Ubiquitous and Mobile Computing
CS 528: *Google Fit*

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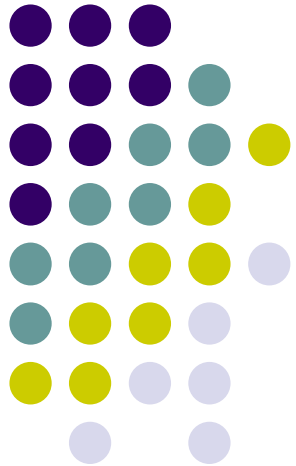


do YOU want to be fit?

Exercise daily

Exercise daily

Eat right

do YOU want to be fit?

Exercise daily

Sleep well

Eat right

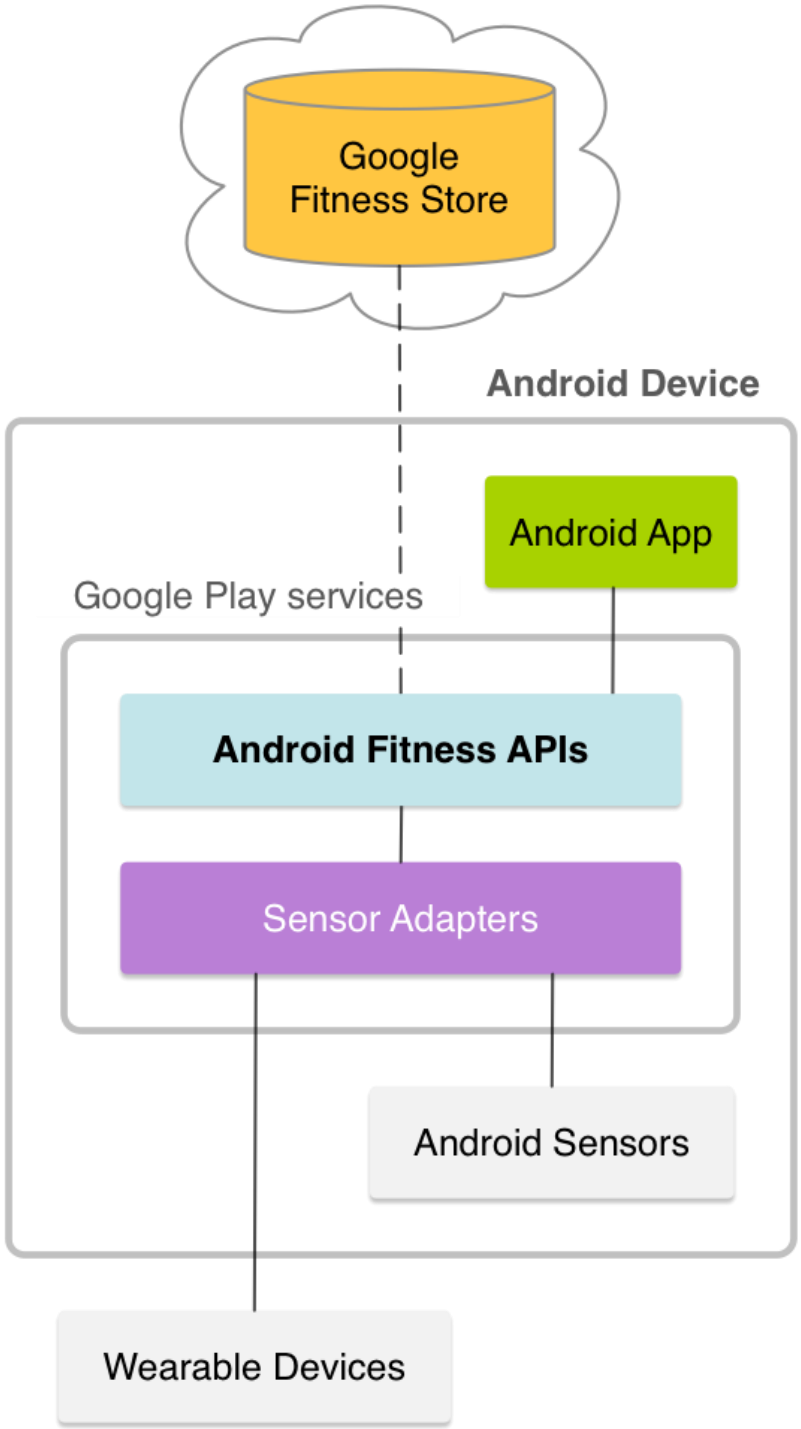
do YOU want to be fit?

