

# **Serverless Backend as a Service (BaaS)**

## **ALLOWS YOU TO:**

- Provide data for client (e.g. an app: web, native, Wechat Mini Program)
- Provide service to customers (e.g. sms, payment)

# BaaS (Backend as a Service)

BaaS is a cloud service model that comes with:

- Server
- Database
- APIs

BaaS + Frontend = SaaS, aka App

Do we still need a **backend developer**? 🤔

	Backend Developer	BaaS
APIs	Develops functional APIs	Offers commonly-used APIs
Database	Manages the database they built themselves	Developers can create/update tables w/o building the backend themselves
Read/Write Data	Builds a read/write API	Tables come with a built-in read/write API
User Log-in	Builds a log-in API (usually takes 2-3 weeks)	Comes with a log-in support API
WeChat/SNS Notifications	Works with WeChat/SNS platforms to build the API	Comes with a notification support API

# Data and Schema

How is data stored?

# Excel

Let's start with something we all know

## Example

Let's store **cities** and their **inhabitants** using Excel. How would you do it?



cities-inhabitants.xlsx

Rechercher dans la feuille

Accueil Mise en page Tableaux Graphiques SmartArt Formules

F1

	A	B	C	D	E	F	G
1		first_name	last_name	age	city		
2		Julian	Dancy	12	London		
3		Pierre	Dupont	48	Paris		
4		Marie	Durand	35	Paris		
5		Victoria	Davis	17	London		
6		Audrey	Lapierre	24	Paris		
7		Angelique	Lefevre	34	Paris		
8		Melissa	Devlin	41	New York		
9							
10							
11							
12							
13							
14							

cities inhabitants +

Mode Normal Prêt

cities-inhabitants.xlsx

Rechercher dans la feuille

Accueil Mise en page Tableaux Graphiques SmartArt Formules

D1

	A	B	C	D	E	F	G
1		name	surface				
2		Paris	105				
3		London	1572				
4		New York	1214				
5							
6							
7							
8							
9							
10							
11							
12							
13							
14							

cities +

Mode Normal Prêt

cities-inhabitants.xlsx

Rechercher dans la feuille

Accueil Mise en page Tableaux Graphiques SmartArt Formules

D1

	A	B	C	D	E	F	G
1	id	name	surface				
2		1 Paris	105				
3		2 London	1572				
4		3 New York	1214				
5							
6							
7							
8							
9							
10							
11							
12							
13							
14							

cities inhabitants +

Mode Normal Prêt

cities-inhabitants.xlsx

Rechercher dans la feuille

Accueil Mise en page Tableaux Graphiques SmartArt Formules

A9

	A	B	C	D	E	F	G
1	id	first_name	last_name	age	city_id		
2	1	Julian	Dancy	12	2		
3	2	Pierre	Dupont	48	1		
4	3	Marie	Durand	35	1		
5	4	Victoria	Davis	17	2		
6	5	Audrey	Lapierre	24	1		
7	6	Angelique	Lefevre	34	1		
8	7	Melissa	Devlin	41	3		
9							
10							
11							
12							
13							
14							

