

抽籤遊戲設計



大學部人工智慧應用

數位系三年級

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教學網站：[HTTP://120.108.221.55/PROFCHWU/DCTEC](http://120.108.221.55/PROFCHWU/DCTEC)

FB社團： 106 數位系人工智慧

抽籤遊戲設計

目標

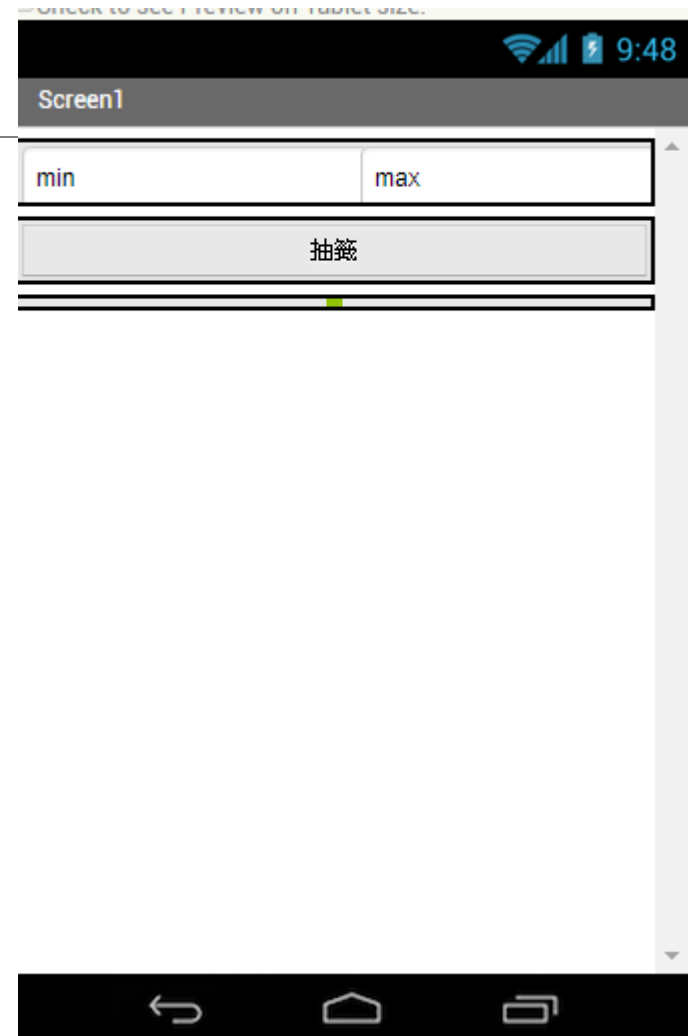
- 設計一個抽籤遊戲

資料結構

清單（陣列）

演算法

- 依照大小範圍，進行抽籤。



需要瞭解的程式技巧

按鈕控制

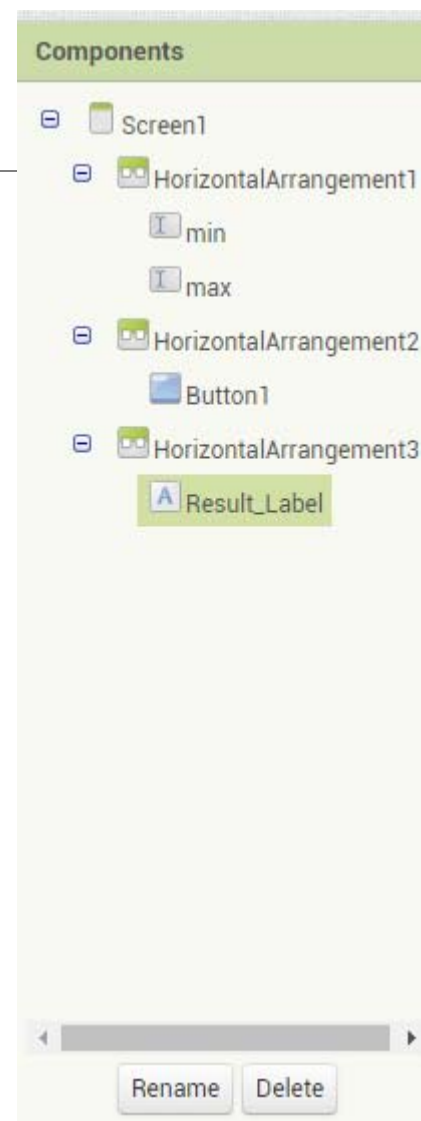
清單控制

- 建立清單
- 從清單中亂數選取一筆資料
- 從清單中刪除資料

If else判斷

變數（變數與陣列）

螢幕設計



程式碼

```
initialize global ballot_list to create empty list

when Button1 .Click
do
  for each number from min . Text
                    to   max . Text
                    by   1
  do
    add items to list list get global ballot_list
                        item get number
  set Result_Label . Text to pick a random item list get global ballot_list
```



