



DOGS

Mobile Application Development Finals Presentation

資四3A 072214112 張家豪



報告人：張家豪



指導老師：蔡坤孝



CONTENT



REVIEW



METHODS



FEATURES



GROW



References



PART 1

REVIEW



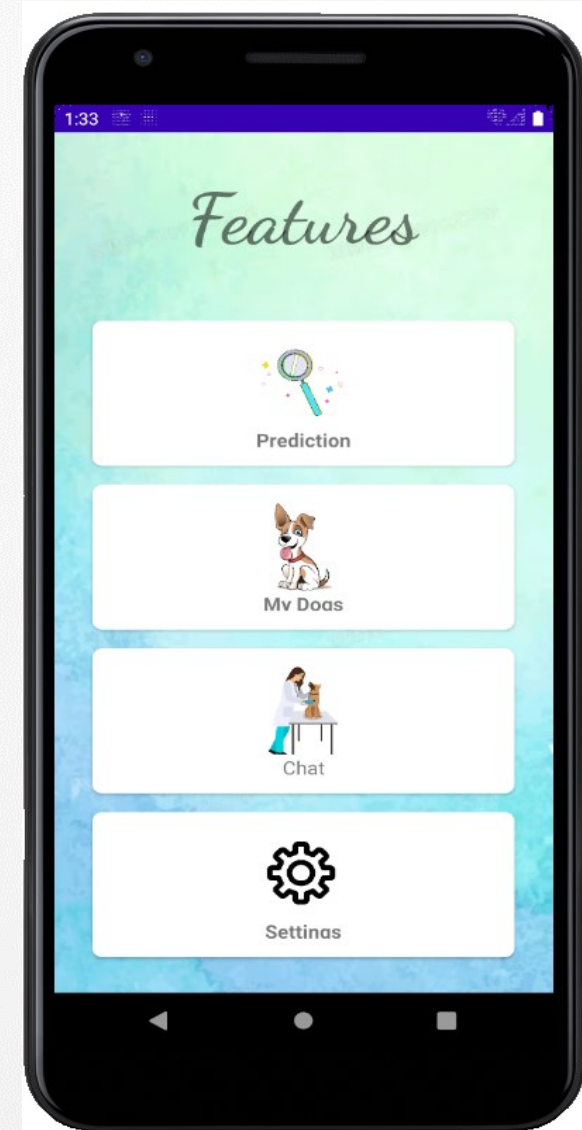
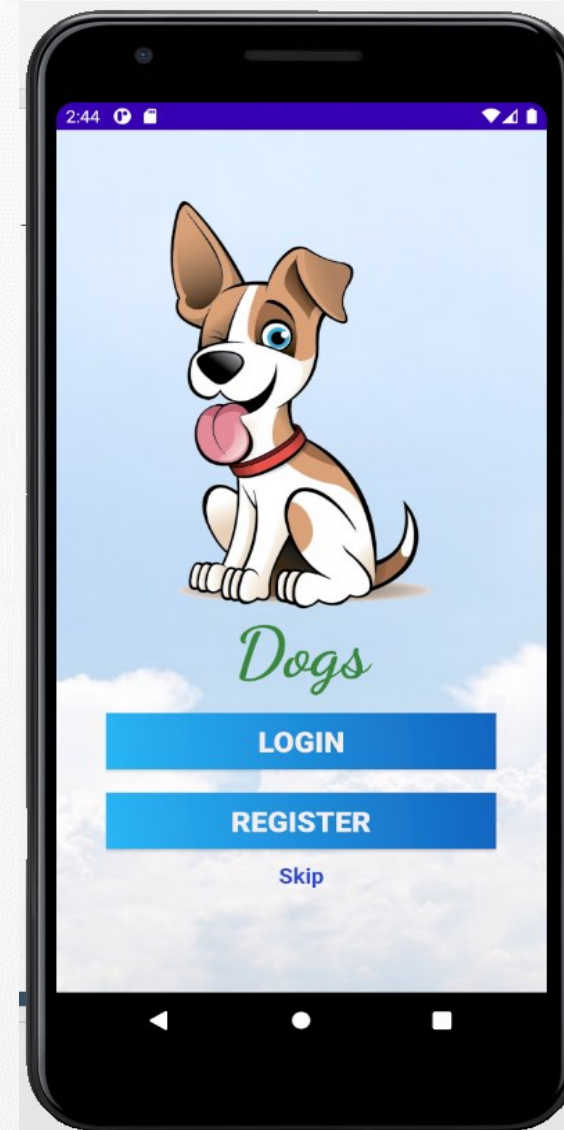


1.1 WHAT IS THE "DOGS" ??

The most interesting and joyful APP is now on your Android Phone. You will have many countless hours of fun and entertainment.

