

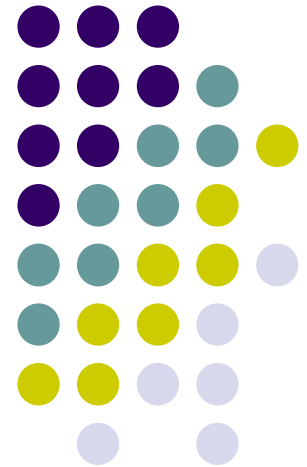
# Ubiquitous and Mobile Computing

## CS 528: *Google Fit*

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William Mosby

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do YOU want to be fit?

Exercise daily



do YOU want to be fit?

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 well

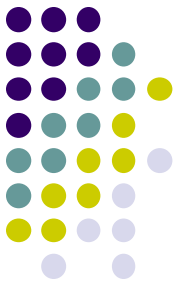
Track calories

Get enough

**GOOGLIE FIT API!**

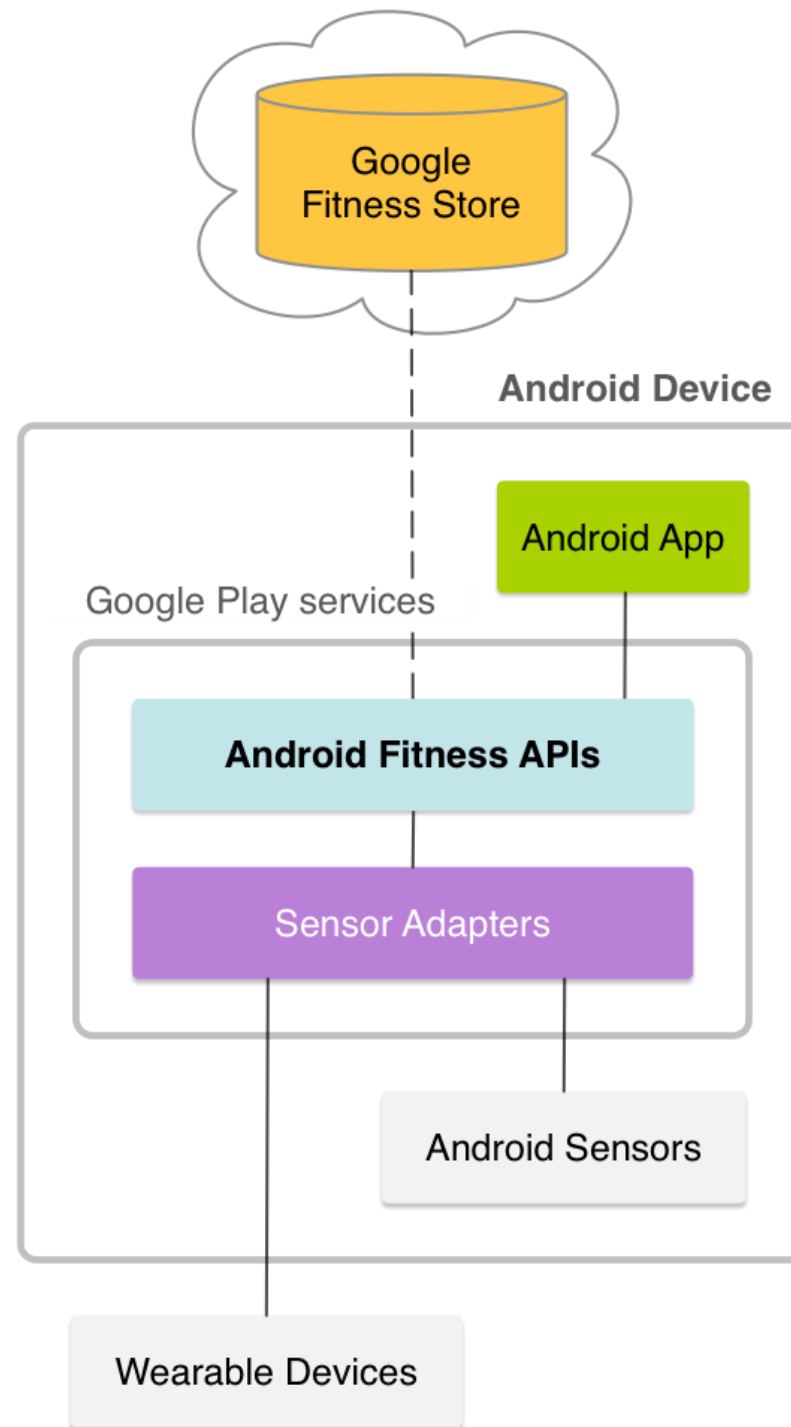
do YOU want to be fit?



