國立高雄科技大學智慧商務系

111 學年度第 1 學期　程式設計(三)　期末專案報告			
班　　級	智商二乙		
學　　號	C110156246	姓　　名	王皓
期中專案名稱	貪吃蛇小遊戲		
期中專案介紹	一款貪吃蛇復古小遊戲		
期中專案說明	◆ → 本專案利用 Python 的 tkinter/ random/ PIL 套件以及 PowerPiont 製作此貪吃蛇小遊戲。 ◆ → 遊戲使用字體：**俐方體 11 號** ◆ → 遊戲內容/規則： 1. → WASD/↑↓←→可操控蛇 2. → 按空白鍵可暫停遊戲 3. → 遊戲規則： I. → 死亡： i. → 吃到毒蘋果(紫色) ii. → 撞到牆壁 iii. → 撞到自己身體 II. → 得分： i. → 吃到紅蘋果→加 1 分 ii. → 吃到金蘋果→加 3 分 III. → 每吃到紅/金蘋果，**刷新毒**蘋果的位子(座標隨機) 4. → 右半邊遊戲介紹/計分規則區塊 (使用 PPT 製作) 5. → 右下角記分板有本局分數/歷史最高分 		
期中專案程式	pg_C110156246.py U 期中專案-貪吃蛇 > pg_C110156246.py > Snake > snake_record 1 import tkinter as tk 2 from tkinter.messagebox import showinfo 3 import random 4 from PIL import Image, ImageTk 5 ''' 6 ~貪食蛇小遊戲~ 7 '''		

```python
class Snake():
    def __init__(self):
        # 遊戲參數設置
        global body_len, FPS, bestScore
        self.len        = 3     # 蛇身 初始長度
        body_len        = self.len # 蛇身 當前長度
        FPS             = 130   # 每禎 間隔 時間

        self.row_cells  = 20    # 寬 方格 數
        self.col_cells  = 20    # 高 方格 數
        self.cell_size  = 25    # 方格 大小

        self.frame_x    = 15     # 左右 外框
        self.frame_y    = 20    # 上下 外框
        self.win_w_plus = 300   # 右半邊 寬度

        # 顏色列表
        self.color_dict = {0:'black',   # 空白方格
                           1:'#00FF00', # 蛇头
                           2:'#008000', # 蛇身
                           3:'red',     # 紅蘋果
                           4:'white',   # 墙
                           5:'#FFC000', # 金蘋果
                           6:'#8B00FF'  # 毒蘋果
                           }
        self.canvas_bg  = 'black'
        bestScore = 0
        self.run_game()
```

```python
    # 遊戲視窗置中
    def window_center(self,window,w_size,h_size):
        screenWidth  =  window.winfo_screenwidth()  # 獲取 使用者螢幕 寬
        screenHeight = window.winfo_screenheight()  # 獲取 使用者螢幕 高
        left =  (screenWidth - w_size) // 2
        top  = (screenHeight - h_size) // 2
        window.geometry("%dx%d+%d+%d" % (w_size, h_size, left, top))
```

```python
    # 創建遊戲座標系統 game_map[x][y]
    def create_map(self):
        global game_map
        game_map = []
        for i in range(0,self.col_cells):
            game_map.append([])
        for i in range(0,self.col_cells):
            for j in range(0,self.row_cells):
                game_map[i].append(j)
                game_map[i][j] = 0  # 生成一個全是0的空數列
```

```
        # 墙
        def create_wall(self):
            for i in range(0,self.row_cells-1):
                game_map[0][i] = 4
                game_map[self.col_cells-1][i] = 4

            for i in range(0,self.col_cells-1):
                game_map[i][0] = 4
                game_map[i][self.row_cells-1] = 4
            game_map[-1][-1] = 4
```

```
    # 创建画布
    def create_canvas(self):
        global canvas