The DOGS have four features

- Prediction
- My Dogs
- Chat
- Settings

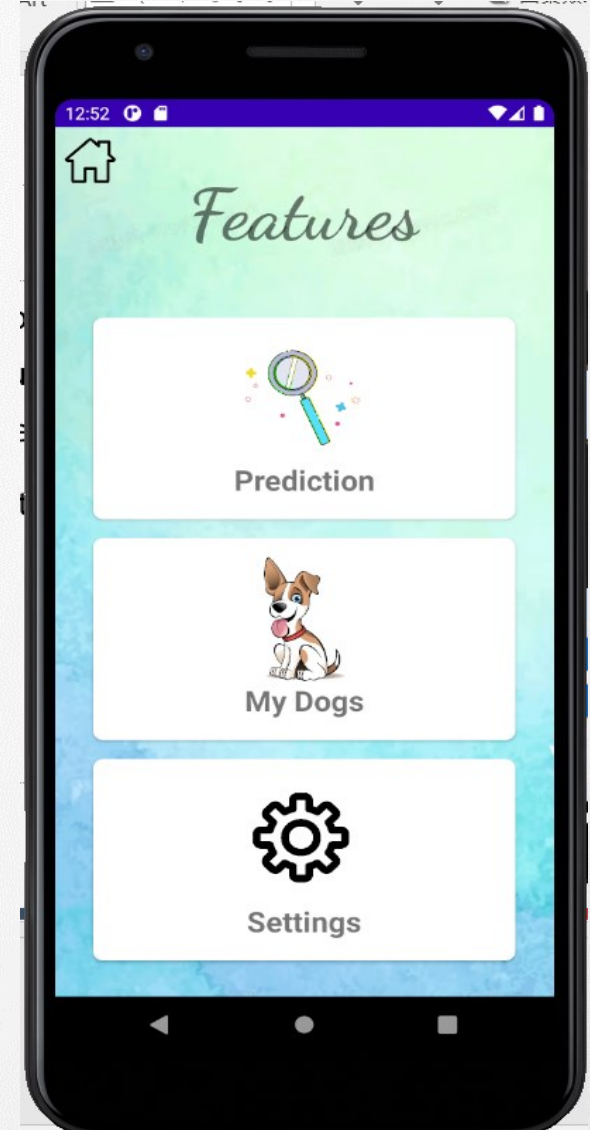
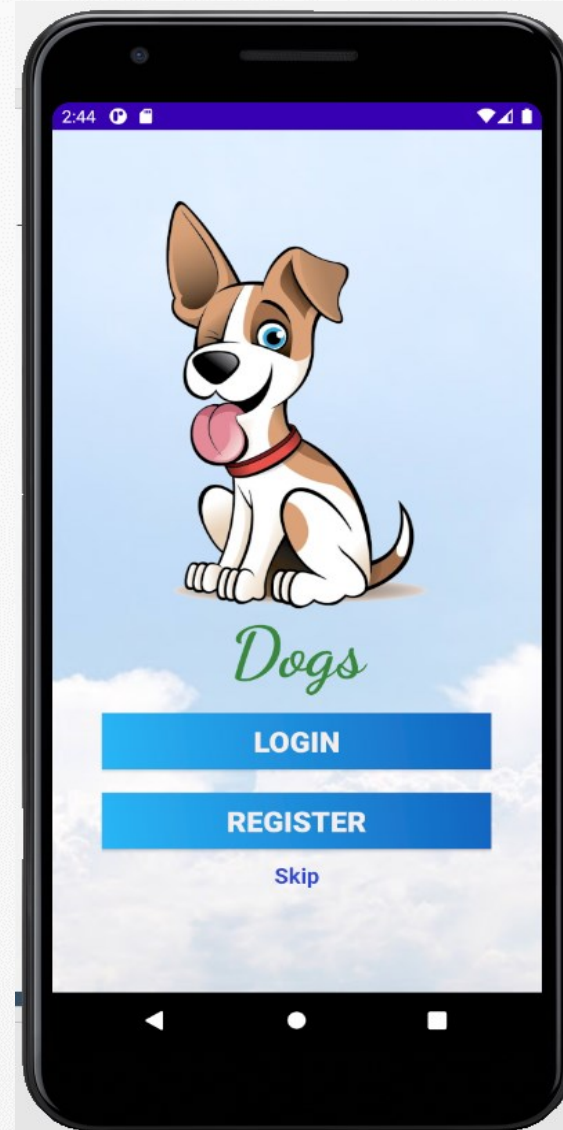


1.2 NOW

The most interesting and joyful APP is now on your Android Phone. You will have many countless hours of fun and entertainment.