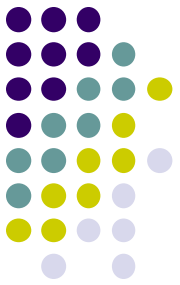


## What is Google Fit API?

- 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

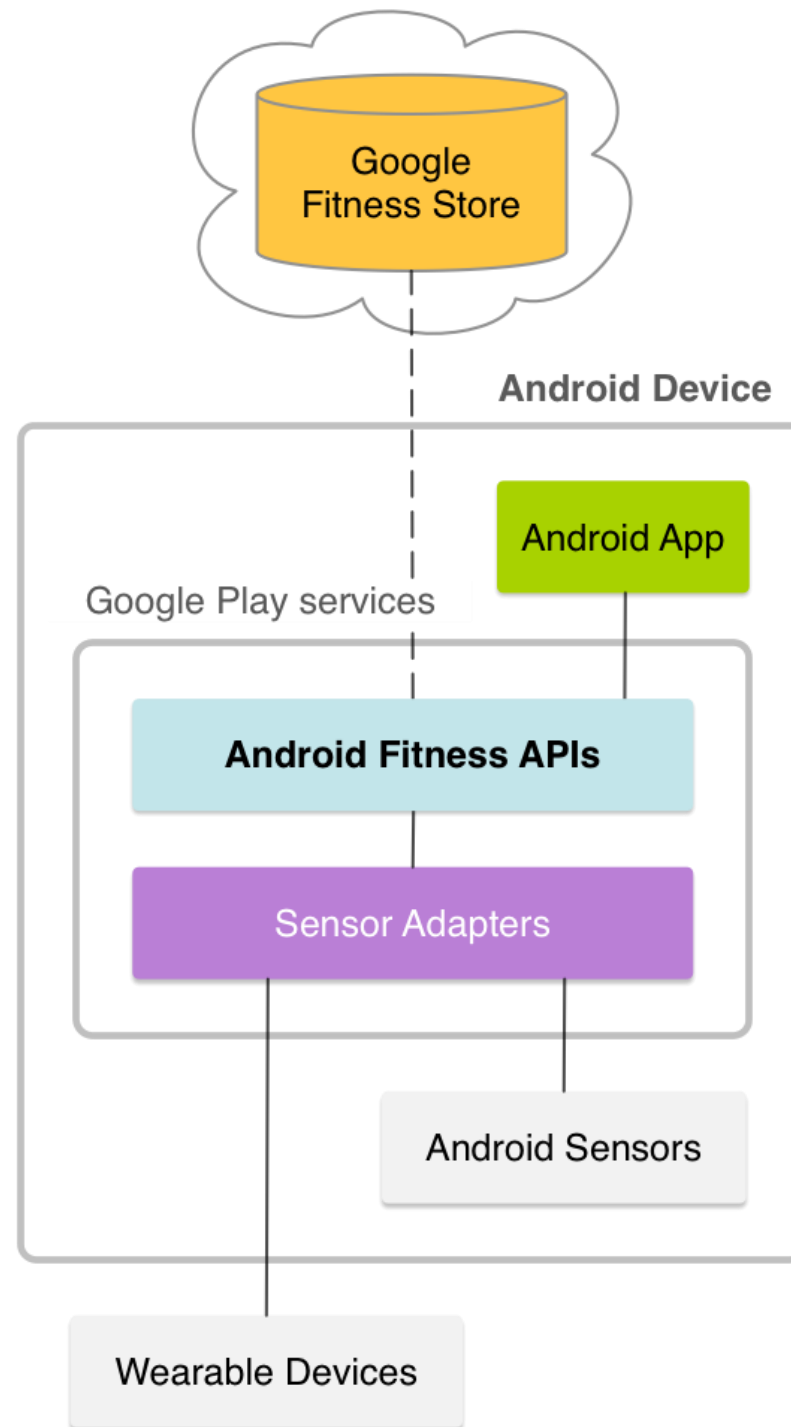


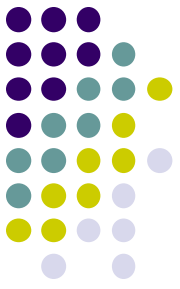