        canvas_h = self.cell_size * self.col_cells + self.frame_y*2
        canvas_w = self.cell_size * self.row_cells + self.frame_x*2
        canvas = tk.Canvas(window,
                           bg = self.canvas_bg,
                           height = canvas_h,
                           width = canvas_w,
                           highlightthickness = 0)
        canvas.place(x=0,y=0)
```

```
# 创建单位格
def create_cells(self):
    for y in range(0,self.col_cells):
        for x in range(0,self.row_cells):
            a = self.frame_x + self.cell_size*x
            b = self.frame_y + self.cell_size*y
            c = self.frame_x + self.cell_size*(x+1)
            d = self.frame_y + self.cell_size*(y+1)
            e = self.canvas_bg
            g = self.color_dict[game_map[y][x]]
            canvas.itemconfig(canvas.create_rectangle(a,b,c,d, outline=e, width=0, fill=g),fill=g)
```

```
    # 創建 紅蘋果
    def create_red_apple(self):
        global apple_red_xy
        apple_red_xy = [0,0]
        apple_red_xy[1] = random.randint(1, self.row_cells-2)
        apple_red_xy[0] = random.randint(1, self.col_cells-2)

        while game_map[apple_red_xy[0]][apple_red_xy[1]] != 0:
            apple_red_xy[0] = random.randint(1,self.row_cells-2)
            apple_red_xy[1] = random.randint(1,self.col_cells-2)

        game_map[apple_red_xy[0]][apple_red_xy[1]] = 3

    # 創建 金蘋果
    def create_gold_apple(self):
        global apple_gold_xy
        apple_gold_xy = [0,0]
        apple_gold_xy[1] = random.randint(1, self.row_cells-2)
        apple_gold_xy[0] = random.randint(1, self.col_cells-2)

        while game_map[apple_gold_xy[0]][apple_gold_xy[1]] != 0:
            apple_gold_xy[0] = random.randint(1,self.row_cells-2)
            apple_gold_xy[1] = random.randint(1,self.col_cells-2)

        game_map[apple_gold_xy[0]][apple_gold_xy[1]] = 5

    # 創建 毒蘋果
    def create_bad_apple(self):
        global apple_bad_xy
        apple_bad_xy = [0,0]
        apple_bad_xy[1] = random.randint(1, self.row_cells-2)
        apple_bad_xy[0] = random.randint(1, self.col_cells-2)

        while game_map[apple_bad_xy[0]][apple_bad_xy[1]] != 0:
            apple_bad_xy[0] = random.randint(1,self.row_cells-2)
            apple_bad_xy[1] = random.randint(1,self.col_cells-2)

        game_map[apple_bad_xy[0]][apple_bad_xy[1]] = 6
```

```
    # 擷取蛇頭坐標
    def snake_xy(self):
        global head_x, head_y
        xy = []
        for i in range(0,self.col_cells):
            # 查找數值為1的坐標，沒有就返回0。為防止在0列，先加上1，最後再減去。
            try:
                x = game_map[i].index(1) + 1
            except:
                x = 0
            xy.append(x)
        head_x = max(xy)
        head_y = xy.index(head_x)
        head_x = head_x - 1 #之前加1，現在減回
```

```