The DOGS have **three** features

- Prediction**
- My Dogs**
- Settings**





PART 2

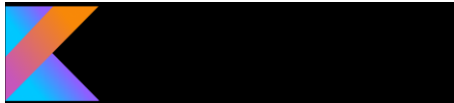
METHODS





2.1 METHODS

BASIC CODE



DATABASE



CNN


TensorFlow


TensorFlow Lite



UI



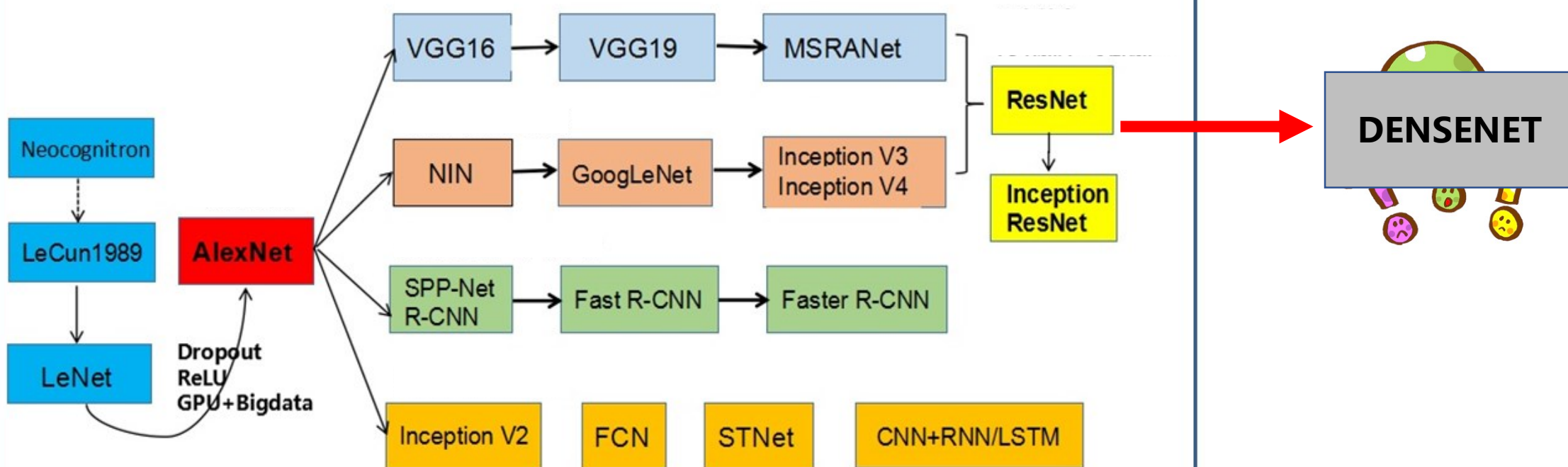


2.2 ALGORITHM

What is an Algorithm??

An algorithm is a list of rules to follow in order to solve a problem.

