



# 國立聯合大學資訊工程(學)系 106級大學部網路程式設計 期末成果報告書

## 中獎號碼查詢系統

指導教師：李國川 老師  
班 級：資工三甲(大學部)  
組 員：陳昀廷(U0424028)  
組 員：蔣宜蘋(U0424029)

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# 第一章、緒論前言

## 1. 研究背景與目的

每個人都有發財夢，花小錢買張彩券換來一次中獎的機會，發票更為普遍，有消費就有發票，日常的消費也許就能中獎。

關於發票及彩券，多為單獨的應用程式，我們結合台灣彩券中的大樂透、威力彩以及統一發票於同一應用程式當中，透過Python、資料庫、Android輕鬆得知各個的中獎號碼。

## 第二章、系統特色描述

將撈取網頁資料的python程式碼放入電腦的工作排程，每天固定時間去目標網頁撈取資料，將新資料存進資料庫。

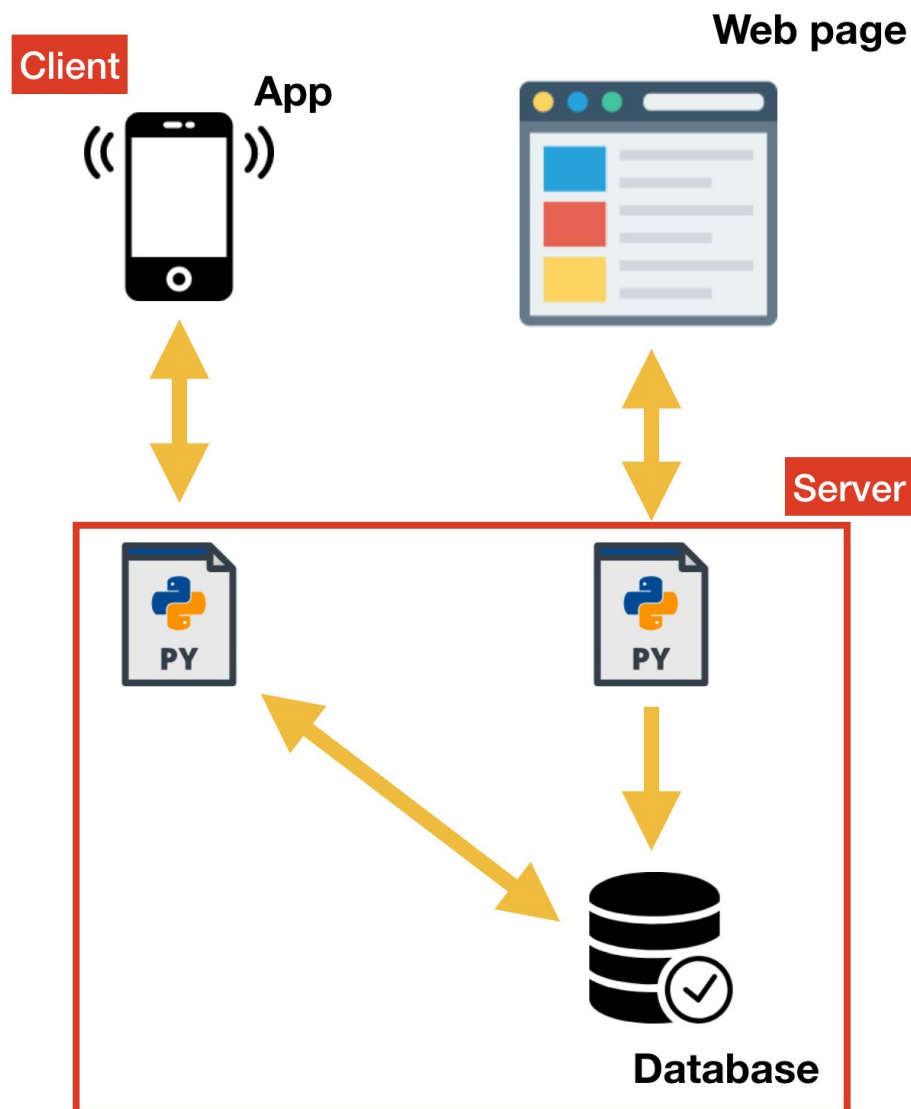
先由手機client端選取欲查詢的選項（類別、月份或期號），再由python程式碼直接從資料庫裡撈取資料傳給手機client端。不必受限於查詢當下網頁的狀態。也能藉由資料庫查詢之前的資料。

