
    email_body = f"Dear {self.customer_name},\n\n"\
          f"Thank you for placing an order with us. Your order number is {self.order_number}.\n"\
          f"Delivery Address: {self.delivery address}\n"\
          f"Expected Delivery Date: {self.expected_delivery_date}\n\n"\
           "We appreciate your business. If you have any questions, please contact us.\n\n"\
           "Sincerely,\n"\
           "Your Company Name"
    return email_subject, email_body
Subject: Order Confirmation
Body:
Dear John Doe,
Thank you for placing an order with us. Your order number is 123456.
Delivery Address: 123 Main St, Cityville, State
Expected Delivery Date: January 15, 2023
We appreciate your business. If you have any questions, please contact us.
Sincerely,
Your Company Name
13.
def calculate shipping cost(source address, destination address, parcel weight):
 base_shipping_rate = 2.5
 distance = calculate_distance(source_address, destination_address)
```

shipping\_cost = base\_shipping\_rate \* distance \* parcel\_weight

return shipping cost

```
def calculate_distance(source_address, destination_address):
 return abs(ord(source_address[0]) - ord(destination_address[0]))
PS C:\Users\Akilesh K\OneDrive\Documents\python class'
hallenge\petpals'; & 'C:\Users\Akilesh K\AppData\Local
 -2023.22.1\pythonFiles\lib\python\debugpy\adapter/../
sign\courier_management\test.py'
The shipping cost for the parcel is: $12.50
14.
import string
import random
def generate_secure_password(length=12):
 uppercase_letters = string.ascii_uppercase
 lowercase_letters = string.ascii_lowercase
 numbers = string.digits
 special_characters = string.punctuation
 all_characters = uppercase_letters + lowercase_letters + numbers + special_characters
 password = random.choice(uppercase_letters) + random.choice(lowercase_letters) +
random.choice(numbers) + random.choice(special_characters)
 for in range(length - 4):
   password += random.choice(all characters)
 password list = list(password)
 random.shuffle(password list)
 final_password = ".join(password_list)
```

return similar\_addresses

```
secure_password = generate_secure_password()
print("Generated Password:", secure_password)
 PS C:\Users\Akilesh K\OneDrive\Documents\python class\co
 hallenge\petpals'; & 'C:\Users\Akilesh K\AppData\Local\F
 -2023.22.1\pythonFiles\lib\python\debugpy\adapter/../..
 sign\courier_management\test.py'
 Generated Password: 'XV05pen\x+:
15.
def calculate_jaccard_similarity(str1, str2):
 set1 = set(str1.lower().split())
 set2 = set(str2.lower().split())
 intersection = len(set1.intersection(set2))
 union = len(set1.union(set2))
 return intersection / union if union != 0 else 0
def find_similar_addresses(target_address, addresses, threshold=0.5):
 similar_addresses = []
 for address in addresses:
    similarity = calculate_jaccard_similarity(target_address, address)
    if similarity >= threshold:
     similar_addresses.append(address)
```

```
PS C:\Users\Akilesh K\OneDrive\Documents\python class\coding
hallenge\petpals'; & 'C:\Users\Akilesh K\AppData\Local\Program
-2023.22.1\pythonFiles\lib\python\debugpy\adapter/../..\debugp
sign\courier_management\test.py'
Similar addresses to '123 Main St, Cityville, State':
123 Main St, Cityville, State
124 Main St, Cityville, State
```

#### Task 5

```
1.
class User:
  def __init__(self, userID, userName, email, password, contactNumber, address):
    self.userID = userID
    self.userName = userName
    self.email = email
    self.password = password
    self.contactNumber = contactNumber
    self.address = address
2.
class Courier:
  def init (self, courierID, senderName, senderAddress, receiverName, receiverAddress, weight,
status, trackingNumber, deliveryDate, userId):
    self.courierID = courierID
    self.senderName = senderName
    self.senderAddress = senderAddress
    self.receiverName = receiverName
    self.receiverAddress = receiverAddress
    self.weight = weight
    self.status = status
    self.trackingNumber = trackingNumber
    self.deliveryDate = deliveryDate
    self.userId = userId
```

```
class Employee:
  def __init__(self, employeeID, employeeName, email, contactNumber, role, salary):
    self.employeeID = employeeID
    self.employeeName = employeeName
    self.email = email
    self.contactNumber = contactNumber
    self.role = role
    self.salary = salary
4.
class Location:
  def __init__(self, locationID, locationName, address):
    self.locationID = locationID
    self.locationName = locationName
    self.address = address
5.
class CourierCompany:
  def __init__(self, companyName):
    self.companyName = companyName
    self.courierDetails = []
    self.employeeDetails = []
    self.locationDetails = []
6.
class Payment:
  def __init__(self, paymentID, courierID, amount, paymentDate):
    self.paymentID = paymentID
    self.courierID = courierID
    self.amount = amount
    self.paymentDate = paymentDate
```