CNN Development





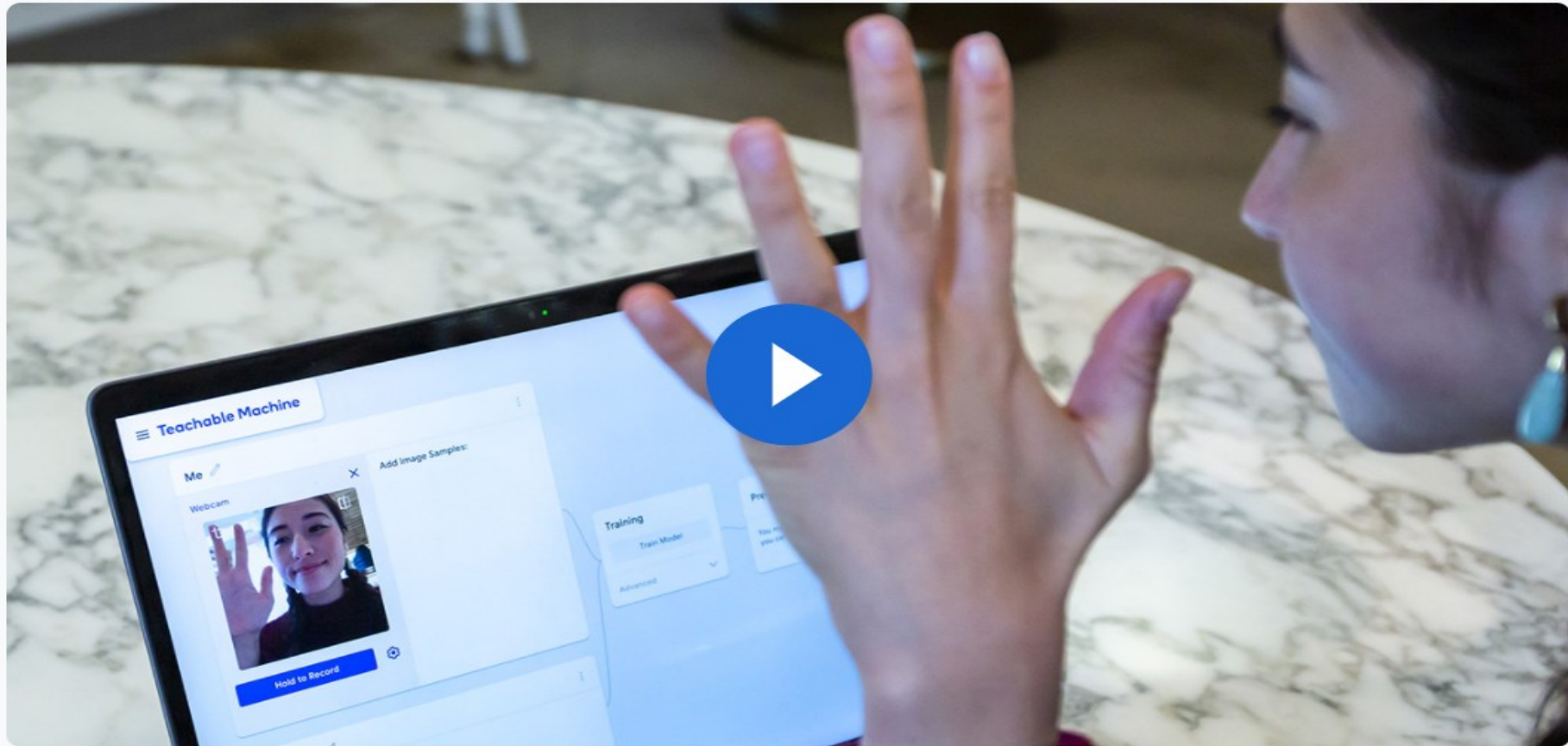
2.3 DENSENET

Layers	Output Size	DenseNet-121	DenseNet-169	DenseNet-201	DenseNet-264
Convolution	112×112		7×7 conv, stride 2		
Pooling	56×56		3×3 max pool, stride 2		
Dense Block (1)	56×56	$\begin{bmatrix} 1 \times 1 \text{ conv} \\ 3 \times 3 \text{ conv} \end{bmatrix} \times 6$	$\begin{bmatrix} 1 \times 1 \text{ conv} \\ 3 \times 3 \text{ conv} \end{bmatrix} \times 6$	$\begin{bmatrix} 1 \times 1 \text{ conv} \\ 3 \times 3 \text{ conv} \end{bmatrix} \times 6$	$\begin{bmatrix} 1 \times 1 \text{ conv} \\ 3 \times 3 \text{ conv} \end{bmatrix} \times 6$
Transition Layer (1)	56×56		1×1 conv		
	28×28		2×2 average pool, stride 2		
Dense Block (2)	28×28	$\begin{bmatrix} 1 \times 1 \text{ conv} \\ 3 \times 3 \text{ conv} \end{bmatrix} \times 12$	$\begin{bmatrix} 1 \times 1 \text{ conv} \\ 3 \times 3 \text{ conv} \end{bmatrix} \times 12$	$\begin{bmatrix} 1 \times 1 \text{ conv} \\ 3 \times 3 \text{ conv} \end{bmatrix} \times 12$	$\begin{bmatrix} 1 \times 1 \text{ conv} \\ 3 \times 3 \text{ conv} \end{bmatrix} \times 12$
Transition Layer (2)	28×28		1×1 conv		
	14×14		2×2 average pool, stride 2		
Dense Block (3)	14×14	$\begin{bmatrix} 1 \times 1 \text{ conv} \\ 3 \times 3 \text{ conv} \end{bmatrix} \times 24$	$\begin{bmatrix} 1 \times 1 \text{ conv} \\ 3 \times 3 \text{ conv} \end{bmatrix} \times 32$	$\begin{bmatrix} 1 \times 1 \text{ conv} \\ 3 \times 3 \text{ conv} \end{bmatrix} \times 48$	$\begin{bmatrix} 1 \times 1 \text{ conv} \\ 3 \times 3 \text{ conv} \end{bmatrix} \times 64$
Transition Layer (3)	14×14		1×1 conv		
	7×7		2×2 average pool, stride 2		
Dense Block (4)	7×7	$\begin{bmatrix} 1 \times 1 \text{ conv} \\ 3 \times 3 \text{ conv} \end{bmatrix} \times 16$	$\begin{bmatrix} 1 \times 1 \text{ conv} \\ 3 \times 3 \text{ conv} \end{bmatrix} \times 32$	$\begin{bmatrix} 1 \times 1 \text{ conv} \\ 3 \times 3 \text{ conv} \end{bmatrix} \times 32$	$\begin{bmatrix} 1 \times 1 \text{ conv} \\ 3 \times 3 \text{ conv} \end{bmatrix} \times 48$
Classification Layer	1×1		7×7 global average pool		
			1000D fully-connected, softmax		

Table 1: DenseNet architectures for ImageNet. The growth rate for all the networks is $k = 32$. Note that each “conv” layer shown in the table corresponds the sequence BN-ReLU-Conv.



