



# Flutter

Week 5

4123006 การพัฒนาโปรแกรมประยุกต์บน  
อุปกรณ์เคลื่อนที่ 3 (2-2-5)



# Database in Flutter

- ใน Flutter การจัดเก็บข้อมูลจะมี 3 รูปแบบที่นิยมใช้คือ

1. **Relational** เป็นฐานข้อมูลแบบเป็น Table มี Relational เป็น database มี primary key ทุก table จะสามารถกำหนด Relation เชื่อมกันได้ใน Flutter จะใช้ Sqflite เป็น ฐานข้อมูลที่พัฒนาต่อยอดจาก sqlite นั้นเอง

2. **NoSQL** ฐานข้อมูลที่ไม่อาศัย Relational เหมาะกับข้อมูลขนาดใหญ่ และสามารถขยายได้เรื่อยๆ โดยไม่ต้องใช้หลักการ Table แบบ Relational ใน Flutter จะใช้ Firebase - online NoSQL storage โดยใช้ Service เชื่อมไปยังฐานข้อมูลเช่น MongoDB

3. **Individually tailored data storage** เก็บเป็นไฟล์ไว้บน Device เช่นการบันทึกไฟล์ json เก็บไว้บนเครื่องเลย

# Week 5 app sqflite

1 แก้ไขไฟล์ pubspec.yaml เพิ่ม sqflite ลงไป

```
dependencies:  
  flutter:  
    sdk: flutter  
  sqflite: ^1.3.2+2  
  path_provider: ^1.6.27
```

2 สร้างไฟล์ `database_helper.dart` สำหรับสร้าง `database` และจัดการ `database` โดยสามารถทำ **CRUD**  
C=Create R=Read U=Update D=Delete

3 ปุ่ม Insert Query Update Delete เมื่อกดให้ดำเนินการกับ `database` ที่สร้าง



ตัวอย่างโค้ด เว็บ [kungtee](http://kungtee.com) เรื่อง `week5_sqflite`

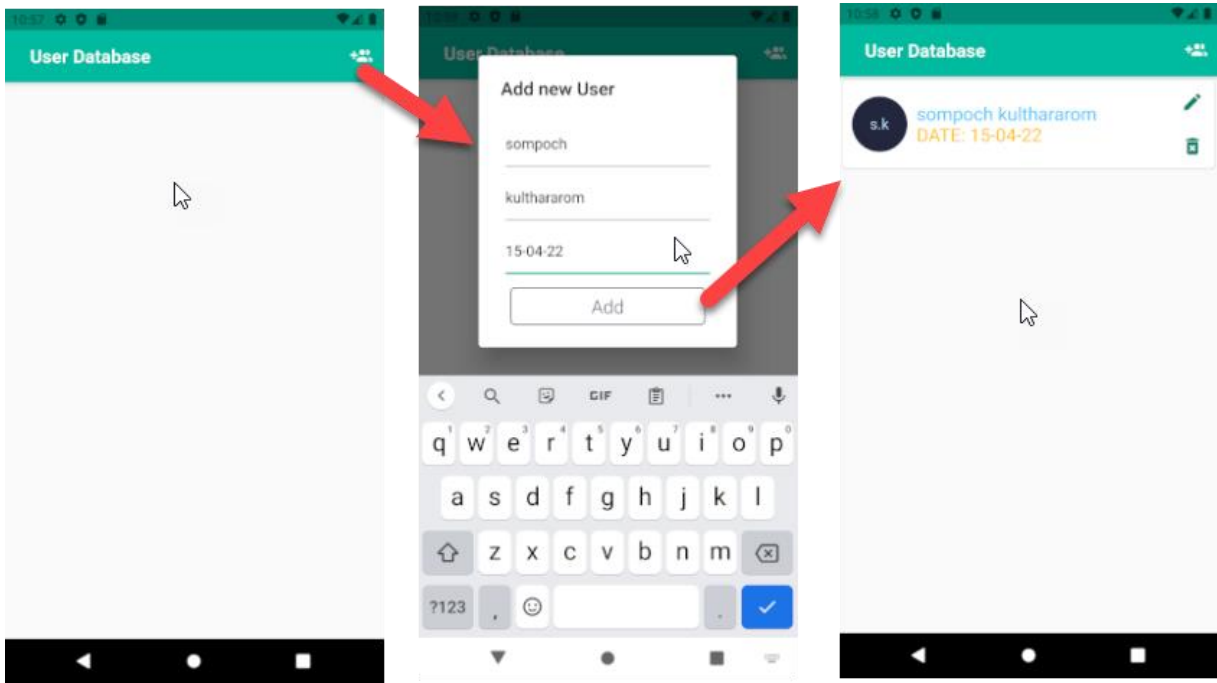
# Week 5 app sqflite นำ BMI มาบันทึกลงฐานข้อมูล