後續延伸

體感抽籤（用搖晃抽籤）

修正數值輸入錯誤

- 沒有輸入數字
- 大小輸入錯誤

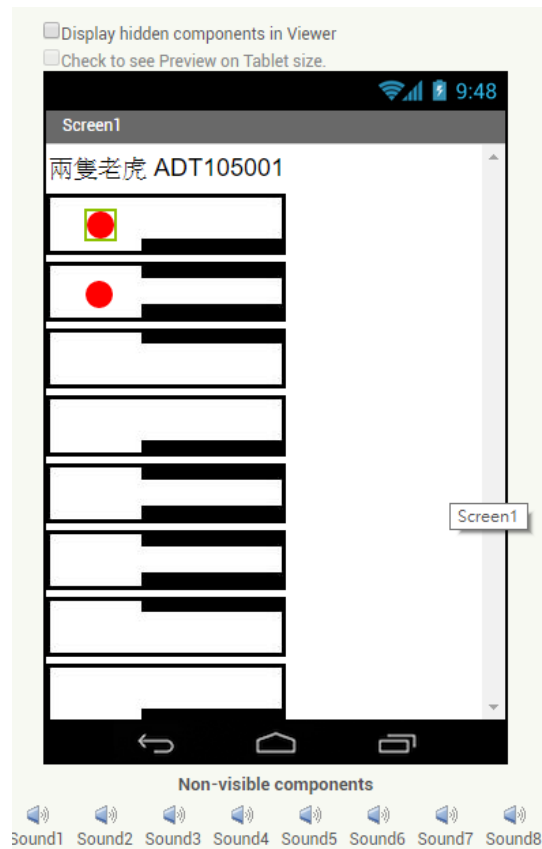
抽籤號碼不重複

顯示/消失 輸入視窗

要如何加上上述
功能呢？
自己練習一下吧。



螢幕與屬性設計



Properties

Ball1

Enabled

Heading

Interval

PaintColor Red

Radius

Speed

Visible

X

Y

Z

加入最大值不能小於最小值的判斷提示

```
initialize global ballot_list to create empty list

when Button1 .Click
do
  if min . Text < max . Text
  then
    for each number from min . Text
      to max . Text
      by 1
    do
      add items to list list get global ballot_list
      item get number
    set Result_Label . Text to pick a random item list get global ballot_list
  else
    set Result_Label . Text to "最大值不能小於最小值"
```

加入最大值不能小於最小值的判斷提示



加入抽籤號碼不重複

```
when Button1 .Click
do
  if
    is number? min . Text and is number? max . Text and min . Text < max . Text
  then
    for each number from min . Text
      to max . Text
      by 1
      do
        add items to list list get global ballot_list
        item get number
    set Result_Label . Text to pick a random item list get global ballot_list
    remove list item list get global ballot_list
    index index in list thing Result_Label . Text
    list get global ballot_list
  else
    set Result_Label . Text to "最大值不能小於最小值"
```

從清單移除已經抽出來的號碼

加入控制抽籤數字是否要顯示

The image displays a Scratch script for a lottery drawing simulation. The script is as follows:

```
initialize global ballot_list to create empty list
initialize global show_input to false

when Button1 .Click
do
  if
    is number? min . Text and is number? max . Text and min . Text < max . Text
  then
    if
      get global show_input = false
    then
      set HorizontalArrangement1 . Visible to false
      for each number from min . Text to max . Text by 1
      do
        add items to list list get global ballot_list
        item get number
      set Result_Label . Text to pick a random item list get global ballot_list
      remove list item list get global ballot_list
      index index in list thing Result_Label . Text list get global ballot_list
      if
        is list empty? list get global ballot_list
      then
        set global show_input to true
        set HorizontalArrangement1 . Visible to true
    else
      set Result_Label . Text to "最大值不能小於最小值"
```

Annotations in the image include:

- A red dashed box around the `initialize global show_input to false` block.
- A red dashed box around the `if` block containing `get global show_input = false` and `set HorizontalArrangement1 . Visible to false`.
- A red dashed box around the `if` block containing `is list empty? list get global ballot_list` and `set global show_input to true` and `set HorizontalArrangement1 . Visible to true`.