Exercise daily
Sleep well
Track calories
Eat right
do YOU want to be fit?

Exercise daily
Sleep
Track calories
Google Fit API!
do YOU want to be fit?

What is Google Fit API?

- Open ecosystem that allows developers to upload fitness data to a central repository where users can access their data from different devices and apps in one location
- Part of Google Play services
- Supported in Android 2.3 (API level 9) and higher



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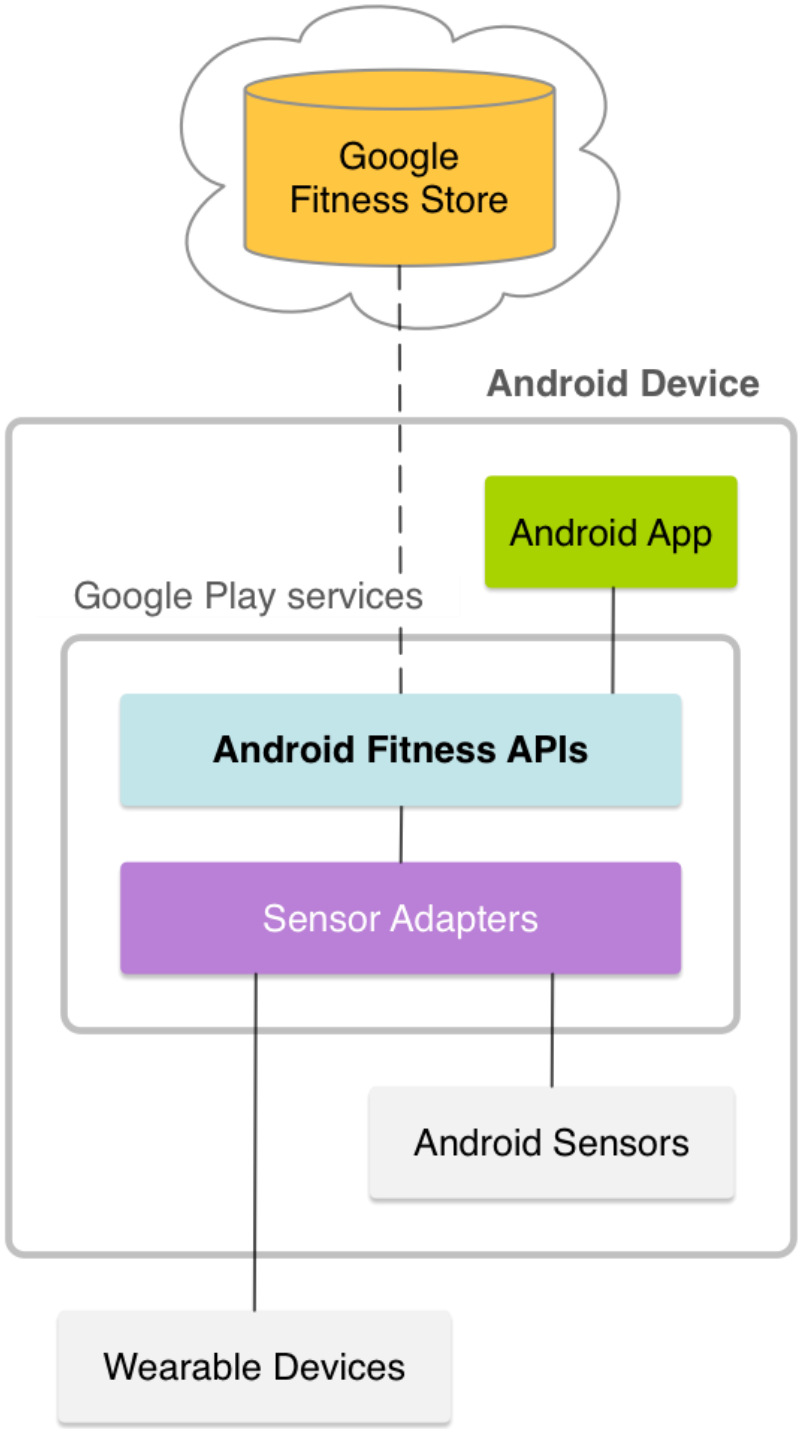