- สร้าง model bmi.dart เพื่อเก็บค่า หน้าหนัก ส่วนสูงและผลลัพธ์
- สร้าง database\_helper.dart เพื่อทำการ connect สร้าง db table รวมทั้งการ query ข้อมูล
- Bmi นำข้อมูลมาแสดงผล โดยการกดปุ่มแล้วบันทึกข้อมูลลงใน db แล้วเรียกข้อมูลล่าสุดมาแสดง

# Week 5 app sqflite 2

- การบันทึกข้อมูล employee บนแอป ลงไปใน Sqlite



ตัวอย่างโค้ด เว็บไซต์ kungtee เรื่อง week5\_sqflite2

- 1. **user.dart** is a POJO and table for the database.
- 2. **database\_hepler.dart** is our database utility class. Here, we handle our project CRUD operations.
- 3. **add\_user\_dialog.dart** is a dialog. With the help of this user interface, we can store and edit the database.
- 4. **home\_presenter.dart** will maintain a business layer of the app.
- 5. **homescreen.dart** will display the first screen of the project.
- 6. **list.dart** will show a list of users that is stored in the

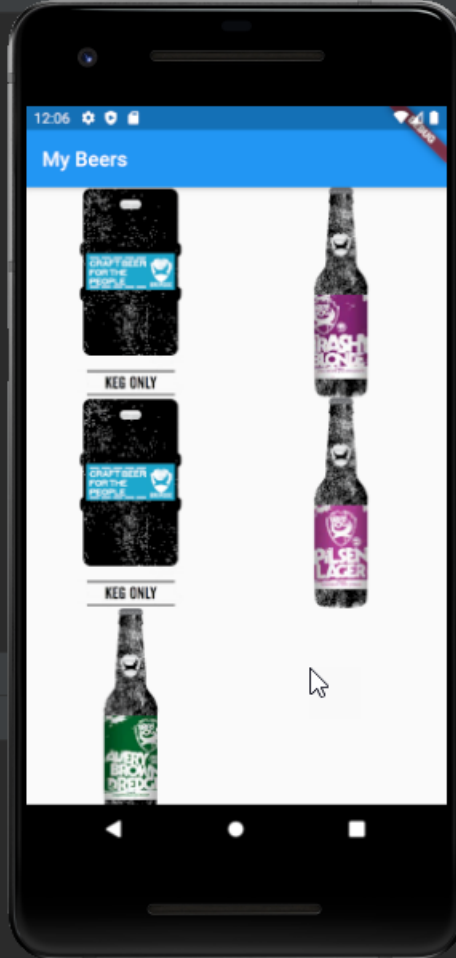
# ดึงค่าจากเว็บ api มาแสดง

```
import 'dart:convert';

import 'package:flutter/material.dart';
import 'package:http/http.dart' as http;
import 'beer.dart';

Future<List<Beer>> getBeers() async {
  String url = 'https://api.punkapi.com/v2/beers?per_page=5';
  http.Response response = await http.get(url);

  // Try to convert json to dart object
  List<Beer> allBeers = new List();
  List<dynamic> beers = json.decode(response.body);
  for (var beerJson in beers) {
    var beer = Beer.fromJson(beerJson);
    allBeers.add(beer);
  }
}
```



```
api.punkapi.com/v2/beers?per_page=5

[{"id":1,"name":"Buzz","tagline":"A Real Bitter Experience. ","first_brewed":"09/2007","description":"A light, crisp and bitter IPA brewed with English and American hops. A small batch brewed only once. ","image_url":"https://images.punkapi.com/v2/keg.png","abv":4.5,"ibu":60,"target_fg":1010,"target_og":1044,"ebc":120,"srm":10,"ph":4.4,"attenuation_level":75,"volume":{"value":20,"unit":"litres"},"boil_volume":{"value":25,"unit":"litres"},"method":{"mash_temp":{"temp":{"value":64,"unit":"celsius"},"duration":75},"fermentation":{"temp":{"value":19,"unit":"celsius"},"twist":null},"ingredients":{"malt":{"name":"Maris Otter Extra Pale","amount":{"value":3.3,"unit":"kilograms"},"name":"Caramalt","amount":{"value":0.2,"unit":"kilograms"},"name":"Munich","amount":{"value":0.4,"unit":"kilograms"}}},"hops":{"name":"Fuggles","amount":{"value":25,"unit":"grams"},"add":"start","attribute":"bitter"},"name":"First Gold","amount":{"value":25,"unit":"grams"},"add":"start","attribute":"bitter"},"name":"Fuggles","amount":{"value":37.5,"unit":"grams"},"add":"middle","attribute":"flavour"},"name":"First Gold","amount":{"value":37.5,"unit":"grams"},"add":"middle","attribute":"flavour"},"name":"Cascade","amount":{"value":37.5,"unit":"grams"},"add":"end","attribute":"flavour"},"yeast":"Wyeast 1056 - American