152         # 蛇 移動
153         def move_snake(self,event):
154             def move_key(a,b,c,d):  # 記錄按鍵的方向，1上 2下 3左 4右
155                 direction = event.keysym
156                 if   head_x != snake_body[-1][1]:
157                     if(direction == a):
158                         dd[0] = 1
159                     if(direction == b):
160                         dd[0] = 2
161                 else:
162                     if(direction == c):
163                         dd[0] = 3
164                     if(direction == d):
165                         dd[0] = 4
166 
167                 if   head_y != snake_body[-1][0]:
168                     if(direction == c):
169                         dd[0] = 3
170                     if(direction == d):
171                         dd[0] = 4
172                 else:
173                     if(direction == a):
174                         dd[0] = 1
175                     if(direction == b):
176                         dd[0] = 2
177 
178             # 暫停
179             def pause_key(key):
180                 global loop
181                 direction = event.keysym
182                 if(direction == key):
183                     loop = 0
184                     showinfo('暫停','按確定鍵繼續')
185                     loop = 1
186                     window.after(FPS, self.game_loop)
187             # 鍵盤按鍵
188             move_key('w','s','a','d')
189             move_key('W','S','A','D')
190             move_key('Up','Down','Left','Right')
191             pause_key('space')
```

```
    # 死掉
    def game_over(self):
        def over():
            global body_len
            showinfo('Game Over','再來一局')
            body_len = self.len

            self.game_start()

        # 頭撞到身體 = 死
        if [head_y,head_x] in snake_body[0:-2]:
            over()
        # 撞到牆壁 = 死
        if head_x == self.row_cells - 1 or head_x == 0:
            over()
        if head_y == self.col_cells - 1 or head_y == 0:
            over()
        # 吃到毒蘋果 = 死
        if [head_y,head_x] == apple_bad_xy:
            over()
```

```
    # 蛇身
    def snake_record(self):
        # 記錄蛇頭運行軌跡，生成蛇身
        global body_len, snake_body, score, bestScore, apple_bad_xy
        temp = []
        temp.append(head_y)
        temp.append(head_x)
        snake_body.append(temp)
        if snake_body[-1] == snake_body[-2]:
            del snake_body[-1]

        # 碰到蘋果身體加長(毒蘋果反之)，並再隨機生成一個蘋果
            # 紅蘋果 1 分
        if [head_y,head_x] == apple_red_xy:
            body_len = body_len + 1
            score = score + 1
            if score >= bestScore:
                bestScore = score

            self.create_red_apple()
            game_map[apple_bad_xy[0]][apple_bad_xy[1]] = 0
            self.create_bad_apple()