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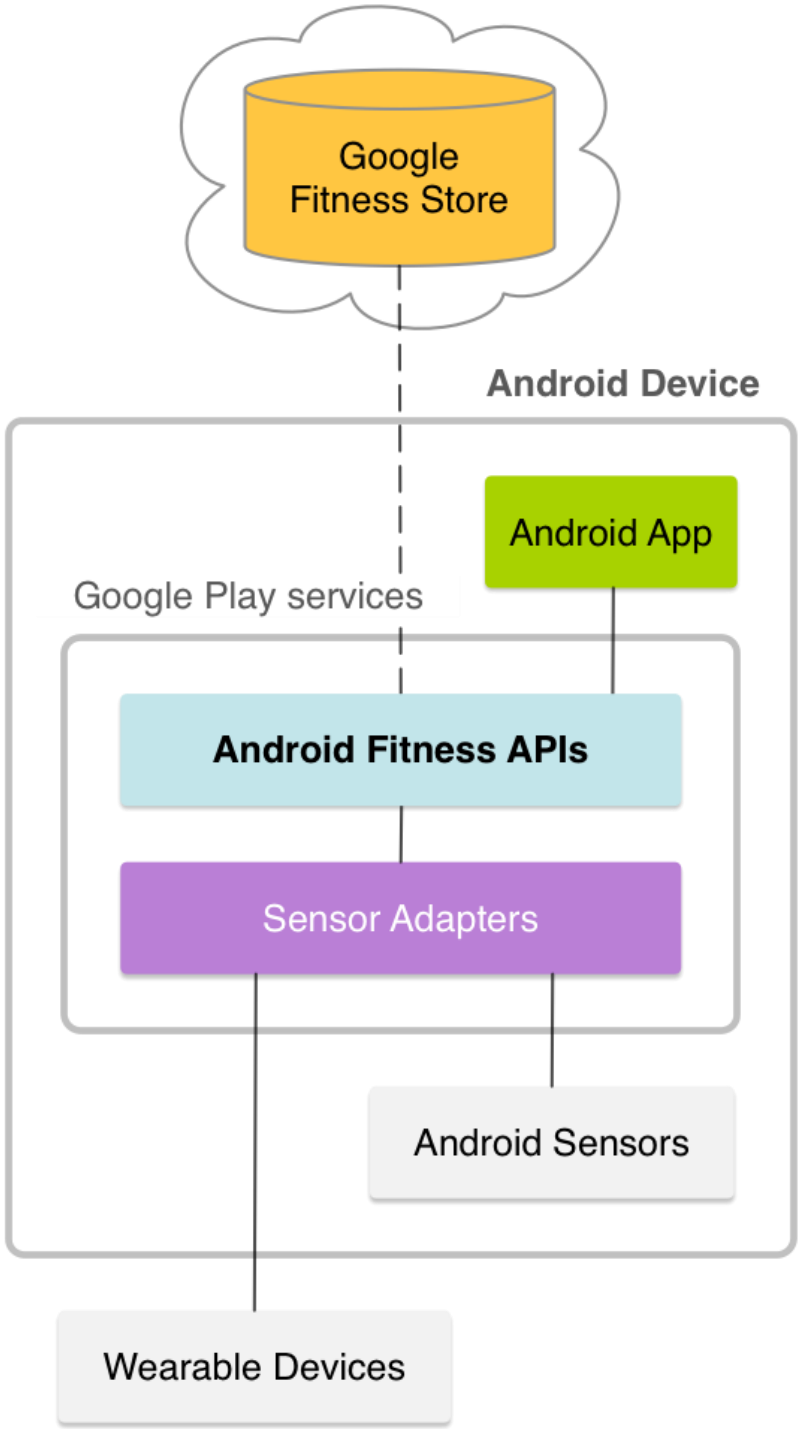