### 第三章、軟體功能架構

將撈取網頁資料的python檔加入電腦的工作排程，每天固定的時間執行該檔案。分別前往台灣彩券、財政部的網頁撈取資料，如果資料庫內未含有該筆資料，則將資料存進資料庫。

手機app可選擇大樂透、威力彩以及統一發票。選擇欲查詢的類別，再輸入日期或期號，python程式碼再從資料庫裡撈取查詢資料傳回手機app。

圖一、功能架構圖



## 第四章、系統操作畫面

圖二、手機app畫面



圖三、手機app 發票查詢畫面

Cpy

發票

107 03-04月 送出

特別獎: 12342126  
特獎: 80740977  
頭獎: 36822639、38786238、87204837  
增開六獎: 991、715

離開

1	2	3
4	5	6
7	8	9
← x	0	完成

圖四、手機app 大樂透查詢畫面

Cpy

大樂透

107000052

送出

開獎號碼: 16 25 28 30 44 46  
特別號: 27

離開

1	2	3
4	5	6
7	8	9
← ×	0	完成

圖五、手機app 威力彩查詢畫面

Cpy

威力彩

107000049

送出

開獎號碼: 01 07 09 10 16 17  
特別號: 06

離開

1	2	3
4	5	6
7	8	9
← ×	0	完成



## 第五章、程式碼

圖六、撈取網頁資料-1

```
1 import requests, sqlite3
2 from bs4 import BeautifulSoup
3
4 conn = sqlite3.connect('C:/Users/JYP/Documents/python/test')
5
6 url_lotto = 'http://www.taiwanlottery.com.tw/index_new.aspx'
7 url_invoice = 'http://invoice.etax.nat.gov.tw/'
8 html_lotto = requests.get(url_lotto)
9 html_invoice = requests.get(url_invoice)
10 html_invoice.encoding='UTF-8'
11 sp_lotto = BeautifulSoup(html_lotto.text, 'html.parser')
12 sp_invoice = BeautifulSoup(html_invoice.text, 'html.parser')
13 data_lotto = sp_lotto.select("#rightdown")
14 data_invoice = sp_invoice.select('#area1')
15
```

圖七、撈取網頁資料-2

```
18 #威力彩
19 def lotto():
20     data2 = data_lotto[0].find_all("div", {"class": "contents_box02"})
21     data2_date = data2[0].find("span", {"class": "font_black15"})
22     print("\n威力彩 %s" % data2_date.text)
23     data2_1 = data2[0].find_all("div", {"class": "ball_green"})
24
25     print("開出順序:", end=" ")
26     for i in range(len(data2_1)-6):
27         print(data2_1[i].text, end=" ")
28
29     print("\n大小順序:", end=" ")
30     number = ""
31     for i in range(6, len(data2_1)):
32         number += data2_1[i].text
33         print(data2_1[i].text, end=" ")
34
35     print("\n第二區:", end=" ")
36     data2_3 = data2[0].find("div", {"class": "ball_red"})
37     print(data2_3.text)
38
39     datenumber = data2_date.text
40     datenumber = datenumber.rsplit()
41     #print(datenumber)
42     #print(datenumber[1])
43     secondarea = data2_3.text
44
45     sqlstr = "select * from lotto where datenumber='{ }'".format(datenumber[1])
46     cursor = conn.execute(sqlstr)
47     row = cursor.fetchone()
48
49     if not row == None:
50         print("{ } 此資訊已存在".format(datenumber[1]))
51     else:
52         sqlstr = "insert into lotto values('{ }', '{ }', '{ }')".format(datenumber[1], number, secondarea)
53         conn.execute(sqlstr)
54         conn.commit()
55
56     print("歷史紀錄:")
57     sqlstr = "select * from lotto"
58     cursor = conn.execute(sqlstr)
59     for line in cursor:
60         print(line)
61
```