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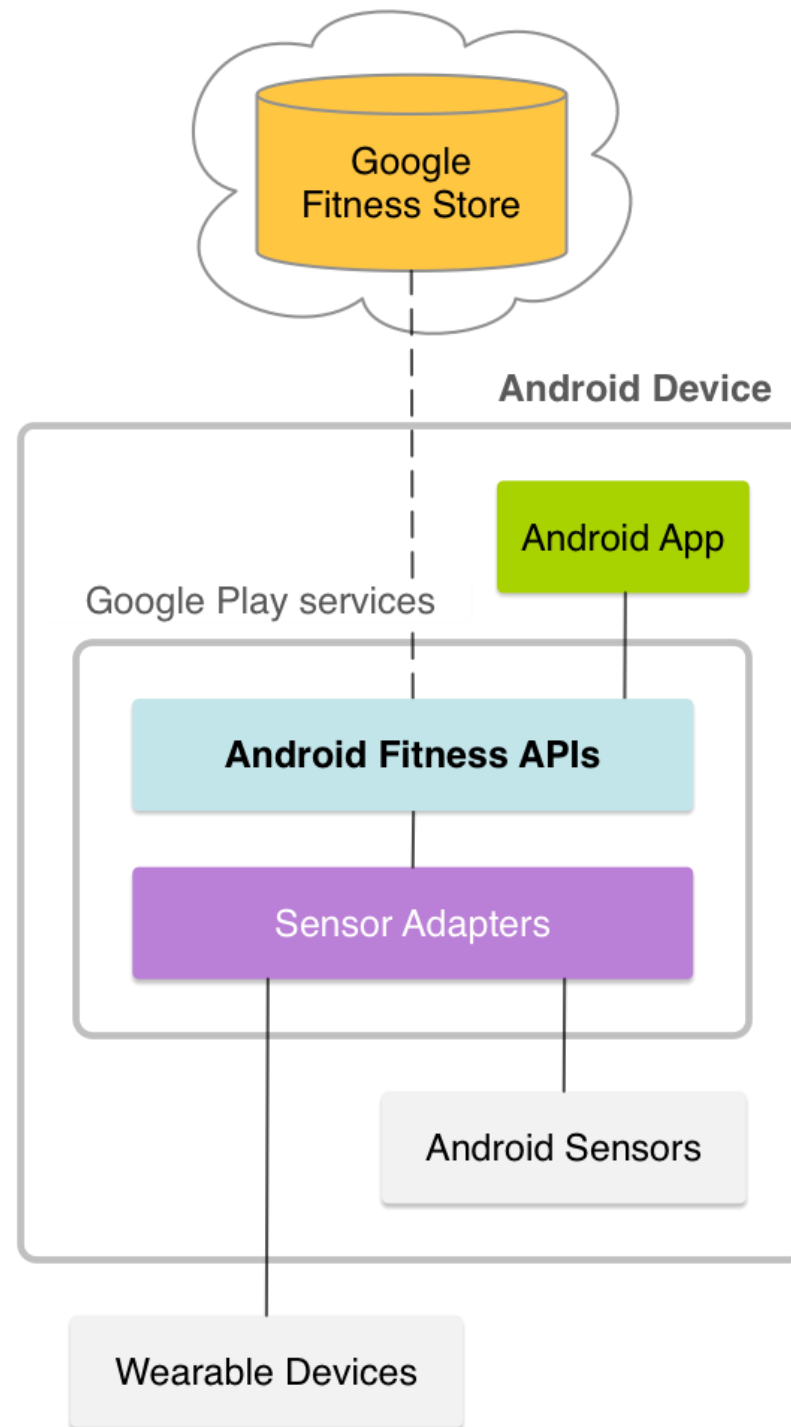
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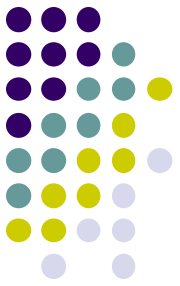


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# What does Google Fit API consist of?