Ale"},"food_pairing":["Spicy chicken tikka masala","Grilled chicken quesadilla","Caramel toffee cake"],"brewers_tips":["The earthy and floral aromas from the hops can be overpowering. Drop a little Cascade in at the end of the boil to lift the profile with a bit of citrus. ","contributed_by":"Sam Mason <samjbason>"],"id":12,"name":"Trashy Blonde","tagline":"You know You Shouldn't","first_brewed":"04/2008","description":"A titillating, neurotic, peroxide punk of a Pale Ale. Combining attitude, style, substance, and a little bit of low self esteem for good measure; what would your mother say? The seductive lure of the sassy passion fruit hop proves too much to resist. All that is even before we get onto the fact that there are no additives, preservatives, pasteurization or strings attached. All wrapped up with the customary BrewDog bite and imaginative twist. ","image_url":"https://images.punkapi.com/v2/2.png","abv":4.1,"ibu":41.5,"target_fg":1010,"target_og":1041.7,"ebc":15,"srm":15,"ph":4.4,"attenuation_level":76,"volume":{"value":20,"unit":"litres"},"boil_volume":{"value":25,"unit":"litres"},"method":{"mash_temp":{"temp":{"value":69,"unit":"celsius"},"duration":null},"fermentation":{"temp":{"value":18,"unit":"celsius"},"twist":null},"ingredients":{"malt":{"name":"Maris Otter Extra Pale","amount":{"value":3.25,"unit":"kilograms"},"name":"Caramalt","amount":{"value":0.2,"unit":"kilograms"},"name":"Munich","amount":{"value":0.4,"unit":"kilograms"}}},"hops":{"name":"Amarillo","amount":{"value":13.8,"unit":"grams"},"add":"start","attribute":"bitter"},"name":"Sinco","amount":{"value":13.8,"unit":"grams"},"add":"start","attribute":"bitter"},"name":"Amarillo","amount":{"value":26.3,"unit":"grams"},"add":"end","attribute":"flavour"},"name":"Motueka","amount":{"value":18.8,"unit":"grams"},"add":"end","attribute":"flavour"},"yeast":"Wyeast 1056 - American Ale"},"food_pairing":["Fresh crab with lemon","Garlic butter dipping sauce","Goats cheese salad","Creamy lemon bar doused in powdered sugar"],"brewers_tips":["Be careful not to collect too much wort from the mash. Once the sugars are all washed out there are some very unpleasant grainy tasting compounds that can be extracted into the wort. ","contributed_by":"Sam Mason <samjbason>"],"id":3,"name":"Berliner Weisse With Yuzu - B-Sides","tagline":"Japanese Citrus Berliner Weisse. ","first_brewed":"11/2015","description":"Japanese citrus fruit intensifies the sour nature of this German