```
class ICourierUserService(ABC):
  @abstractmethod
  def place_order(self, courier_obj):
    pass
  @abstractmethod
  def get_order_status(self, tracking_number):
    pass
  @abstractmethod
  def cancel_order(self, tracking_number):
    pass
  @abstractmethod
  def get_assigned_orders(self, courier_staff_id):
    pass
class ICourierAdminService(ABC):
  @abstractmethod
  def add_courier_staff(self, name, contact_number):
    pass
class CourierUserService(ICourierUserService):
  def place_order(self, courier_obj):
    pass
  def get_order_status(self, tracking_number):
    pass
```

```
def cancel_order(self, tracking_number):
    pass
  def get_assigned_orders(self, courier_staff_id):
    pass
class CourierAdminService(ICourierAdminService):
  def add_courier_staff(self, name, contact_number):
    pass
TASK 7
class CourierService:
  def get_order_status(self, tracking_number):
    if not self.tracking_number_exists(tracking_number):
      raise TrackingNumberNotFoundException
  def get_assigned_orders(self, courier_staff_id):
    if not self.is_valid_employee_id(courier_staff_id):
      raise InvalidEmployeeIdException
  def tracking_number_exists(self, tracking_number):
    return True
  def is_valid_employee_id(self, employee_id):
    return True
```

#### Main

```
from datetime import datetime
import mysql.connector
from mysql.connector import Error
# Your existing code for class definitions, create_connection, and other functions goes here...
def main():
  while True:
    print("\nCourier Management System Menu:")
    print("1. Display Courier Summary")
    print("2. Check Order Status")
    print("3. Update Order Status")
    print("4. Add New Order")
    print("5. Delete Order")
    print("6. Exit")
    choice = input("Enter your choice (1-6): ")
    if choice == "1":
      display_courier_summary()
    elif choice == "2":
      check_order_status()
    elif choice == "3":
      update_value_in_table()
    elif choice == "4":
      add_new_order()
    elif choice == "5":
      delete_value_in_table()
    elif choice == "6":
      print("Exiting the Courier Management System. Goodbye!")
```

```
break
    else:
      print("Invalid choice. Please enter a number between 1 and 6.")
if __name__ == "__main__":
  main()
Data connection
from datetime import datetime
import mysql.connector
from mysql.connector import Error
# Database connection
def create_connection():
  try:
    connection = mysql.connector.connect(
      host="localhost",
      user="root",
      password="root",
      port='3306',
      database="courier management"
    return connection
  except Error as e:
```

print(f"Error connecting to the database: {e}")

# To display courier summary

return None

```
def display_courier_summary():
  connection = create_connection()
  if connection:
    try:
       cursor = connection.cursor()
       courierid=int(input("enter courier ID:"))
       select_query=("SELECT * from courier where courierid = %s ")
       cursor.execute(select_query,(courierid,))
       cdata = cursor.fetchall()
       print("courier summary:")
       for courierd in cdata:
          print(courierd)
     except Error as e:
       print(f"Error retrieving data: {e}")
    finally:
       connection.close()
enter courier ID:101
courier summary:
(101, 'John Sender', '123 Main St, CityA', 'Alice Receiver', '456 Oak St, CityA', Decimal('2.30'), 'Shipped', 'TNX123', datetime.date(2023, 3, 1))
Name Validation: True
Address Validation: True
Phone Number Validation: True
To show the status of the courier
def check_order_status():
  connection = create_connection()
  if connection:
     try:
       cursor = connection.cursor()
```

```
Courierid=int(input("enter the courierid:"))
  query=("SELECT status FROM courier WHERE courierid = %s")
  cursor.execute(query,(Courierid,))
  result = cursor.fetchone()
  if result:
    status = result[0]
    if status == "Delivered":
      print("The order has been delivered.")
    elif status == "In Transit":
      print("The order is still being processed.")
    elif status == "Shipped":
      print("The order has been shipped.")
    elif status == "Cancelled":
      print("The order has been cancelled.")
    else:
      print("Invalid order status. Please check the status again.")
  else:
    print("Order not found.")
except Error as e:
  print(f"Error retrieving order status: {e}")
finally:
  connection.close()
```

PS C:\Users\Akilesh K\OneDrive\Documents\python hallenge\petpals'; & 'C:\Users\Akilesh K\AppData -2023.22.1\pythonFiles\lib\python\debugpy\adapte sign\courier\_management\methods\_courier.py' enter the courierid:101
The order has been shipped.

# To update status of the courier