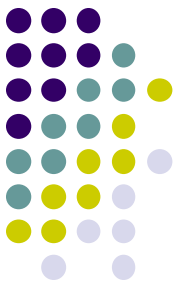


- Sensors API
- Recording API
- History API
- Sessions API
- Goals API
- Bluetooth Low Energy API



Google Fit

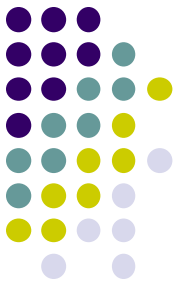
# Specific problems it's designed to solve


















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



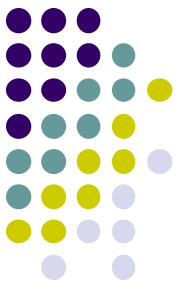
# Typical example use case: When is it typically used?



Works with Google Fit  
Apps for a healthy living

 <p>Google Fit: Health &amp; Fitness Google LLC ★★★★★</p>	 <p>Calorie Counter - Asken Asken Inc. ★★★★★</p>	 <p>Calorie Counter by FitNow FitNow, Inc. ★★★★★</p>	 <p>Under Armour Record Under Armour ★★★★★</p>	 <p>Workout Trainer: fitness Skimble Inc. ★★★★★</p>
 <p>adidas Training by Runtastic Runtastic ★★★★★</p>	 <p>Calm - Meditate, Sleep Calm.com, Inc. ★★★★★</p>	 <p>Calorie Counter - MyFitnessPal MyFitnessPal, Inc. ★★★★★</p>	 <p>8fit Workouts &amp; Meal Planner Urbanite Inc ★★★★★</p>	 <p>Run with Map My Run MapMyFitness, Inc. ★★★★★</p>
 <p>Sleep as Android: Sleep Tracker Urbandroid (Petr Nálevka) ★★★★★</p>	 <p>Daily Yoga - Yoga Fitness Daily Yoga Culture Tech ★★★★★</p>	 <p>Strava: Track Running Strava Inc. ★★★★★</p>	 <p>Moto Body Motorola Mobility LLC ★★★★★</p>	 <p>Monitor Your Weight Husain Al-Bustan ★★★★★</p>

# Typical example use case: When is it typically used?

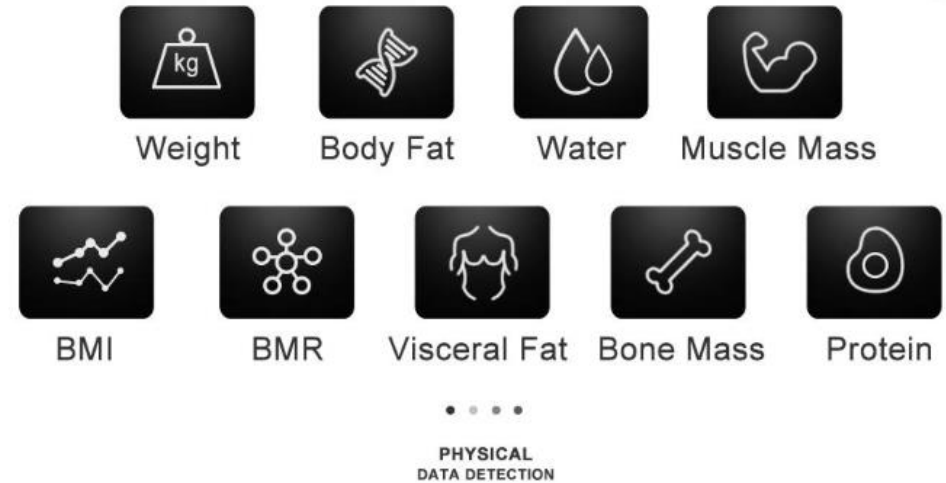
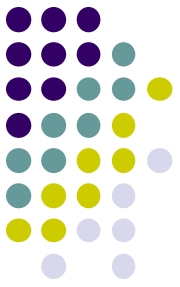


- Smartwatches



- Other Fitness Bands

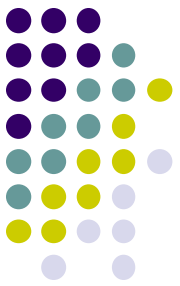
# Typical example use case: When is it typically used?