cities inhabitants +

Mode Normal Prêt

## 1:n relation (one to many)

An inhabitant **belongs to one** city

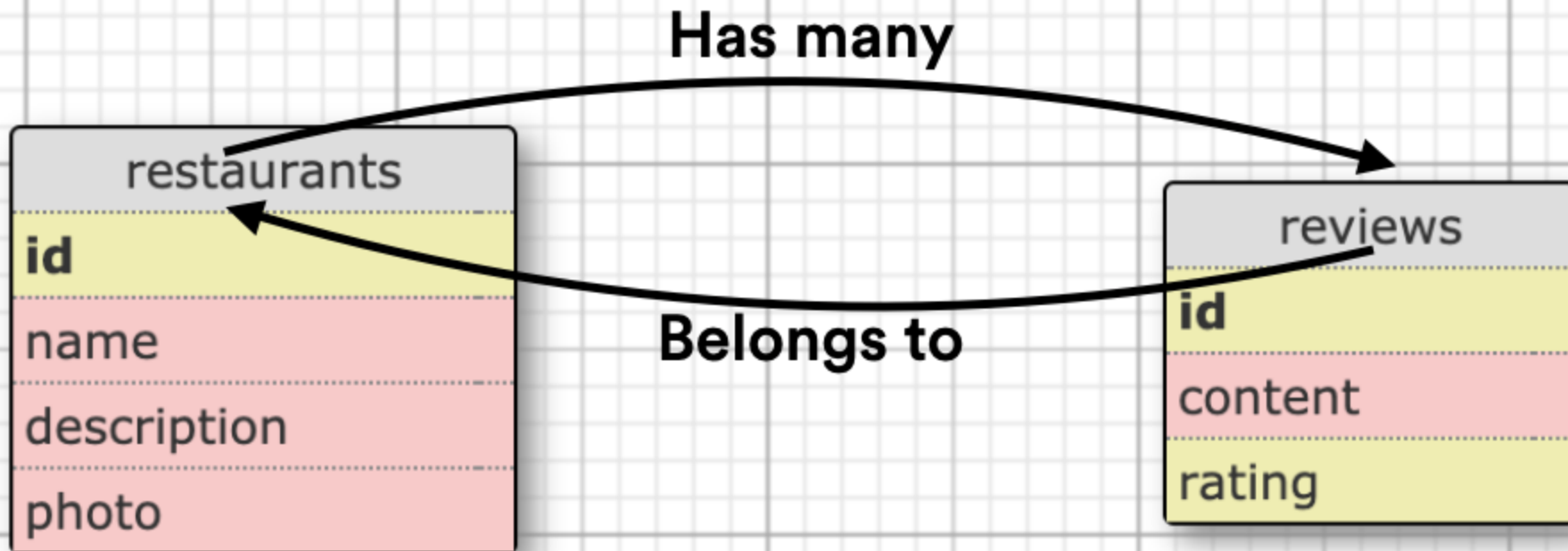
A city **has many** inhabitants

# Dianping Data Schema

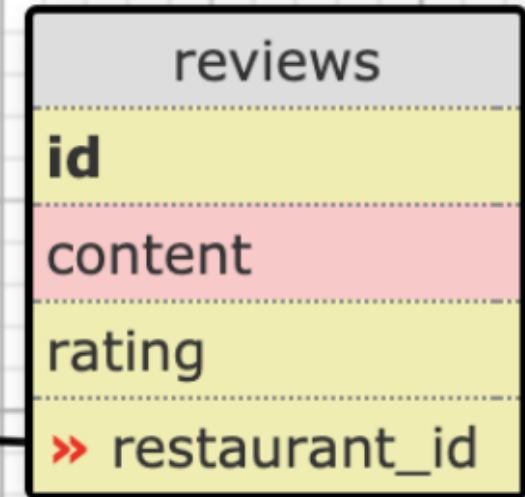
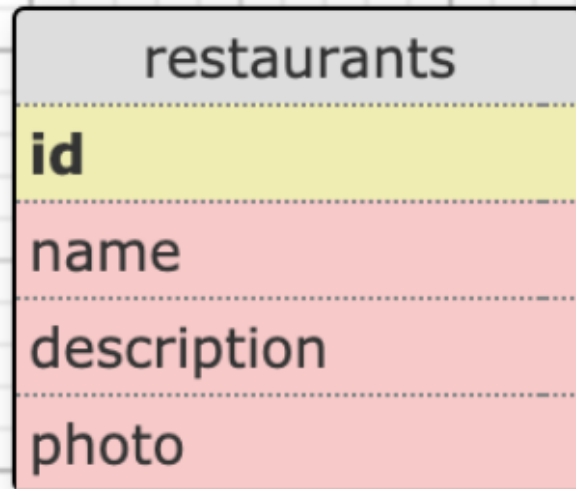
restaurants
<b>id</b>
name
description
photo

reviews
<b>id</b>
content
rating

# Relationship



## IDs → Foreign Key



Foreign key/pointer



# Agenda

This week you'll be building a Dianping clone.