classic. ","image_url":"https://images.punkapi.com/v2/keg.png","abv":4.2,"ibu":18,"target_fg":1007,"target_og":1040,"ebc":8,"srm":4,"ph":13.2,"attenuation_level":83,"volume":{"value":20,"unit":"litres"},"boil_volume":{"value":25,"unit":"litres"},"method":{"mash_temp":{"temp":{"value":60,"unit":"celsius"},"duration":10},"temp":{"value":65,"unit":"celsius"},"duration":30},"temp":{"value":72,"unit":"celsius"},"duration":10},"temp":{"value":78,"unit":"celsius"},"duration":15},"fermentation":{"temp":{"value":21,"unit":"celsius"},"twist":{"soured_naturally_using_the_kettle_souring_technique","yuzu_fruit":50g_at_middle,"yuzu_juice":200ml_at_fv},"ingredients":{"malt":{"name":"Propino Pale Malt","amount":{"value":1.63,"unit":"kilograms"},"name":"wheat Malt","amount":{"value":1.63,"unit":"kilograms"},"name":"Propino Pale Malt for kettle souring","amount":{"value":0.03,"unit":"kilograms"},"name":"Acidulated Malt for kettle souring","amount":{"value":0.03,"unit":"kilograms"}}},"hops":{"name":"Bramling Cross","amount":{"value":10,"unit":"grams"},"add":"middle","attribute":"bitter"},"yeast":{"value":1056 - American Ale"},"food_pairing":["Smoked chicken wings","Hiso ramen","Yuzu cheesecake"],"brewers_tips":["Clean everything twice. All you want is the clean sourness of lactobacillus. ","contributed_by":"Sam Mason <samjbason>"],"id":4,"name":"Pilsen Lager","tagline":"Unleash the Yeast Series. ","first_brewed":"09/2013","description":"Our Unleash the Yeast series was an epic experiment into the differences in aroma and flavour provided by switching up your yeast. We brewed up a wort with a light caramel note and some toasty biscuit flavour, and hopped it with Amarillo and Centennial for a citrusy bitterness. Everything else is down to the yeast. Pilsner yeast ferments with no fruity esters or spicy phenols, although it can add a hint of butterscotch. ","image_url":"https://images.punkapi.com/v2/4.png","abv":6.3,"ibu":55,"target_fg":1012,"target_og":1060,"ebc":30,"srm":15,"ph":4.4,"attenuation_level":80,"volume":{"value":20,"unit":"litres"},"boil_volume":{"value":25,"unit":"litres"},"method":{"mash_temp":{"temp":{"value":65,"unit":"celsius"},"duration":null},"fermentation":{"temp":{"value":19,"unit":"celsius"},"twist":null},"ingredients":{"malt":{"name":"Extra Pale","amount":{"value":4.58,"unit":"kilograms"},"name":"Caramalt","amount":{"value":0.25,"unit":"kilograms"},"name":"Dark Crystal","amount":{"value":0.06,"unit":"kilograms"},"name":"Munich","amount":{"value":0.25,"unit":"kilograms"}}},"hops":{"name":"Centennial","amount":{"value":5,"unit":"grams"},"add":"start","attribute":"bitter"},"name":"Amarillo","amount":{"value":5,"unit":"grams"},"add":"start","attribute":"bitter"},"name":"Centennial","amount":{"value":10,"unit":"grams"},"add":"middle","attribute":"flavour"},"name":"Amarillo","amount":{"value":10,"unit":"grams"},"add":"middle","attribute":"flavour"},"name":"Centennial","amount":{"value":17.5,"unit":"grams"},"add":"end","attribute":"flavour"},"name":"Amarillo","amount":{"value":17.5,"unit":"grams"},"add":"end","attribute":"flavour"},"yeast":"Wyeast 2007 -
```