            # 金蘋果 3 分
        if [head_y,head_x] == apple_gold_xy:
            body_len = body_len + 3
            score = score + 3
            if score >= bestScore:
                bestScore = score
            self.create_gold_apple()
            game_map[apple_bad_xy[0]][apple_bad_xy[1]] = 0
            self.create_bad_apple()

        # 限制蛇身長度，不超過設定值
        elif len(snake_body) > body_len:
            game_map[snake_body[0][0]][snake_body[0][1]] = 0
            del snake_body[0]
```

```
    # 計分牌
    def scoring(self):
        global scoring_lable
        scoring_lable = tk.Label(window,
                                 text="",
                                 font=('俐方體11號', 15, 'bold'),
                                 fg='#00FF00',
                                 bg='black',
                                 anchor="ne",
                                 justify="left")
        scoring_lable.place(x= self.cell_size * self.col_cells +15,
                            y = self.col_cells * self.cell_size - 35)

    # 計分更新
    def scoring_loop(self):
        global scoring_lable, score
        scoring_lable['text'] = "本局分數 : " + str(score) + \
                                "\n最好成績 : " + str(bestScore)

    # 自動前進
    def auto_move(self):
        def move(d,x,y):
            if dd[0] == d:  # 根據方向值來決定走向
                game_map[head_y + x][head_x + y] = 1
                game_map[head_y + 0][head_x + 0] = 2

        move( 1, -1,  0 )
        move( 2,  1,  0 )
        move( 3,  0, -1 )
        move( 4,  0,  1 )
```

```
    # 自動前進
    def auto_move(self):
        def move(d,x,y):
            if dd[0] == d:  # 根據方向值來決定走向
                game_map[head_y + x][head_x + y] = 1
                game_map[head_y + 0][head_x + 0] = 2

        move( 1, -1,  0 )
        move( 2,  1,  0 )
        move( 3,  0, -1 )
        move( 4,  0,  1 )
```

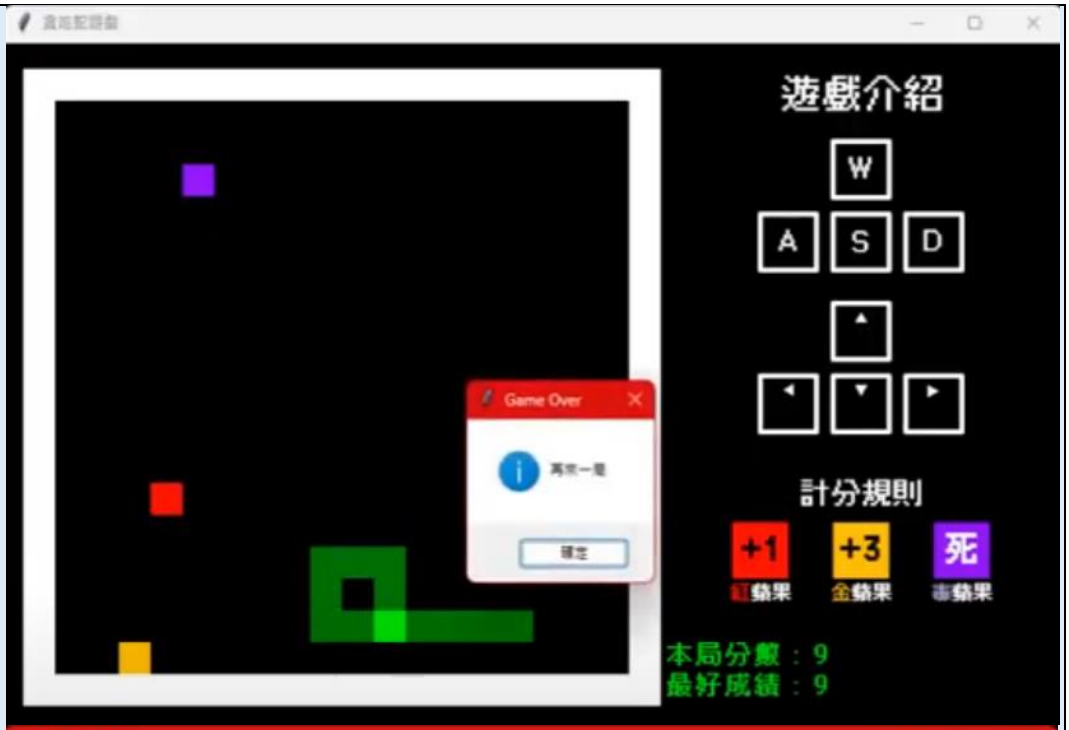
```
    # 遊戲 循環刷新
    def game_loop(self):
        global loop_id
        self.snake_record()
        self.auto_move()
        self.snake_xy()
        canvas.delete('all') # 清除 Canvas
        self.create_cells()
        self.scoring_loop()
        self.game_over()
        if loop == 1:
            loop_id = window.after(FPS, self.game_loop)
```

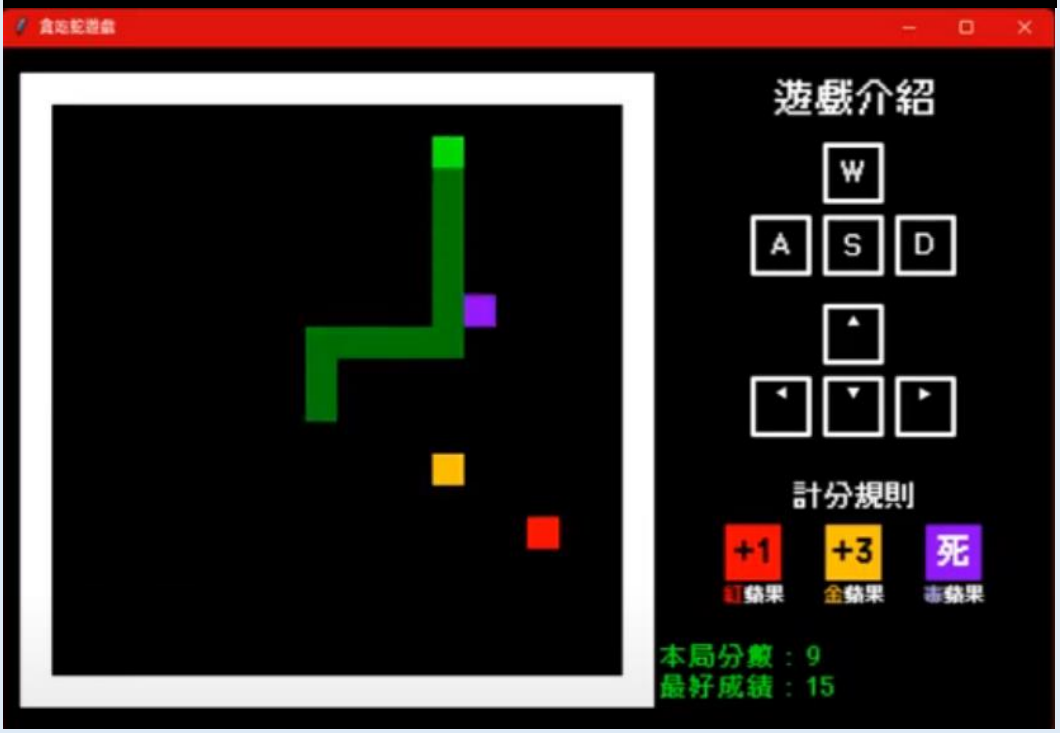
```
    # 開始遊戲
    def game_start(self):
        global window, backup_map, dd, loop, score
        score = 0
        loop = 1 # 暫停標記，1為開啟，0為暫停
        dd = [0] # 記錄按鍵方向
        self.create_map()
        self.create_wall()
        self.create_snake()
        self.create_red_apple()
        self.create_gold_apple()
        self.create_bad_apple()
        window.bind('<Key>', self.move_snake)
        self.snake_xy()
        self.scoring()
        self.game_loop()

