Requirements:

1. Search a restaurant by name
2. Order food by choosing menu items, quantity and adding a note.
3. User can also fills in delivery address.
4. User should be able to pay.

Services:

1. Restaurant & menu & menu items
2. Order
3. Payment

*The latter two might be merged, since they are strongly related.

APIs summary:

1. Restaurant & menu & menu items
    a. Query restaurant by name
    b. Query menu by restaurant's ID
    c. Query menu items by menu's ID
2. Order
    a. Place an order & Return order number
    b. Query estimate delivery time
3. Payment
    a. Pay for an order & Return payment ID, timestamp or failure status
    b. Send a message to order service when succeed

Flow:

Query restaurant -> query menu -> query menu items -> place order -> pay the bill -> payment service notify order service

Database:

1. Restaurant & menu & menu items
    a. Relational database
    b. Three table - because they are one to many and we can query restaurant info without querying its menu
2. Order
    a. mongoDB
3. Payment
    a. mongoDB or relational database (structured, query by id)

APIs details:

It is hard to describe the structure of parameter/return value before we define the fields of classes.

1. Restaurant & menu & menu items
    a. foo.com/restaurants/[id]

i. **POST (name, description, the list of menu id (nullable), address)**

ii. **GET return id, name, description, the list of menu id, address**

iii. PUT request includes all fields restaurants have

b. foo.com/menus

   i. **POST create a menu**

   ii. **GET return menu info**

   iii. PUT modify menu info

c. foo.com/menu_items

2. Order
   - a. foo.com/orders
     - i. **POST (the list of menu items' id, address and notes). Return failure by http status or order id**
   - b. foo.com/orders/[id]
     - i. **GET - query info**
     - ii. DELETE - cancel an order
     - iii. PUT - modify an order
3. Payment
   - a. foo.com/payment
     - i. **POST create a payment by passing order number. If succeed, the service should notify order service**
   - b. foo.com/payment/[id]
     - i. **GET Return isSucceeded**