```
def update_value_in_table():
    connection = create_connection()
    if connection:
        try:
            cursor = connection.cursor()
            courierid=int(input("enter courierid:"))
            new_status=input("enter the new status:")
            update_query = ("UPDATE courier SET status = %s WHERE courierid = %s")
            cursor.execute(update_query, (new_status, courierid))

            connection.commit()
            print(f"Updated value in the database.")

except Error as e:
            print(f"Error updating value in the table: {e}")

finally:
            connection.close()
```

```
PS C:\Users\Akilesh K\OneDrive\Documents\python c:
hallenge\petpals'; & 'C:\Users\Akilesh K\AppData\I
-2023.22.1\pythonFiles\lib\python\debugpy\adapter,
sign\courier_management\methods_courier.py'
enter courierid:103
enter the new status:In Transit
Updated value in the database.
```

#### Add new order

```
def add_new_order():
    connection = create_connection()
    if connection:
        try:
            courierid=generate_courier_number()
            sender_name = input("Enter sender name: ")
            weight = float(input("Enter weight: "))
            sender_address = input("Enter sender address: ")
            receiver_name = input("Enter sender name: ")
            receiver_address = input("Enter receiver adress: ")
            status="In Transit"
            trackingno=generate_tracking_number()
            delivery_date = datetime.now().strftime("%Y-%m-%d")
            cursor = connection.cursor()
```

```
PS C:\Users\Akilesh K\OneDrive\Documents\python class\coding hallenge\petpals'; & 'C:\Users\Akilesh K\AppData\Local\Progra -2023.22.1\pythonFiles\lib\python\debugpy\adapter/../..\debug sign\courier_management\methods_courier.py'

Enter sender name: aki
Enter weight: 3.5
Enter sender address: 15th cross
Enter sender name: hari
Enter receiver adress: steve avenue courier details recorded successfully!
```

ourierid	sendername	senderaddress	receivername	receiveraddress	weight	status	trackingnumber	deliverydate
101	John Sender	123 Main St, CityA	Alice Receiver	456 Oak St, CityA	2.30	Shipped	TNX123	2023-03-01
102	Bob Sender	789 Elm St, CityB	Eva Receiver	987 Pine St, CityB	3.50	In Transit	TNX456	2023-03-03
103	Charlie Sender	321 Maple St, CityC	Grace Receiver	654 Cedar St, CityC	1.80	In Transit	TNX789	2023-03-05
104	David Sender	567 Birch St, CityD	Helen Receiver	876 Spruce St, CityD	4.20	Shipped	TNX987	2023-03-07
105	Emma Sender	987 Willow St, CityE	Ivan Receiver	234 Oak St, CityE	2.70	Delivered	TNX654	2023-03-09
1001	aki	15th cross	hari	steve avenue	3.50	In Transit	2001	2023-12-25

```
def delete_value_in_table():
    connection = create_connection()
    if connection:
        try:
            cursor = connection.cursor()
            courierid=int(input("enter courierid:"))

            delete_query = ("DELETE FROM courier WHERE courierid = %s")
            cursor.execute(delete_query, ( courierid,))

            connection.commit()
            print(f"deleted value in the database.")

except Error as e:
            print(f"Error deleting value in the table: {e}")

finally:
            connection.close()
```

```
PS C:\Users\Akilesh K\OneDrive\Documents\python class\co
hallenge\petpals'; & 'C:\Users\Akilesh K\AppData\Local\F
-2023.22.1\pythonFiles\lib\python\debugpy\adapter/../..\
sign\courier_management\methods_courier.py'
enter courierid:1001
deleted value in the database.
```

ourierid	sendername	senderaddress	receivername	receiveraddress	weight	status	trackingnumber	deliverydate
101	John Sender	123 Main St, CityA	Alice Receiver	456 Oak St, CityA	2.30	Shipped	TNX123	   2023-03-01
102	Bob Sender	789 Elm St, CityB	Eva Receiver	987 Pine St, CityB	3.50	In Transit	TNX456	2023-03-03
103	Charlie Sender	321 Maple St, CityC	Grace Receiver	654 Cedar St, CityC	1.80	In Transit	TNX789	2023-03-05
104	David Sender	567 Birch St, CityD	Helen Receiver	876 Spruce St, CityD	4.20	Shipped	TNX987	2023-03-07
105	Emma Sender	987 Willow St, CityE	Ivan Receiver	234 Oak St, CityE	2.70	Delivered	TNX654	2023-03-09