        def close_w():
            global loop
            loop = 0
            window.after_cancel(loop_id)
            window.destroy()

        window.protocol('WM_DELETE_WINDOW', close_w)
        window.mainloop()
```

	``python # 遊戲畫布設置 def run_game(self): global window window = tk.Tk() window.focus_force() window.title('貪吃蛇遊戲') win_w_size = self.row_cells * self.cell_size + self.frame_x*2 + self.win_w_plus win_h_size = self.col_cells * self.cell_size + self.frame_y*2 self.window_center(window,win_w_size,win_h_size) # 右半邊遊戲規則 img = Image.open('期中專案-貪吃蛇\遊戲介紹.png') tk_img = ImageTk.PhotoImage(img) img_lable = tk.Label(window, image=tk_img, width=self.win_w_plus+20, height=self.col_cells * self.cell_size + self.frame_y*2-2, anchor='nw') img_lable.place(x= self.cell_size * self.col_cells + self.cell_size*1-5, y = -2) self.create_canvas() self.game_start() if __name__ == '__main__': Snake() ``` **期 中 專 案 Youtube 連結**	程式設計期中專案-貪吃蛇遊戲介紹 Python - YouTube
期 中 專 案 執 行 畫 面	


遊戲介紹
W
A
S
D
Game Over
確定
計分規則
+1
紅蘋果
+3
金蘋果
死
毒蘋果
本局分數：9
最好成績：9


遊戲介紹
W
A
S
D
計分規則
+1
紅蘋果
+3
金蘋果
死
毒蘋果
本局分數：9
最好成績：15

期末專案名稱	KKBOX 歌單系統
期末專案介紹	此網站可以查詢各大音樂榜單 新增 C/ 讀取 R/ 更新 U/ 刪除 D 操作 模糊搜尋歌名和歌手
期末專案說明	本專案取 KKBOX API 之資料，利用 MySQL 建資料庫 並使用 python MySQLdb 套件自動化 INSER 龐大資料 最後利用 MySQLdb 連接資料庫 使用 Flasl 框架架設 crud 網頁
期 中 專 案 Youtube 連結	(1) 程式設計期末專案-KKBOX 榜單歌單系統 Python-Flask/MySQL CRUD - YouTube
期末專案程式	CREATE Table.py U INSERT INTO.py U KKBOX歌單系統.py U Home.html U updPage.html U addP 二年級 > 上學期 > 期末專案-KKBOX > CREATE Table.py > ... `import MySQLdb` `conn=MySQLdb.connect(host="127.0.0.1",user="root",passwd="",db='web_kkbox',charset='utf8')` `cursor=conn.cursor() #傳回cursor物件` `SQL = "CREATE TABLE IF NOT EXISTS jappan_list(ID VARCHAR(30) PRIMARY KEY,\` `rank INT(10),\` `song VARCHAR(100),\` `artist VARCHAR(50),\` `url VARCHAR(300),\` `image VARCHAR(300))"` `print('SQL:',cursor.execute(SQL))` `conn.commit()` `cursor.close()` `conn.close()` INSERT INTO.py U KKBOX歌單系統.py U Home.html U updPage.html U addPage.html U 二年級 > 上學期 > 期末專案-KKBOX > INSERT INTO.py > ... `import MySQLdb` `import charts` `conn = MySQLdb.connect(host="127.0.0.1",user='root',passwd='',db='web_kkbox')` `cursor = conn.cursor()` `with conn.cursor() as cursor:` `command = "INSERT INTO jappan_list(rank, ID, song, artist, url, image)VALUES(%s,%s,%s,%s,%s,%s)"` `charts = charts.get_charts_tracks("0pIfQ3l2-a0Gwkn00q")` `j = 1` `for chart in charts:` `cursor.execute(` `command,(` `j,` `chart["id"],` `chart["name"],` `chart["album"]["artist"]["name"],` `chart["url"],` `chart["album"]["images"][1]["url"]` `)` `)` `j = j + 1` `conn.commit()` `print(cursor.fetchall())` `cursor.close()` `conn.close()`

KKBOX歌單系統.py U | Home.html U | updPage.html U | addPage.html U

二年級 > 上學期 > 期末專案-KKBOX > KKBOX歌單系統.py > ...