圖八、撈取網頁資料-3

```
62 #大樂透
63 def lotto2():
64     data2 = data_lotto[0].find_all("div", {"class": "contents_box02"})
65     data4_date = data2[2].find("span", {"class": "font_black15"})
66     print("\n大樂透 %s" % data4_date.text)
67     data4_1 = data2[2].find_all("div", {"class": "ball_yellow"})
68
69     print("開出順序:", end=" ")
70     for i in range(len(data4_1)-6):
71         print(data4_1[i].text, end=" ")
72
73     print("\n大小順序:", end=" ")
74     number = ""
75     for i in range(6, len(data4_1)):
76         number += data4_1[i].text
77         print(data4_1[i].text, end=" ")
78
79     print("\n特別號:", end=" ")
80     data4_3 = data2[2].find("div", {"class": "ball_red"})
81     print(data4_3.text)
82
83     datenumber = data4_date.text
84     datenumber = datenumber.rsplit()
85     #print(datenumber)
86     #print(datenumber[1])
87     special = data4_3.text
88
89     sqlstr = "select * from lotto2 where datenumber='{ }'".format(datenumber[1])
90     cursor = conn.execute(sqlstr)
91     row = cursor.fetchone()
92
93     if not row == None:
94         print("{ } 此資訊已存在".format(datenumber[1]))
95     else:
96         sqlstr = "insert into lotto2 values('{ }', '{ }', '{ }')".format(datenumber[1], number, special)
97         conn.execute(sqlstr)
98         conn.commit()
99
100     print("歷史紀錄:")
101     sqlstr = "select * from lotto2"
102     cursor = conn.execute(sqlstr)
103     for line in cursor:
104         print(line)
105
```

圖九、撈取網頁資料-4

```
106 #發票
107 def invoice():
108     data2_title = data_invoice[0].find_all("h2")
109     data2_title = data2_title[1]
110     print("\n發票 %s" % data2_title.text)
111     data2 = data_invoice[0].find_all("span", {"class": "t18Red"})
112
113     number = ""
114     for i in range(len(data2)):
115         number += data2[i].text + " "
116         print(data2[i].text, end=" ")
117     print()
118
119     date = data2_title.text
120
121     sqlstr = "select * from invoice where date='{ }'".format(date)
122     cursor = conn.execute(sqlstr)
123     row = cursor.fetchone()
124
125     if not row == None:
126         print("{ } 此資訊已存在".format(date))
127     else:
128         sqlstr = "insert into invoice values('{ }','{ }')".format(date, number)
129         conn.execute(sqlstr)
130         conn.commit()
131
132     print("歷史紀錄:")
133     sqlstr = "select * from invoice"
134     cursor = conn.execute(sqlstr)
135     for line in cursor:
136         print(line)
137
138
139 lotto()
140 lotto2()
141 invoice()
```