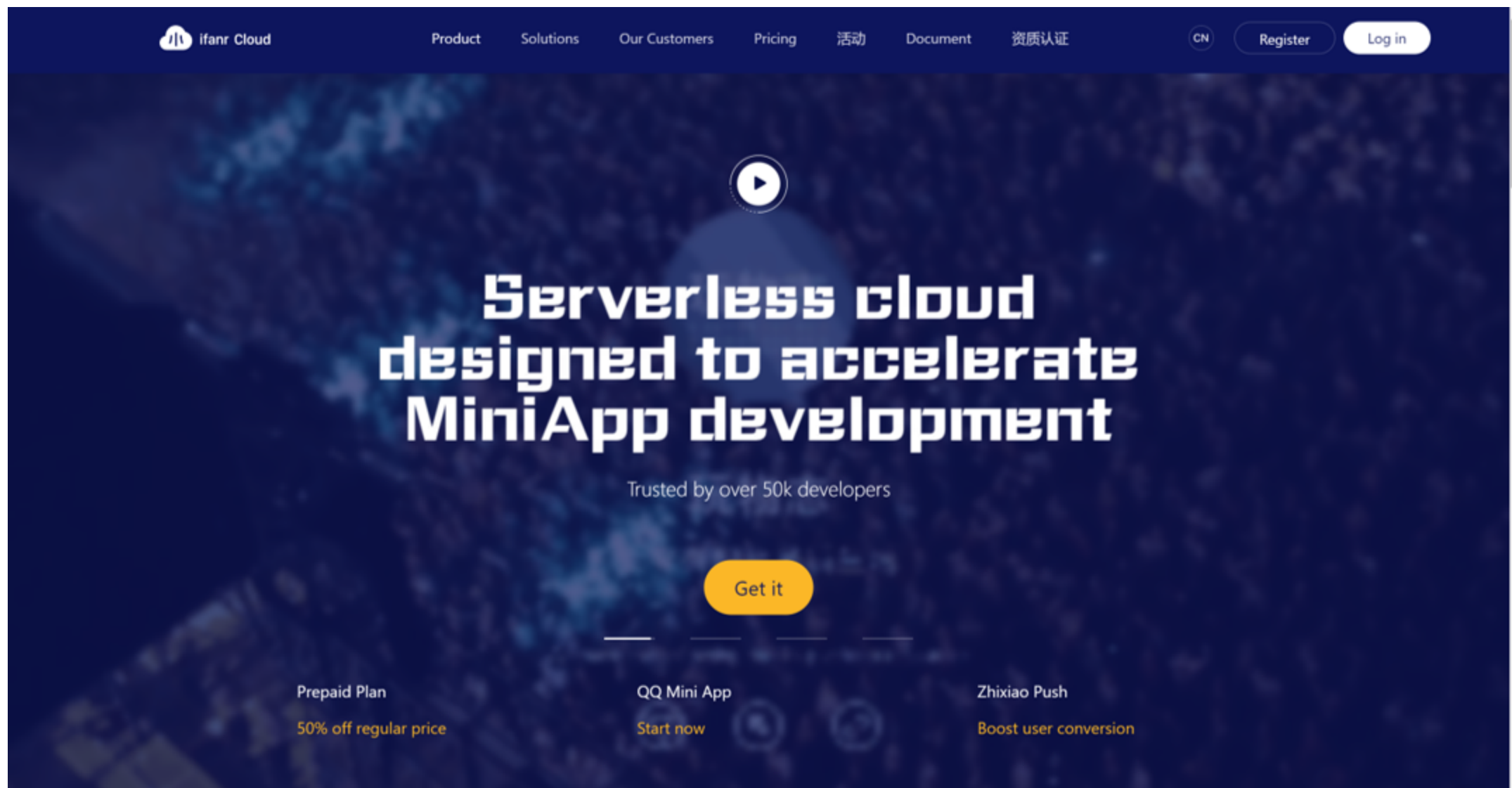
Many things will be the same as last weeks mini program.

But we are replacing APIs with an SDK! 🌟

An SDK (software development kit) is a collection of objects and methods that come in an installable package

**Let's set up the backend!**

We'll use [ifanr](#) moving forward



Register an [account](#) now

## Live Code 1: Setting Up BaaS

- Install the SDK
- Create tables
- Add data

1 Authorize MiniApp

2 access SDK

3 Complete initialization

## Please authorize the miniapp first

You don't have a MiniApp? [Register now](#)

Authorize now



Zhixiao Classroom

Develop a large number of tutorial resources



Follow our official account

Get work order progress in real time

## To link the BaaS to our mini-program

WeChat / MiniApp authorization wizard



SDK MiniApp plugin version (recommended)

SDK js file version (the server domain name needs to be configured)

The plugin version of SDK will take up one MiniAppplugin quota (one MiniApp can only use 5 plugins concurrently).  
The plug-in version of SDK 1.5.1 and above requires a MiniApp base library of 2.1.0 and above.