- Weighing Machines





# Real World Examples



*Article*

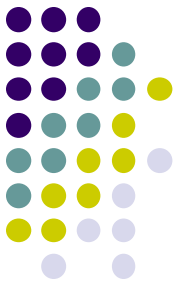
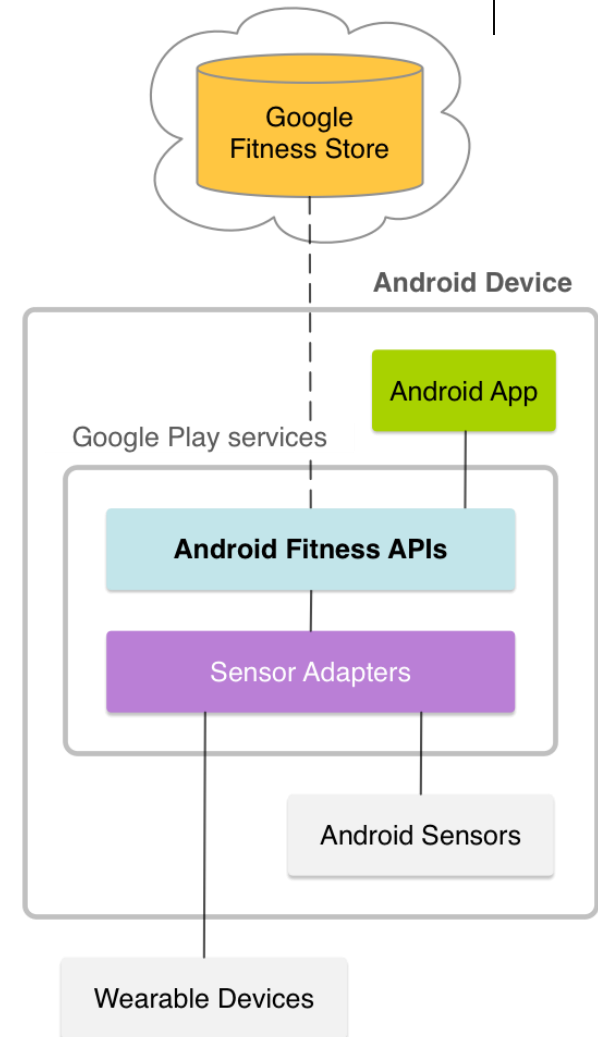
## **The Keeping on Track Study: Exploring the Activity Levels and Utilization of Healthcare Services of Acute Coronary Syndrome (ACS) Patients in the First 30-Days after Discharge from Hospital**

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

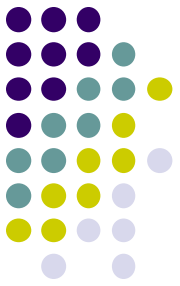


# Overview of how it works

- 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

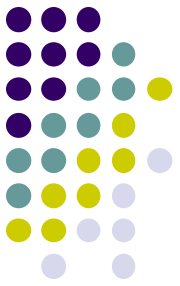
↑ Create a data point (ex. strawberry)

```
DataSource dataSource = new DataSource.Builder()  
    .setAppPackageName(this)  
    .setDataType(DataType.TYPE_NUTRITION)  
    .setStreamName(TAG + " - nutrition")  
    .setType(DataSource.TYPE_DERIVED)  
    .build();  
  
DataSet dataSet = dataSource.createDataSet();  
  
long startTime = System.currentTimeMillis();  
long endTime = System.currentTimeMillis();  
  
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);
```

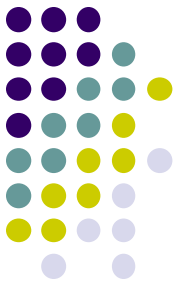
```
DataReadRequest readRequest = new DataReadRequest.Builder()  
    .read(DataType.TYPE_NUTRITION)  
    .setTimeRange(startTime, endTime, TimeUnit.MILLISECONDS)  
    .build();
```

→ Read the data after inserting it

# Code snippet



**2 data points: strawberry,  
banana**



# References

- *Insert references*