圖十、撈取資料庫

```
1 import socket
2 import threading
3 import sqlite3
4
5 conn = sqlite3.connect('test', check_same_thread=False)
6
7 # 建立 TCP server socket
8 server = socket.socket(socket.AF_INET, socket.SOCK_STREAM)
9
10 bind_ip = "120.105.129.104"
11 bind_port = 5050
12 server.bind((bind_ip, bind_port))
13 server.listen(5)
14
15 print("[*] Listening on %s:%d" % (bind_ip, bind_port))
16
17 def handle_client(client_socket):
18     kind = client_socket.recv(1024).decode()
19     print("kind=%s" % kind)
20     date = client_socket.recv(1024).decode()
21     print("date=%s" % date)
22     if kind=="0":
23         sqlstr = "select * from lotto where datenumber='{ }'".format(date)
24         date = "第"+date+"期"
25         sqlstr = "SELECT * FROM lotto WHERE datenumber='{ }'".format(date)
26
27     elif kind=="1":
28         date = "第"+date+"期"
29         sqlstr = "SELECT * FROM lotto2 WHERE datenumber='{ }'".format(date)
30
31     else:
32         sqlstr = "SELECT * FROM invoice WHERE date='{ }'".format(date)
33
34     cursor = conn.execute(sqlstr)
35     row = cursor.fetchone()
36     if row==None:
37         ans = "1 { } 不存在!".format(date)
38     else:
39         if kind=="0":
40             ans = "2 "+row[1]+" "+row[2]
41         elif kind=="1":
42             ans = "3 "+row[1]+" "+row[2]
43         else:
44             ans = "4 "+row[1]
45
46     print(ans)
47     client_socket.send(str(ans).encode())
48     client_socket.close()
49
50
51
52 while True:
53     client, addr = server.accept()
54     print("[*] Accepted connection from: %s:%d" % (addr[0], addr[1]))
55
56     client_handler = threading.Thread(target=handle_client, args=(client,))
57     client_handler.start()
58
59 # server.close()
```



圖十一、Android.xml -1

```
<?xml version="1.0" encoding="utf-8"?>
<LinearLayout xmlns:android="http://schemas.android.com/apk/res/android"
    android:orientation="vertical" android:layout_width="match_parent"
    android:layout_height="match_parent">

    <Spinner
        android:id="@+id/spn1"
        android:layout_width="fill_parent"
        android:layout_height="wrap_content"

        >
    </Spinner>

    <LinearLayout
        android:id="@+id/Linlo"
        android:layout_width="wrap_content"
        android:layout_height="wrap_content"
        android:orientation="horizontal">

        <EditText
            android:id="@+id/edtnum"
            android:layout_width="wrap_content"
            android:layout_height="wrap_content"
            android:ems="10"
            android:inputType="number"
            android:singleLine="true"
            android:hint="請輸入期號"
            android:textSize="20sp"/>

        <Button
            android:id="@+id/btn1"
            android:layout_width="wrap_content"
            android:layout_height="wrap_content"
            android:onClick="onClicklo"
            android:text="送出"
            android:textSize="20sp"/>

    </LinearLayout>
```

圖十二、Android.xml -2

```
<LinearLayout
    android:id="@+id/Linfa"
    android:layout_width="wrap_content"
    android:layout_height="wrap_content"
    android:orientation="horizontal">

    <EditText
        android:id="@+id/edtyear"
        android:layout_width="wrap_content"
        android:layout_height="wrap_content"
        android:ems="5"
        android:inputType="number"
        android:singleLine="true"
        android:hint="請輸入年份"
        android:textSize="20sp"/>

    <Spinner
        android:id="@+id/spn2"
        android:layout_width="fill_parent"
        android:layout_height="wrap_content">
    </Spinner>

    <Button
        android:id="@+id/btn2"
        android:layout_width="wrap_content"
        android:layout_height="wrap_content"
        android:onClick="onClickfa"
        android:text="送出"
        android:textSize="20sp"/>

</LinearLayout>

<TextView
    android:id="@+id/text"
    android:layout_width="wrap_content"
    android:layout_height="wrap_content"
    android:textSize="20sp"/>

<Button
    android:id="@+id/btn3"
    android:layout_width="wrap_content"
    android:layout_height="wrap_content"
    android:onClick="CloseApp"
    android:text="離開"
    android:textSize="20sp"/>

</LinearLayout>
```