Two callout boxes provide explanations:

- A green callout box: 用變數控制是否需要顯示輸入數字 (Use variables to control whether input numbers need to be displayed).
- A blue callout box: 如果清單為空，表示已經抽完，設定變數為True並顯示輸入視窗 (If the list is empty, it indicates that the drawing is complete, set the variable to True and display the input window).

加入體感抽籤功能

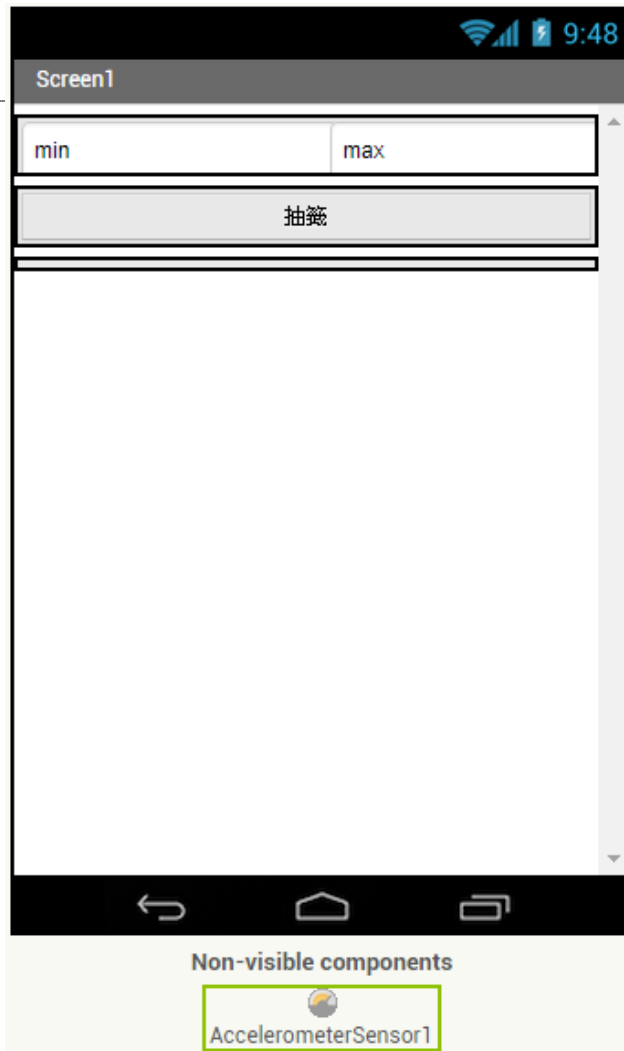
```
if [is number? min . Text] and [is number? max . Text] and [min . Text < max . Text]
then
  if [get global show_input] = false
  then
    set HorizontalArrangement1 . Visible to false
    for each number from min . Text to max . Text by 1
    do
      add items to list list [get global ballot_list]
      item [get number]
    set Result_Label . Text to pick a random item list [get global ballot_list]
    remove list item list [get global ballot_list]
    index [index in list thing Result_Label . Text] list [get global ballot_list]
    if [is list empty? list [get global ballot_list]]
    then
      set global show_input to true
      set HorizontalArrangement1 . Visible to true
  else
    set Result_Label . Text to "最大值不能小於最小值"
```

因為抽籤的動作是共用的，所以把這段程式碼改成副程式

這樣 體感抽籤與按鈕抽籤就可以共用這段程式碼



螢幕設計 (加入加速器)



可以設定搖晃的
靈敏度

最後的程式碼

```
initialize global ballot_list to create empty list
initialize global show_input to false

when Button1 .Click
do call do_ballot

when AccelerometerSensor1 .Shaking
do call do_ballot

to do_ballot
do if
  is number? min . Text and is number? max . Text and min . Text < max . Text
  then if
    get global show_input = false
    then set HorizontalArrangement1 . Visible to false
        for each number from min . Text
          to max . Text
          by 1
          do add items to list list get global ballot_list
              item get number
        set Result_Label . Text to pick a random item list get global ballot_list
        remove list item list get global ballot_list
          index index in list thing Result_Label . Text
          list get global ballot_list
        if is list empty? list get global ballot_list
          then set global show_input to true
              set HorizontalArrangement1 . Visible to true
    else set Result_Label . Text to " 最大值不能小於最小值 "
```

Warnings

後續可以延伸

抽出不一定是數字，可以顯示是圖片。