2.4.1 NOW-Teachable Machine



Teachable Machine is a web-based tool that makes creating machine learning models fast, easy, and accessible to everyone. (Note: you can find the [first version of Teachable Machine from 2017 here.](#))



2.4.2 HOW TO USE

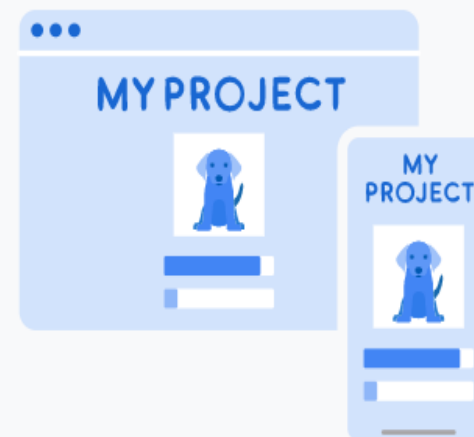
Class 1



Class 2



TRAIN MODEL



1 Gather

Gather and group your examples into classes, or categories, that you want the computer to learn.

[Video: Gather samples](#) ▶

2 Train

Train your model, then instantly test it out to see whether it can correctly classify new examples.

[Video: Train your model](#) ▶

3 Export


Export your model for your projects: sites, apps, and more. You can download your model or host it online for free.

[Video: Export your model](#) ▶



2.4.3 NEW PROJECT

New Project

 Open an existing project from Drive.

 Open an existing project from a file.

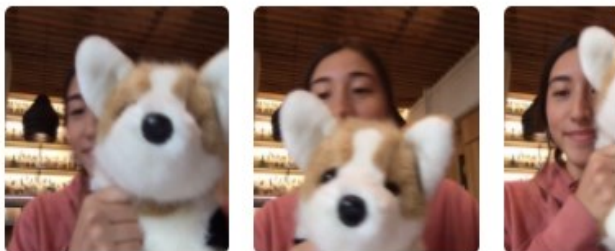
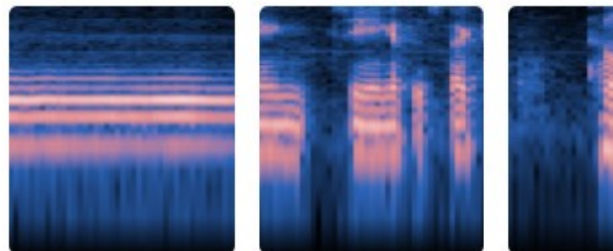


Image Project

Teach based on images, from files or your webcam.



Audio Project

Teach based on one-second-long sounds, from files or your microphone.



Pose Project

Teach based on images, from files or your webcam.



PART 3

FEATURES

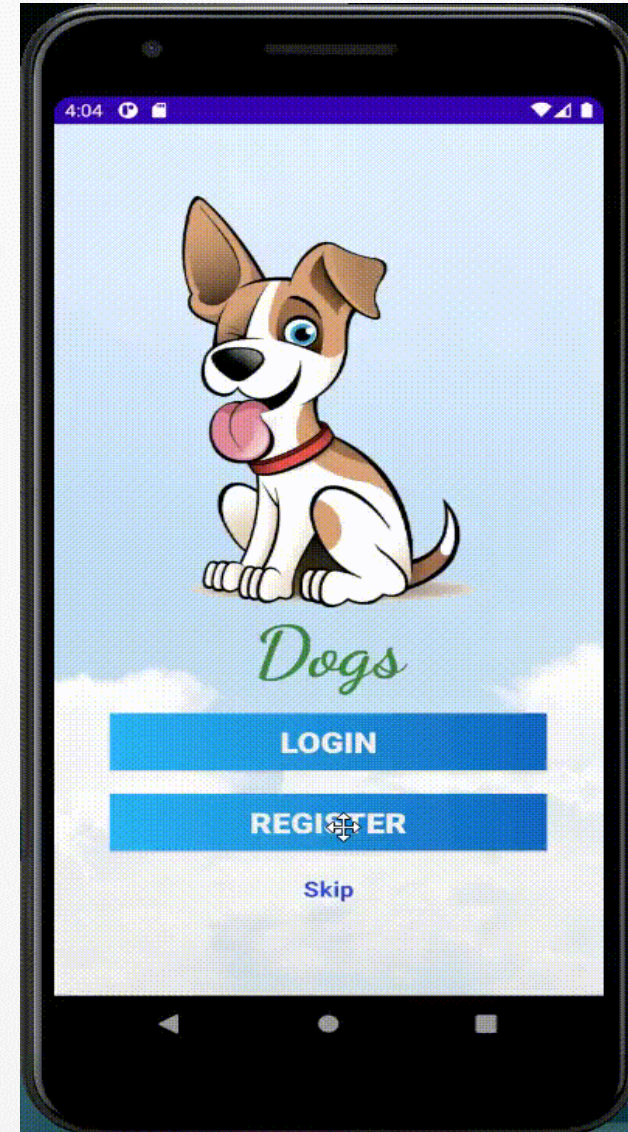




3.1 LOGIN & REGISTER

Step:

- Register new account
- Login new account

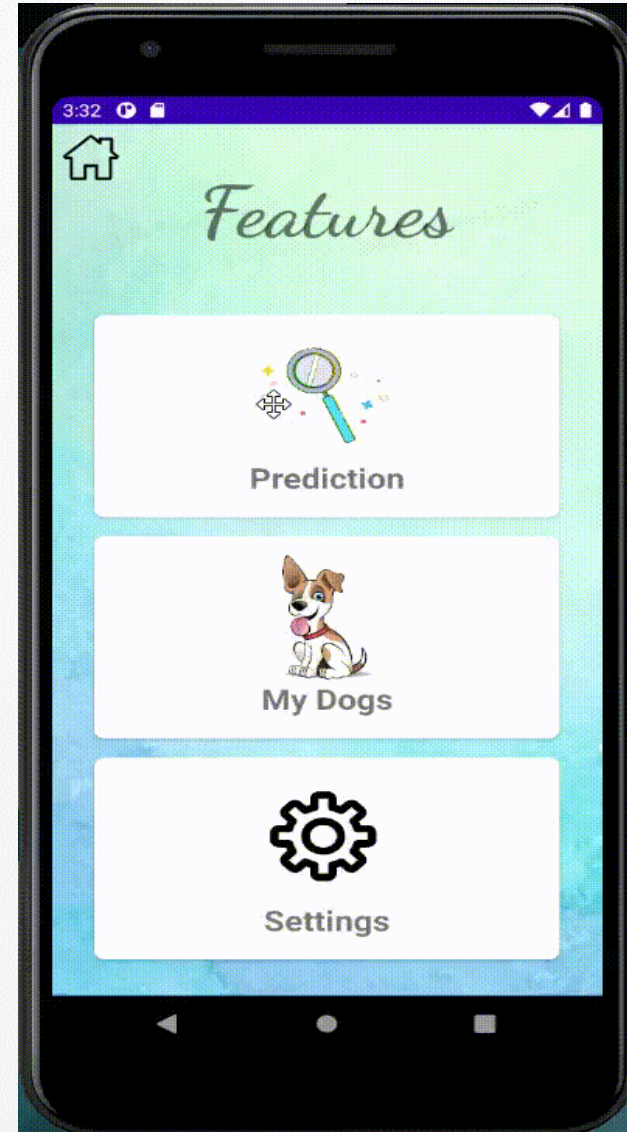




3.2 PREDICTION

Step:

- Select image with a dog
- Input the data in model
- Get the prediction results

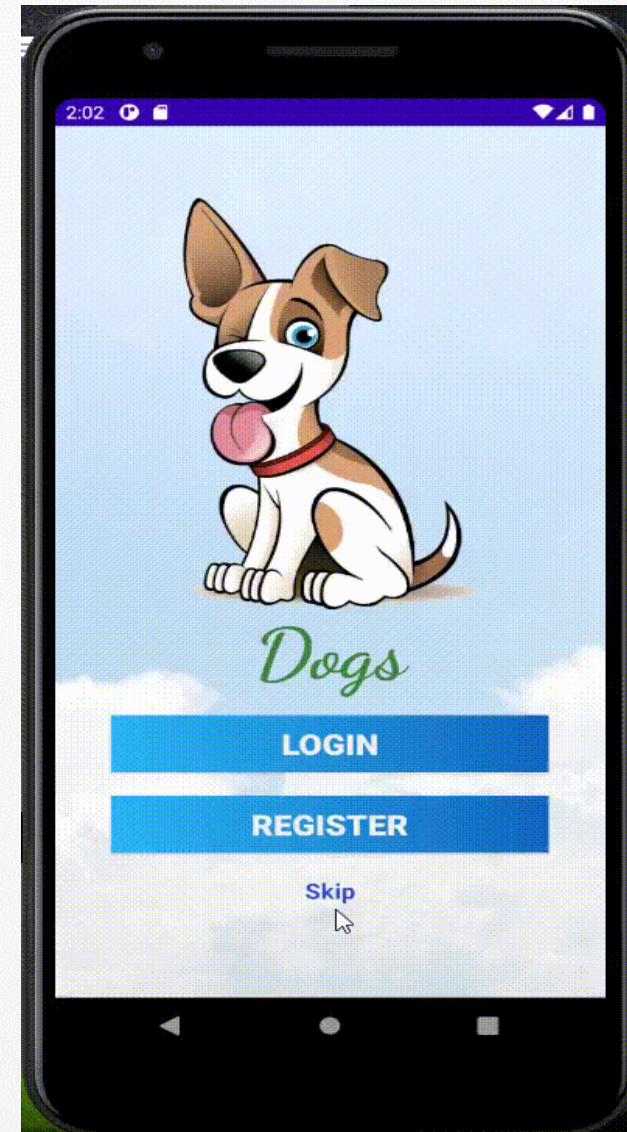




3.3 My Dogs

Step:

- Input the dog data
- Search the dog



3.4 Setting

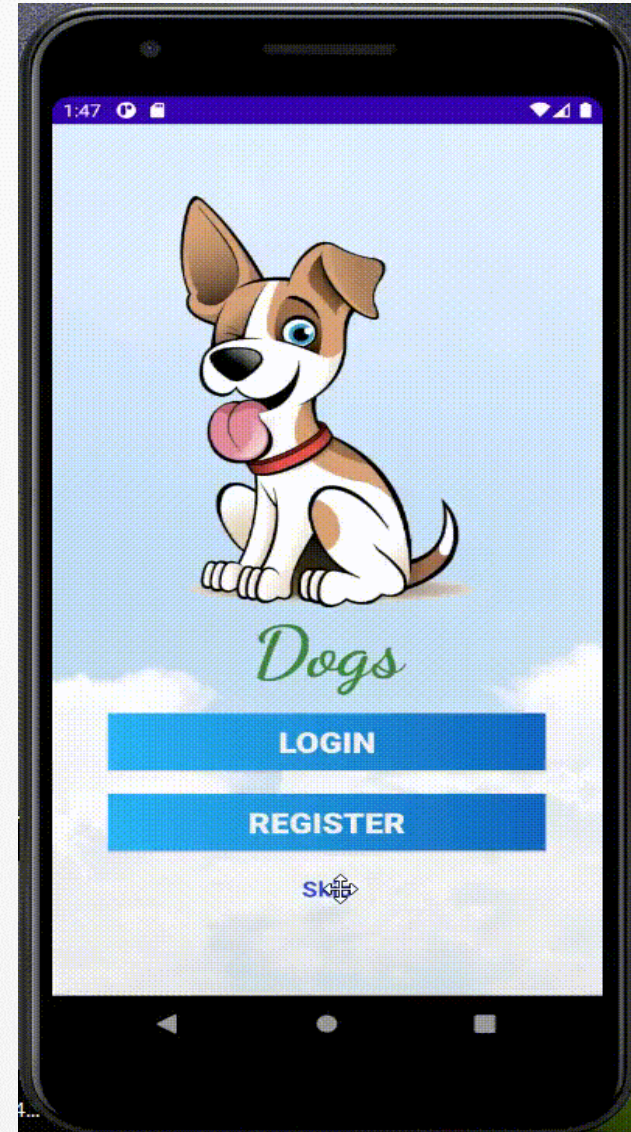
Step:

- Input old password
- Input new password

Now:

ID:072214002

Password:12345678





3.5 SQLITE CODE

```
val c : Cursor = MyDB.query(
    distinct: true, DB_TABLE, arrayOf("name", "id", "password"),
    selection: " id='" + editTextL1.getText().toString() + "'", selectionArgs: null,
    groupBy: null, having: null, orderBy: null, limit: null, cancellationSignal: null
) ?: return@OnClickListener

if (c.moveToNext()) {
    var dbPassword: String = c.getString(c.getColumnIndex("password"))
    c.close();
    if (editTextL2.getText().toString() == dbPassword) {
        Toast.makeText(context: this, text: "密碼正確，登入成功", Toast.LENGTH_LONG).show()
        val intent = Intent()
        intent.setClass(packageContext: this, Features::class.java)
        startActivity(intent)
    } else {
        Toast.makeText(context: this, text: "密碼錯誤，請重新輸入", Toast.LENGTH_LONG).show()
    }
}
```




3.6.1 PREDICTION CODE

```
private fun select() {  
    val intent = Intent(Intent.ACTION_GET_CONTENT)  
    intent.type = "image/*"  
    startActivityForResult(intent , requestCode: 100)  
}  
  
override fun onActivityResult(requestCode: Int, resultCode: Int, data: Intent?) {  
    super.onActivityResult(requestCode, resultCode, data)  
    if (requestCode == 100 && resultCode == Activity.RESULT_OK) {  
        imageViewP1.setImageURI(data?.data)  
        var uri : Uri? = data?.data  
        bitmap = MediaStore.Images.Media.getBitmap(this.contentResolver,uri)  
    }  
}
```



3.6.2 PREDICTION CODE

```
buttonP2.setOnClickListener { it: View!
```

```
    var resized : Bitmap! = Bitmap.createScaledBitmap(bitmap, dstWidth: 224, dstHeight: 224, filter: true)  
    val model : Model0611 = Model0611.newInstance( context: this)  
    val inputFeature0 : TensorBuffer = TensorBuffer.createFixedSize(intArrayOf(1, 224, 224, 3), DataType.UINT8)
```

```
    var tbufprt : TensorImage! = TensorImage.fromBitmap(resized)  
    var byteBuffer : ByteBuffer = tbufprt.buffer  
    inputFeature0.loadBuffer(byteBuffer)
```

```
    val outputs : Model0611.Outputs = model.process(inputFeature0)  
    val outputFeature0 : TensorBuffer = outputs.outputFeature0AsTensorBuffer
```

```
    var max : Int = getMax(outputFeature0.floatArray)  
    textViewP2.setText(labels[max])  
    model.close()
```

```
}
```