圖十三、Android.java -1

```
import ...

public class MainActivity extends AppCompatActivity {

    private EditText edtnum,edtyear;
    private TextView text;
    private Spinner spn1,spn2;
    private int p2=0;
    private String s1="",p1="";
    String[] choose= new String[] {"威力彩","大樂透","發票"};
    String[] month= new String[] {"01-02月","03-04月","05-06月","07-08月","09-10月","11-12月"};
    SimpleDateFormat sdf = new SimpleDateFormat("yyyy");
    Date dt=new Date();
    String dts=sdf.format(dt);
    int now = Integer.parseInt(dts);

    @Override
    protected void onCreate(Bundle savedInstanceState) {
        super.onCreate(savedInstanceState);
        setContentView(R.layout.activity_main);

        spn1=(Spinner) findViewById(R.id.spn1);
        spn2=(Spinner) findViewById(R.id.spn2);
        edtnum = (EditText)findViewById(R.id.edtnum);
        edtyear = (EditText)findViewById(R.id.edtyear);
        text = (TextView)findViewById(R.id.text);

        // 建立ArrayAdapter
        ArrayAdapter<String> adapterchoose=new ArrayAdapter<String>
            (this,R.layout.myspinner,choose);
        ArrayAdapter<String> adaptermonth=new ArrayAdapter<String>
            (this,R.layout.myspinner,month);

        // 設定Spinner顯示的格式
        adapterchoose.setDropDownViewResource(R.layout.myspinner);
        adaptermonth.setDropDownViewResource(R.layout.myspinner);

        // 設定Spinner的資料來源
        spn1.setAdapter(adapterchoose);
        spn2.setAdapter(adaptermonth);
    }
}
```



圖十四、Android java -2

```
// 設定 spnEducation 元件 ItemSelected 事件的 listener
spn1.setOnItemSelectedListener(myListener1);
spn2.setOnItemSelectedListener(myListener2);

findViewById(R.id.Linlo).setVisibility( View.GONE );
findViewById(R.id.Linfa).setVisibility( View.GONE );
}

// 定義 onItemSelected 方法
private Spinner.OnItemSelectedListener myListener1=
    new Spinner.OnItemSelectedListener(){
        @Override
        public void onItemSelected(AdapterView<?> parent, View v,
                                   int position, long id) {
            p1=Integer.toString(position);
            text.setText("");
            edtnum.setText("");
            edtyear.setText("");
            if (position==0 || position==1){
                findViewById(R.id.Linlo).setVisibility( View.VISIBLE );
                findViewById(R.id.Linfa).setVisibility( View.GONE );
            }
            else {
                findViewById(R.id.Linlo).setVisibility(View.GONE);
                findViewById(R.id.Linfa).setVisibility(View.VISIBLE);
            }
        }
        @Override
        public void onNothingSelected(AdapterView<?> parent) {
            // TODO Auto-generated method stub
        }
    };

private Spinner.OnItemSelectedListener myListener2=
    new Spinner.OnItemSelectedListener(){
        @Override
        public void onItemSelected(AdapterView<?> parent, View v,
                                   int position, long id) {
            p2=position;
            text.setText("");
        }
        @Override
        public void onNothingSelected(AdapterView<?> parent) {
            // TODO Auto-generated method stub
        }
    };
};
```

圖十五、Android java -3

```
public void onClicklo(View view){
    s1=edtnum.getText().toString();
    if (s1.length()!=9){
        Toast toast=Toast.makeText(MainActivity.this, "" +
            "請輸入9個數字", Toast.LENGTH_LONG);
        toast.setGravity(Gravity.CENTER, 0, 0);
        toast.show();
    }
    else{
        new SigninActivity(this,p1,s1,text).execute();
    }
}

public void onClickfa(View view){
    text.setText("");
    String yearS=edyear.getText().toString();
    if (yearS.equals("")){
        Toast toast=Toast.makeText(MainActivity.this, "請輸入年分", Toast.LENGTH_LONG);
        toast.setGravity(Gravity.CENTER, 0, 0);
        toast.show();
    }else {
        int yearI = Integer.parseInt(yearS);
        if (yearI > now - 1911) {
            Toast toast = Toast.makeText(MainActivity.this, "請輸入正確民國年分", Toast.LENGTH_LONG);
            toast.setGravity(Gravity.CENTER, 0, 0);
            toast.show();
        } else {
            s1 = yearS + "年" + month[p2];
            new SigninActivity(this, p1, s1, text).execute();
        }
    }
}

//s1=yearS+"年"+month[p2];
//new SigninActivity(this,p1,s1,text).execute();
}
```