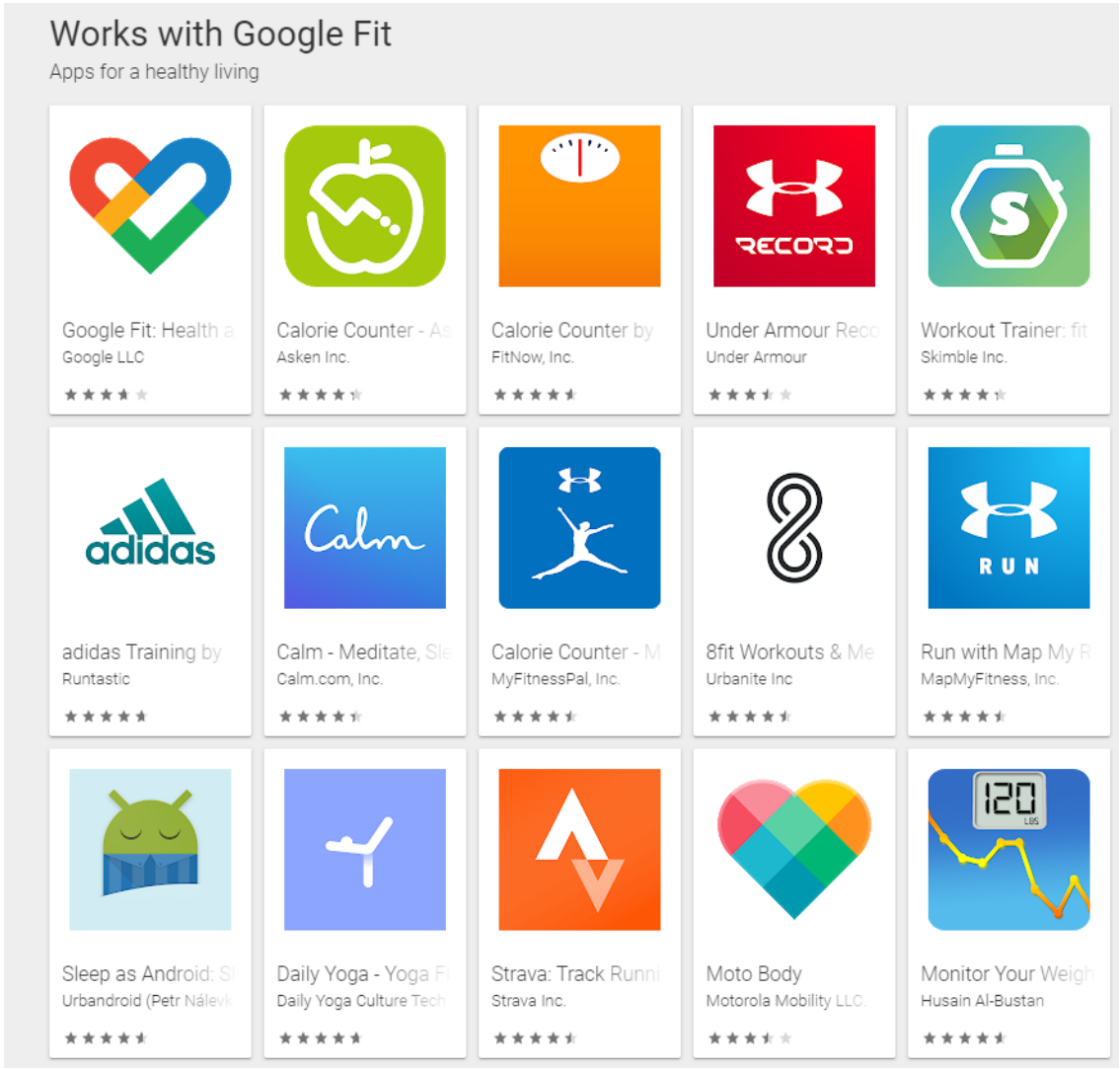
What does Google Fit API consist of?

