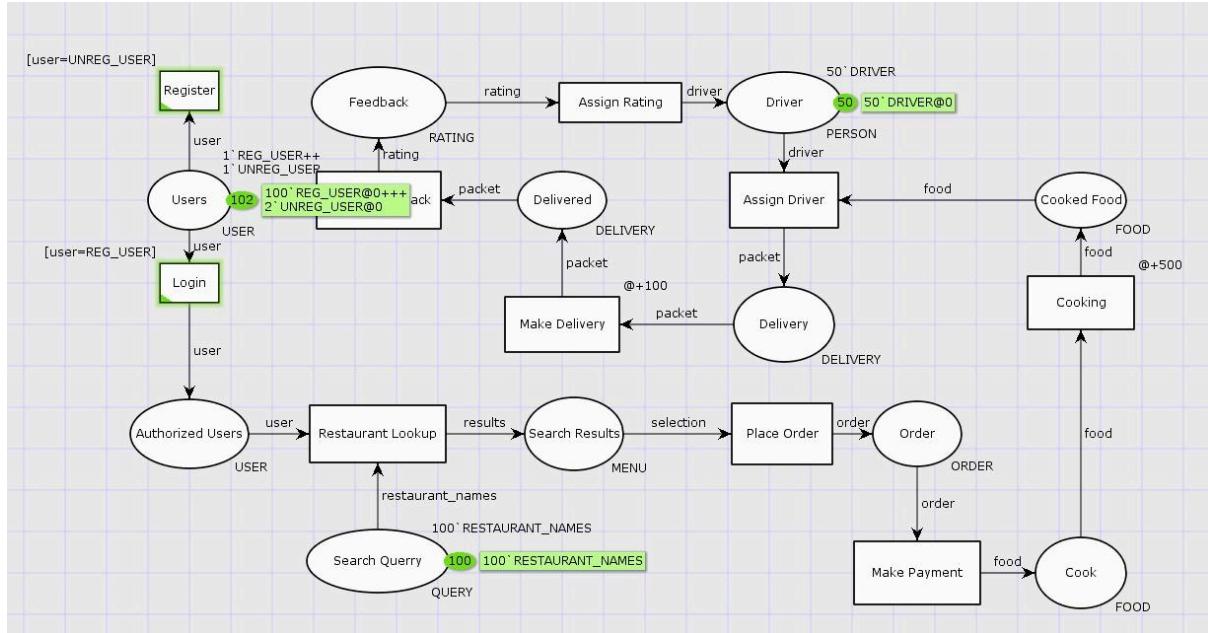


# Colored Petri Net Model – Food Delivery System

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## 1. Color Sets (Colsets)

These define the types of data (tokens) used in the system.

```

colset USER   = with REG_USER | UNREG_USER timed;
colset QUERY  = with RESTAURANT_NAMES;
colset MENU   = with RESULT;
colset ORDER  = with ORDER;
colset FOOD   = with FOOD timed;
colset PERSON = with DRIVER timed;
colset DELIVERY = with PACKET timed;
colset RATING = with FEEDBACK timed;
```

---

## 2. Variables

These are the symbolic variables used to describe token values passed between transitions.

```

var user : USER;
var restaurant_names : QUERY;
var results, selection : MENU;
var order : ORDER;
```

```

var food : FOOD;
var driver : PERSON;
var packet : DELIVERY;
var rating : RATING;

```

---

### 3. Places

Each place represents a state in the workflow and is typed with a color set.

Place Name	Color Set	Description
Users	USER	Holds registered or unregistered users.
Authorized Users	USER	Holds authenticated users after login.
Search Query	QUERY	Contains user-submitted restaurant search queries.
Search Results	MENU	Holds the results returned from the restaurant lookup.
Order	ORDER	Stores the structured order data submitted by users.
Cooked Food	FOOD	Holds food after cooking is completed.
Driver	PERSON	Represents available delivery drivers.
Delivery	DELIVERY	Holds packets in the process of being delivered.
Delivered	DELIVERY	Contains successfully delivered packets.
Feedback	RATING	Stores ratings and feedback from users.

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### 4. Transitions

Transitions describe the actions or events that move tokens between places.

Transition	Input Places	Output Places	Function
Register	Users	Users	Registers a user, changing their type to REG_USER.
Login	Users	Authorized Users	Validates a REG_USER for system access.
Restaurant Lookup	Authorized Users, Search Query	Search Results	Matches search query to restaurants.

Place Order	Search Results	Order	User selects menu item and places an order.
Make Payment	Order	Order	Processes payment associated with the order.
Cook	Order	Food	Begins the food preparation.
Cooking	Food	Cooked Food	Completes food preparation.
Assign Driver	Driver, Cooked Food	Delivery	Assigns a driver and food to form a delivery packet.
Make Delivery	Delivery	Delivered	Completes delivery to the user.
Assign Rating	Delivered	Feedback	Collects rating after delivery.

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## 5. System Behavior Overview

1. Users can register and log in to become authorized.
2. Authorized users submit search queries to find restaurants.
3. After viewing search results, they place an order and make a payment.
4. The order is cooked, and a driver is assigned to deliver the food.
5. After delivery, the user provides feedback, closing the loop.