Back

Next

## To access the plugin SDK



Authorize MiniApp



access SDK



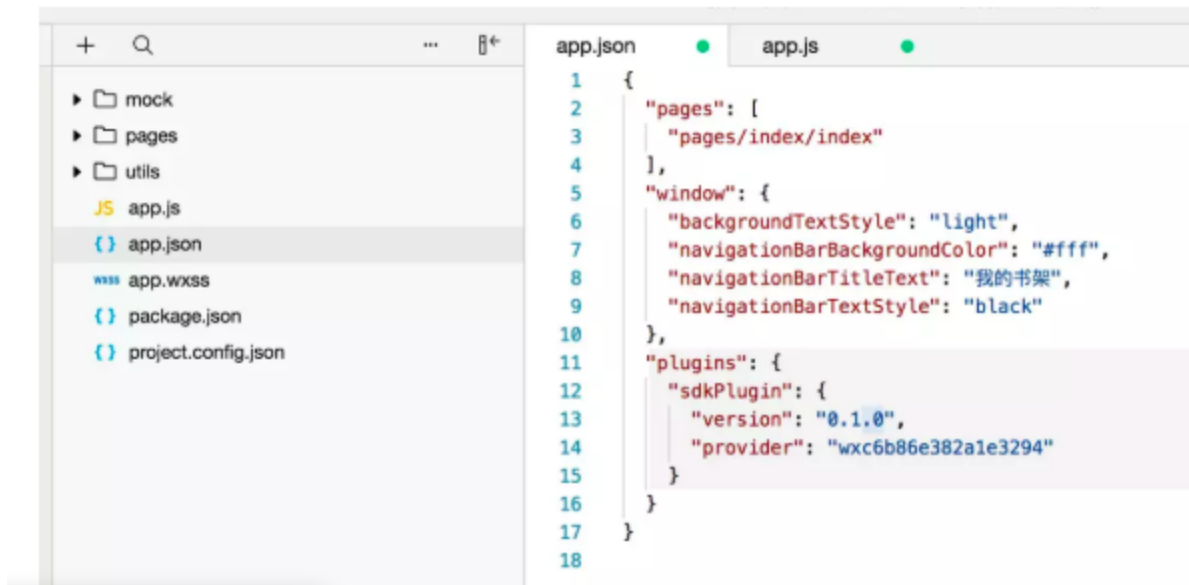
3 Complete initialization

## 1. Download [WeChat Developer Tools](#), open the MiniApp project and enter the editor



AppID: wx6ele01322fd9850e

add a reference statement of plugin in app.json



```
"plugins": {
  "sdkPlugin": {
    "version": "2.4.0",
    "provider": "wxc6b86e382a1e3294"
  }
}
```



## **Installing the SDK**

As simple as following a set of instructions

# 1. Applying AppID

The screenshot shows the 'New Project' dialog for creating a Mini Program. The sidebar on the left lists project types: Mini Program Project, Mini Program (selected), Mini Game, Mini Code, WeChat Web Project, and WeChat Web. The main form contains the following fields:

- ProjectName:** miniprogram-5
- Directory:** C:\Users\pnzhu\WeChatProjects\miniprogram-5
- AppID:** (Empty field, highlighted with a red rectangle)
- Dev Mode:** Mini Program
- Backend Service:** ☒ Use no cloud service, ☐ Mini Program Cloud Base
- Language:** JavaScript

Below the AppID field, there is a note: "If no AppID, please [Register](#) Or use [Test Account](#)".

At the bottom, there is a 'Logout >' button and 'Cancel' and 'Create' buttons.

\*Tip: If you're already using a Test or Tourist AppID, you can modify the AppID in your mini-program's 'Details' tab\*

## 2. Referencing the plugin SDK

```
// app.json
//... other configurations
"plugins": {
  "sdkPlugin": {
    "version": "2.3.0",
    "provider": "wxc6b86e382a1e3294" //This BaaS id doesn't change
  }
}
```

### 3. Configuring the SDK

```
// app.js
App({
  onLaunch: function() {
    wx.BaaS = requirePlugin('sdkPlugin')
    // enables login, payment, and other features
    wx.BaaS.wxExtend(wx.login,
      wx.getUserInfo,
      wx.requestPayment)

    const clientID = 'c1e7a280f6d8c8646756' // The ClientID received by the backend
    wx.BaaS.init(clientID)

    // Login as anonymous user (we will create real users on Thursday!)
    wx.BaaS.auth.anonymousLogin().then(user => {
      console.log(user)
    }).catch(err => {
      // Error handling
    })
  },
})
```

## Creating Tables

# Creating a table

## Create table



Table name

restaurants

Data sheet notes

There will be less bugs if your comments are well written.