- Sensors API
- Recording API
- History API
- Sessions API
- Goals API
- Bluetooth Low Energy API

Specific problems it's designed to solve

- Track Fitness Activity
- Consumer Well-being
- Clinical trials
- Record and ask experts yourself
- Answer to Apple Health

Typical example use case: When is it typically used?

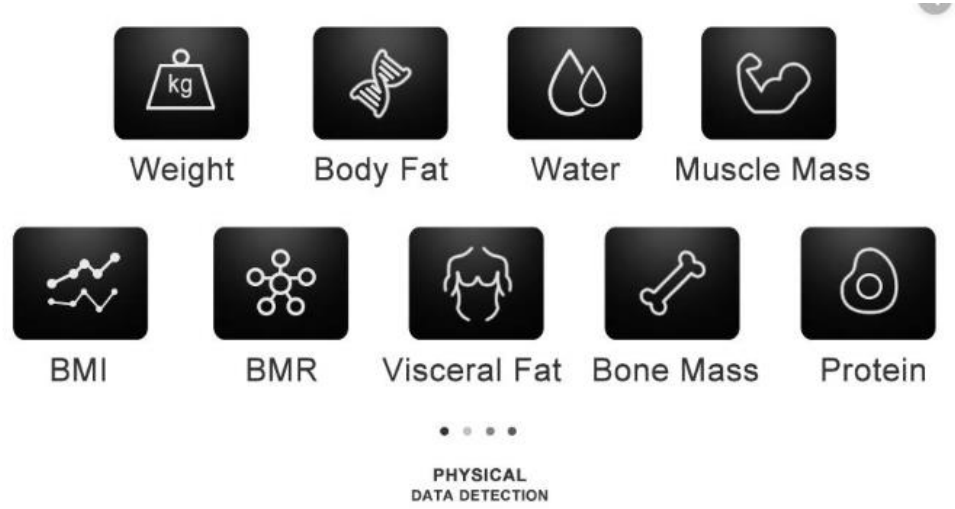


Typical example use case: When is it typically used?

- Smartwatches

- Other Fitness Bands

Typical example use case: When is it typically used?



