

*Object Oriented Programming*  
**Android Tutorials**  
**Tutorial #6 : Touch and multi-touch**

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# Android Game Framework 使用說明

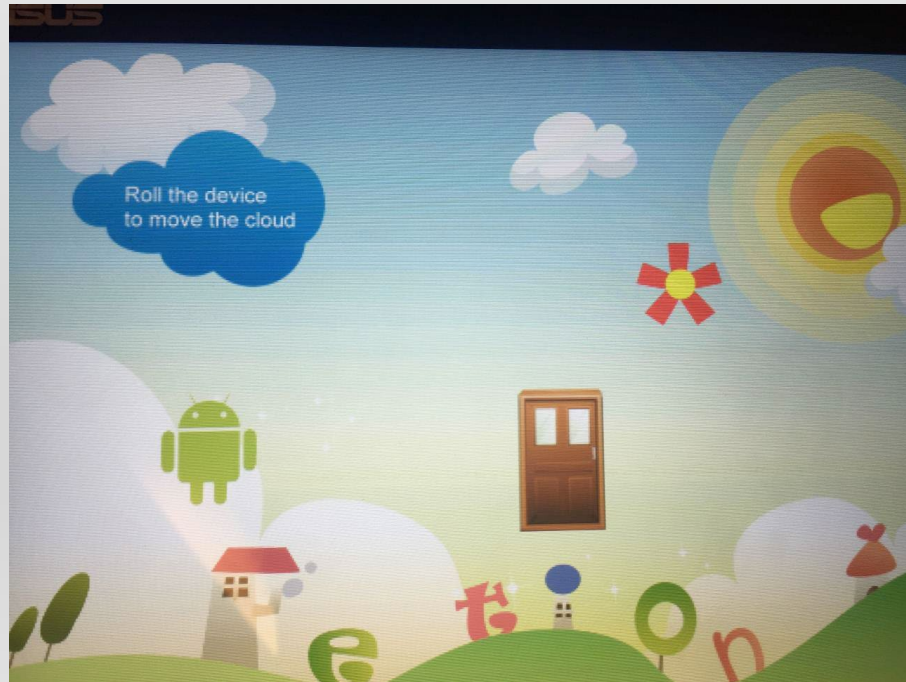
單點及多點觸控

練習 6A : 單點觸控

## 1.在 StateRun 中 pointerPressed 改成以下程式碼

```
@Override
public boolean pointerPressed(Pointer actionPointer, List<Pointer> pointers) {
    _message.setVisible(false);
    _flower.setLocation(actionPointer.getX(), actionPointer.getY());
    return true;
}
```

## 2.執行，執行結果如下(隨意觸碰螢幕)



花朵會出現在觸碰的位置上

# Android Game Framework 使用說明

單點及多點觸控

練習 6B :多點觸控

## 1.在 StateRun 中增加以下變數

```
private Pointer _pointer1;  
private Pointer _pointer2;  
private int _pointerDistance;  
private int _tempDistance;  
private int _androidWidth;  
private int _androidHeight;  
private int _newWidth;  
private int _newHeight;
```

## 2. initialize 加入以下程式碼使數值初始化

```
_pointer1 = null;  
_pointer2 = null;  
_pointerDistance = 0;  
_tempDistance = 0;  
_androidWidth = _android.getWidth();  
_androidHeight = _android.getHeight();  
_newWidth = _androidWidth;  
_newHeight = _androidHeight;
```

### 3. pointerPressed修改如下，當螢幕被觸控時會執行此 function

```
@Override
public boolean pointerPressed(Pointer actionPointer, List<Pointer> pointers) {
    _message.setVisible(false);
    int touchX = actionPointer.getX();
    int touchY = actionPointer.getY();
    if (touchX > _android.getX() && touchX < _android.getX() + _android.getWidth() &&
        touchY > _android.getY() && touchY < _android.getY() + _android.getHeight()) {
        _grab = true;
    } else {
        _grab = false;

        if (_pointer1 == null){
            _pointer1 = actionPointer;
        } else if (_pointer2 == null){
            _pointer2 = actionPointer;
        }

        if (_pointer1 != null && _pointer2 != null) {
            _pointerDistance = Math.abs(_pointer1.getX() - _pointer2.getX());
        }
    }
    return true;
}
```



## 4. pointerMove修改如下，當手指在螢幕上移動或按著不放時執行此function

```
@Override
public boolean pointerMoved(Pointer actionPointer, List<Pointer> pointers) {
    if (_grab)
        _android.setLocation(actionPointer.getX() - _android.getWidth() / 2,
            actionPointer.getY() - _android.getHeight() / 2);
    int moveX = _android.getX();
    int moveY = _android.getY();
    if (moveX + _android.getWidth() / 2 > _door.getX() && moveX < _door.getX() + _door.getWidth() / 2 &&
        moveY + _android.getHeight() / 2 > _door.getY() && moveY < _door.getY() + _door.getHeight() / 2)
        changeState(Game.OVER_STATE);

    if (_pointer1 != null && _pointer2 != null) {
        if (actionPointer.getID() == _pointer1.getID()){
            _pointer1 = actionPointer;
        }else if (actionPointer.getID() == _pointer2.getID()){
            _pointer2 = actionPointer;
        }
        resizeAndroidIcon();
    }

    return false;
}
```

## 5.新增加此 function

```
private void resizeAndroidIcon() {  
    _tempDistance = Math.abs(_pointer1.getX() - _pointer2.getX());  
    if (_tempDistance > _pointerDistance){  
        _newWidth += 5;  
        _newHeight += 5;  
        _android.resize(_newWidth, _newHeight);  
    }else if (_tempDistance < _pointerDistance) {  
        if (_newWidth > _androidWidth && _newHeight > _androidHeight){  
            _newWidth -=5;  
            _newHeight -= 5;  
            _android.resize(_newWidth, _newHeight);  
        }  
    }  
    _pointerDistance = _tempDistance;  
}
```



## 6. pointerReleased修改如下，當手指離開螢幕時執行此 function

```
@Override
public boolean pointerReleased(Pointer actionPointer, List<Pointer> pointers) {
    _grab = false;

    if (pointers.size() == 0){
        _pointer1 = null;
        _pointer2 = null;
        _pointerDistance = 0;
    }else {
        if (_pointer1 != null && actionPointer.getID() == _pointer1.getID()){
            _pointer1 = null;
        }else if (_pointer2 != null && actionPointer.getID() == _pointer2.getID()){
            _pointer2 = null;
        }
    }

    return false;
}
```

7.執行結果(手指不碰觸到Android icon情況下，2隻手指做縮放，Android icon 會縮放)