ACL

### Set data table entry permission (new)



Public

需要先创建临时用户



Logged-in user



User group



Private

### Set the default read and write permissions for the row (query, modify, delete)

Public



Read



Write

需要先创建临时用户

Logged-in user



Read



Write

Creator



Read



Write

## Adding fields or **columns** to a table while setting their **data type** and *\*properties*

### Add column



Column  
name

name

Column  
type

string



The following are advanced options, not required

Column  
comm...

Column comment

Default  
value

*undefined* ( 点击编辑 )



### Set the default properties of this column

Permis...

☐

Read Only

☐

The client is not visible

☐

Visible only to the creator

# Adding a foreign key (called pointer in minapp) field to the child table

\*e.g. A restaurant can have multiple reviews

Add columnX

Column name

restaurant\_id

Column type

pointer

Associ...  
Table

restaurants

The following are advanced options, not required

Column comm...

Column comment

Default value

undefined ( 点击编辑 )

## Set the default properties of this column

Permis

☐ Read Only

☐ The client is not visible



**Adding Data**

# Adding rows

Add a data row



name

McDonald's



description

I'm lovin' it!



created\_by

80209474

created\_at

Select date



updated\_at

Select date



## Set the read/write permissions for this row

Public



Read



Write

需要先创建临时用户

Logged-in user



Read



Write

# Adding data to a child row

stories meta Add column Add row Index settings Query Show columns Display density ... ↺ ↻ ↗

<input type="checkbox"/>	id id	content string	name string	created_b integer	Operation	
<input type="checkbox"/>	5d97ca7357218247cb5...	For whom the bell tolls	Hemingway	62515084	Edit	Delete
<input type="checkbox"/>	5d9618bf5721826d1d5...	An unexamined life is n...	Socrates	62515084	Edit	Delete

5d9618bf5721826d1d517e80

2 data < 1 > 20 / page Goto

Your turn!

**EXERCISE 1: CREATE THE BACKEND** 💪

**Applying the backend!**

## Reading Data

Implementing the **Read** feature of CRUD with the BaaS **SDK** instead of an API

**Live Code 2: Read (all)** 

With the `find` function in the [SDK](#), fetching data is just these few lines:

```
// index.js, in onLoad function
let tableName = 'restaurants'

let Restaurant = new wx.BaaS.TableObject(tableName)

Restaurant.find().then(dosomething)
```

`dosomething` should be replaced by the function that handles the **request response**



Your turn!

**EXERCISE 2: READ ALL RESTAURANTS** 

**Live Code 3: Read (one)** 

Use the `get` function in the [SDK](#)

```
// show.js, in onLoad function
onLoad: function (options) {

  let tableName = 'restaurants'

  let Restaurant = new wx.BaaS.TableObject(tableName)

  let recordID = options.id // e.g. '59897882ff650c0477f00485'

  Restaurant.get(recordID).then(dosomething)
},
```

Your turn!

**EXERCISE 3: READ ONE RESTAURANT** 🍷

Not challenging enough?

**Live Code 4: Read (all for one) 🧑💻**

## Define the **child table**

```
// show.js, in onLoad function  
let tableName = 'reviews'  
let Review = new wx.BaaS.TableObject(tableName)
```

How do we get specific data? This brings us to **queries**

## Querying

What is a query? Think of it as a search function in your table

You can search text, numbers, booleans... any type with exact matching or operations like  $>$ ,  $<=$ ,  $!=$  ...

Chances are you've been using that without knowing. Anytime you use a search bar! You are querying ;-)



## Define a query

```
//... Define Review in onLoad function as above

// Instantiate the query object
let query = new wx.BaaS.Query()

// Get the restaurant you retrieved earlier from page's data
let restaurant = this.data.restaurant

// Set conditions to a query...
query.compare('restaurant_id', "=", restaurant.id)

// Run the query
Review.setQuery(query).find().then(dosomething)
```

Lots of queries are possible, including [chaining](#) them!

Your turn!

**EXERCISE 4: READ REVIEWS FOR ONE RESTAURANT** 🦾

**Happy 1st day of BaaS!**