- Weighing Machines

Real World Examples

medical sciences

MDPI

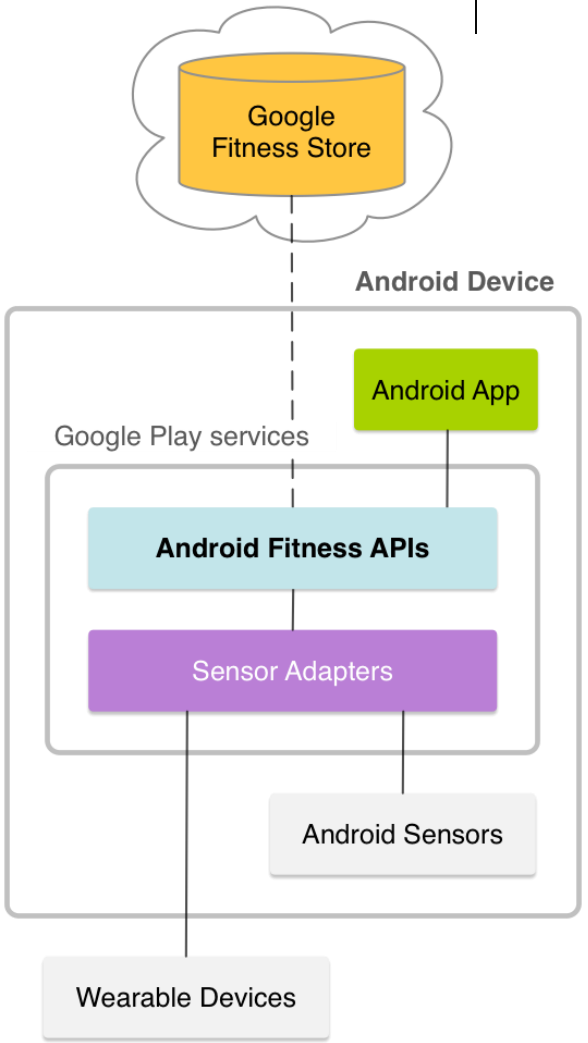
Article

The Keeping on Track Study: Exploring the Activity Levels and Utilization of Healthcare Services of Acute Coronary Syndrome (ACS) Patients in the First 30-Days after Discharge from Hospital

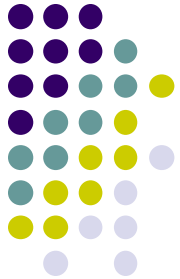
Robyn A. Clark [1,*], Jonathon Foote [1], Vincent L. Versace [2], Alex Brown [3], Mark Daniel [4], Neil T. Coffee [4], Tania S. Marin [1], Constance Kourbelis [1], Margaret Arstall [5], Anand Ganesan [6], Ralph Maddison [2], Janet Kelly [3], Tracey Barry [1], Wendy Keech [7], Stephen J. Nicholls [8] and on behalf of the Health Translation SA Cardiac Rehabilitation Group

Overview of how it works

- Comprised of:
  - Sensors API
  - Recording API
  - History API
  - Sessions API
  - Goals API
  - Bluetooth Low Energy API



Code snippet



```
DataSource nutritionSource = new DataSource.Builder()
        .setAppPackageName(this)
        .setDataType(DataType.TYPE_NUTRITION)
        .setStreamName(TAG + " - nutrition")
        .setType(DataSource.TYPE_DERIVED)
        .build();
```