圖十七、Android .java -4

```
public void CloseApp(View view){
    //System.exit(0);
    new AlertDialog.Builder(MainActivity.this)
        .setTitle("確認視窗")
        .setIcon(R.mipmap.ic_launcher)
        .setMessage("確定要結束應用程式嗎? ")
        .setPositiveButton("確定", new DialogInterface.OnClickListener() {
            public void onClick(DialogInterface dialoginterface, int i)
            {
                finish();
            }
        })
        .setNegativeButton("取消", new DialogInterface.OnClickListener() {
            public void onClick(DialogInterface dialoginterface, int i)
            {
            }
        })
        .show();
}
```

圖十八、Android TCP client .java -1

```
import ...

public class SigninActivity extends AsyncTask<String,Void,String> {

    private EditText edtnum;
    private String s1;
    private String p1;
    private TextView text;
    private Context context;
    String[] title= new String[] {"特別獎: ","特獎: ","頭獎: ","增開六獎: "};

    public SigninActivity(Context context,String p1,String s1,
        TextView text) {
        this.context = context;
        this.s1 = s1;
        this.p1 =p1;
        this.text = text;
    }
    protected void onPreExecute(){
    }
    @Override
    protected String doInBackground(String... arg0) {

        try {
            Socket cs = new Socket("120.105.129.104",5050);

            BufferedReader in = new BufferedReader(new InputStreamReader(cs.getInputStream()));
            BufferedWriter out = new BufferedWriter(new OutputStreamWriter(cs.getOutputStream()));

            out.write(p1);
            out.flush();
            out.write(s1);
            out.flush();

            String line = in.readLine();

            in.close();
            out.close();
            cs.close();
            return line;

        } catch (Exception e) {
            e.printStackTrace();
            return new String("Exception: " + e.getMessage());
        }
    }
}
```

圖十九、Android TCP client .java -2

```
protected void onPostExecute(String result){
    String[] ans = result.split(" ");
    if (ans[0].equals("1")){
        result = result.substring(2);
        this.text.setText(result+"\n");
    }
    else if (ans[0].equals("2") || ans[0].equals("3")){
        result = result.substring(2);

        result = result.replace("+", "\n特別號: ");
        this.text.setText("開獎號碼: " + result+"\n");
    }
    else{
        result = result.substring(2);
        String[] ans2 = result.split(" ");
        String anss = "";
        for(int i=0; i<4; i++){
            anss += title[i]+ans2[i)+"\n";
        }
        this.text.setText(anss);
    }
}
```

圖二十、威力彩資料表

datanumber	number	second area
第107000043期	09 12 14 20 26 32	06
第107000044期	02 03 13 23 26 38	07

圖二十一、大樂透資料表

datanumber	number	special
第107000047期	11 14 20 26 37 41	02
第107000048期	16 26 28 33 42 49	20

圖二十二、統一發票資料表

date	number
107年03-04月	12342126 80740977 36822639、38786238、87204837 991、715

## **第六章、結論**

### **6.1 結論**

目前Android關於發票以及彩券多為單獨的相關應用程式，我們利用本課堂所學的Python結合資料庫搭配上學期所學的行動通訊程式設計建立中獎號碼查詢系統。此系統能輕鬆切換大樂透、威力彩和發票介面，得到欲查詢之中獎號碼，簡單的操作讓人輕鬆上手。

### **6.2 心得**

原本想加入自動對獎的功能，運用影像辨識讀取發票上的號碼，不但可以對電子發票進行辨識還可對傳統發票進行辨識，並同時進行對獎。但在Android的取得手機相機功能遇上難關，來不及將此功能即時加上，有點可惜。

## **參考文獻**

- [1] Python初學特訓班