PART 4

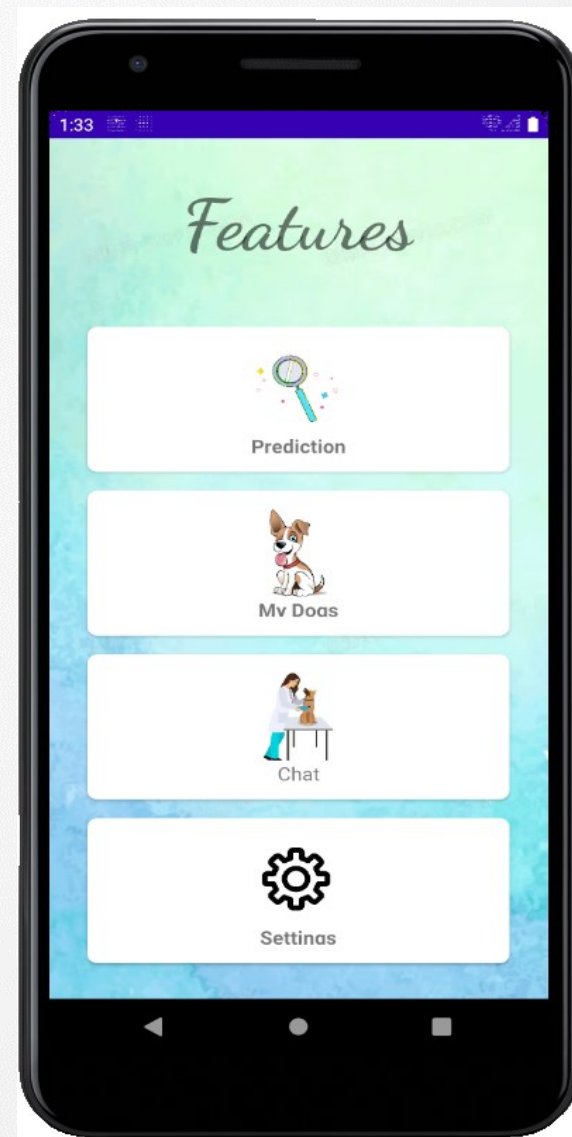
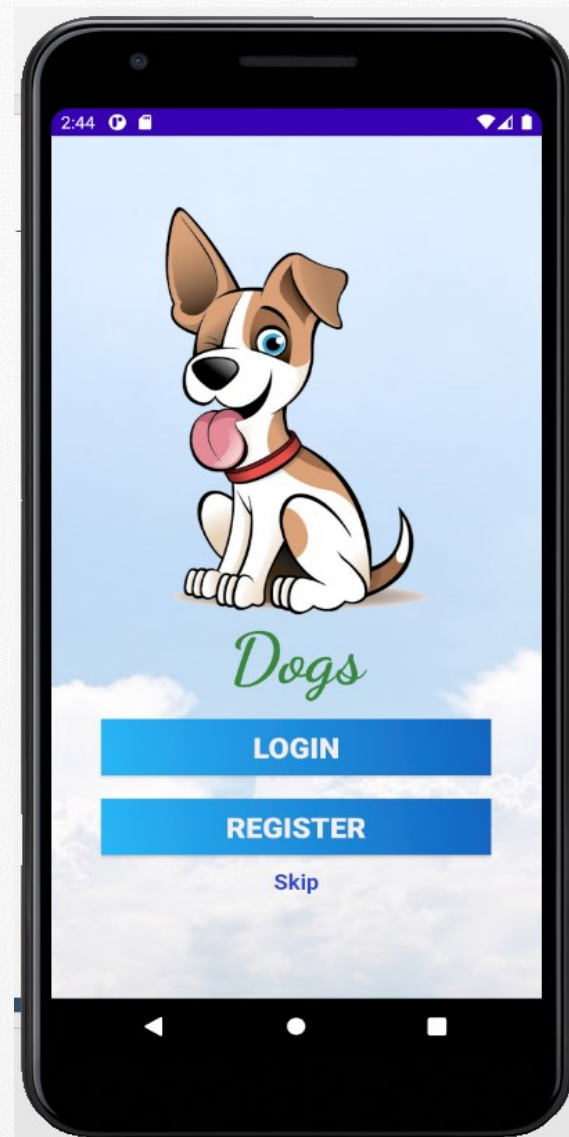
GROW



4.1 GROW

未來期望：

- 改善影像辨識之標籤數
- 將即時Chat建構完成
- 資料庫關聯性改善
- 更結構化的註冊登入驗證
- 新增SSO登入功能





PART 5

REFERENCES





5.1 REFERENCES

=====

SQLITE參考資料：

[1] Android:用 SQLite 实现 用户的登录查询功能(详解+效果图)

<https://reurl.cc/NrqeMe>

=====

影像辨識參考資料：

[1] Custom Image Classification on Android using TensorFlow Lite

<https://medium.com/analytics-vidhya/custom-image-classification-on-android-using-tensorflow-lite-9f9b3917a26f>

[2]image classification | image recognition android app | machine learning app | ml android

<https://www.youtube.com/watch?v=6ErbFQb8QS8&t=880s>

=====



Thank you for watching



報告人：張家豪



指導老師：蔡坤孝