Create a data source

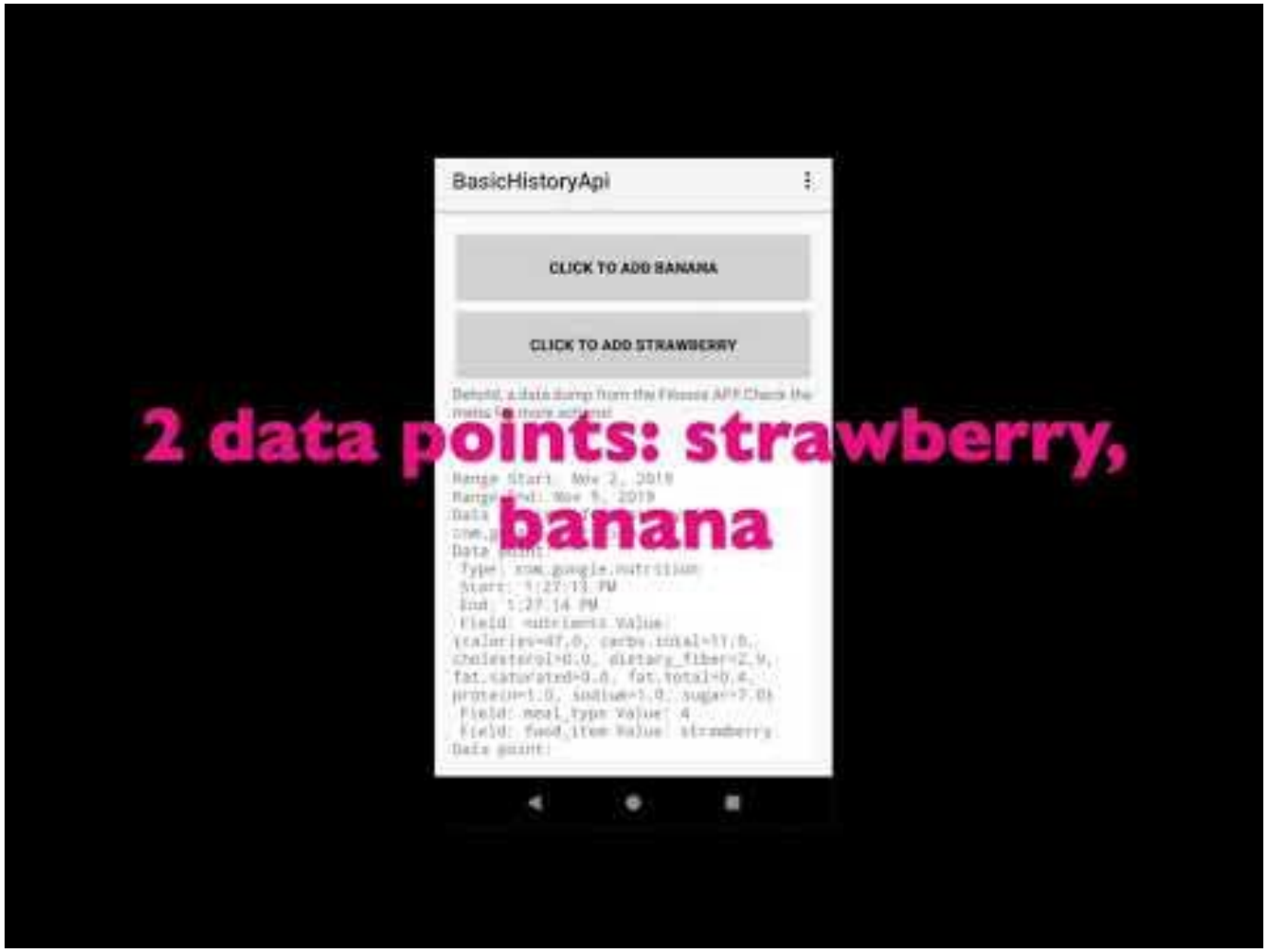
Create a data point (ex. strawberry)

```
DataPoint strawberry = dataSet.createDataPoint().setTimeInterval(startTime, endTime, TimeUnit.MILLISECONDS);
strawberry.getValue(Field.FIELD_FOOD_ITEM).setString("strawberry");
strawberry.getValue(Field.FIELD_MEAL_TYPE).setInt(Field.MEAL_TYPE_SNACK);
strawberry.getValue(Field.FIELD_NUTRIENTS).setKeyValue(Field.NUTRIENT_TOTAL_FAT, v: 0.4f);
strawberry.getValue(Field.FIELD_NUTRIENTS).setKeyValue(Field.NUTRIENT_SODIUM, v: 1.0f);
strawberry.getValue(Field.FIELD_NUTRIENTS).setKeyValue(Field.NUTRIENT_SATURATED_FAT, v: 0.0f);
strawberry.getValue(Field.FIELD_NUTRIENTS).setKeyValue(Field.NUTRIENT_PROTEIN, v: 1.0f);
strawberry.getValue(Field.FIELD_NUTRIENTS).setKeyValue(Field.NUTRIENT_TOTAL_CARBS, v: 11.0f);
strawberry.getValue(Field.FIELD_NUTRIENTS).setKeyValue(Field.NUTRIENT_CHOLESTEROL, v: 0.0f);
strawberry.getValue(Field.FIELD_NUTRIENTS).setKeyValue(Field.NUTRIENT_CALORIES, v: 47.0f);
strawberry.getValue(Field.FIELD_NUTRIENTS).setKeyValue(Field.NUTRIENT_SUGAR, v: 7.0f);
strawberry.getValue(Field.FIELD_NUTRIENTS).setKeyValue(Field.NUTRIENT_DIETARY_FIBER, v: 2.9f);
```

```
DataReadRequest readRequest = new DataReadRequest.Builder()
        .read(DataType.TYPE_NUTRITION)
        .setTimeRange(startTime, endTime, TimeUnit.MILLISECONDS)
        .build();
```

Read the data after inserting it

Code snippet



References

- *Insert references*