```python
import MySQLdb
from flask import Flask, render_template, request, url_for, redirect, flash
app = Flask(__name__)
conn = MySQLdb.connect(
    host="127.0.0.1",
    user='root',
    passwd='',
    db='web_kkbox')
cursor = conn.cursor()
global table
table = 'chinese_list'

def dataList():
    global result, img_list, id_list, song_list, artist_list, url_list, len_list
    img_list = []
    song_list = []
    artist_list = []
    id_list = []
    url_list = []
    for i in range(0, len(result)):
        img_list.append(result[i][5])
    for i in range(0, len(result)):
        song_list.append(result[i][2])
    for i in range(0, len(result)):
        artist_list.append(result[i][3])
    for i in range(0, len(result)):
        id_list.append(result[i][0])
    for i in range(0, len(result)):
        url_list.append(result[i][4])
    len_list = len(img_list)

# ShowAll
def ShowAll():
    global result
    with conn.cursor() as cursor:
        command = "SELECT * FROM %s ORDER BY rank"
        cursor.execute(command%(table))
        result = cursor.fetchall()
        dataList()
```

二年級 > 上學期 > 期末專案-KKBOX > KKBOX歌單系統.py > ...

```python
@app.route('/home')
def HomePage():
    ShowAll()
    return render_template('Home.html',
                           id_list=id_list,
                           img_list=img_list,
                           song_list=song_list,
                           artist_list=artist_list,
                           len_list=len_list,
                           url_list=url_list)

# chinese_list
@app.route('/chinese_list', methods=['POST', 'GET'])
def chinese_list():
    global table
    table = "chinese_list"
    ShowAll()
    return render_template('Home.html',
                           id_list=id_list,
                           img_list=img_list,
                           song_list=song_list,
                           artist_list=artist_list,
                           len_list=len_list,
                           url_list=url_list)

# japan_list
@app.route('/japan_list', methods=['POST', 'GET'])
def japan_list():…

# hiphop_list
@app.route('/hiphop_list', methods=['POST', 'GET'])
def hiphop_list():…

# rmb_list
@app.route('/rmb_list', methods=['POST', 'GET'])
def rmb_list():…

# edm_list
@app.route('/edm_list', methods=['POST', 'GET'])
def edm_list():…

# american_list
@app.route('/american_list', methods=['POST', 'GET'])
def american_list():…
```

```python
# SELECT
@app.route('/select', methods=['POST', 'GET'])
def select():
    global result
    if request.method == 'POST':
        inp_song = str(request.form['song'])
        with conn.cursor() as cursor:
            command = "SELECT * FROM %s WHERE song LIKE '%s' OR artist LIKE '%s' ORDER BY rank"
            cursor.execute(command%(table, "%"+inp_song+"%", "%"+inp_song+"%"))
            result = cursor.fetchall()
            dataList()
            return render_template('Home.html',
                                   id_list=id_list,
                                   img_list=img_list,
                                   song_list=song_list,
                                   artist_list=artist_list,
                                   len_list=len_list,
                                   url_list=url_list,
                                   inp_song=inp_song)

# DELETE
@app.route('/delPage', methods=['POST', 'GET'])
def butDel():
    if request.method == 'POST':
        delID = str(request.form['theDelID'])
        return redirect(url_for('Del',delID=delID, action="POST"))
@app.route('/Del/<action>/<delID>')
def Del(delID, action):
    cursor = conn.cursor()
    command = "DELETE FROM %s WHERE `ID` = '%s'"
    cursor.execute(command%(table, delID))
    conn.commit()
    return redirect(url_for('HomePage'))
```

```python
# UPDATE
@app.route('/updPage', methods=['POST', 'GET'])
def updPage():
    if request.method == 'POST':
        updID = str(request.form['theUpdID'])
        cursor = conn.cursor()
        command = "SELECT * FROM %s WHERE `ID` = '%s'"
        cursor.execute(command%(table, updID))
        conn.commit()
        result = cursor.fetchall()
        return render_template('updPage.html', result=result)
@app.route('/DoUpd', methods=['POST', 'GET'])
def DoUpd():
    if request.method == 'POST':
        updID = str(request.form['theUpdID'])
        new_song = str(request.form['new_song'])
        new_artist = str(request.form['new_artist'])
        cursor = conn.cursor()
        command = "UPDATE %s SET song='%s', artist='%s' WHERE `ID`='%s'"
        cursor.execute(command%(table, new_song, new_artist, updID))
        conn.commit()
        ShowAll()
        len_list = len(img_list)
        return render_template('Home.html',
                               id_list=id_list,
                               img_list=img_list,
                               song_list=song_list,
                               artist_list=artist_list,
                               len_list=len_list,
                               url_list=url_list)
```

```python
# INSERT INTO
@app.route('/addPage', methods=['POST', 'GET'])
def addPage():
    if request.method == 'POST':
        return render_template('addPage.html')

@app.route('/DoAdd', methods=['POST', 'GET'])
def DoAdd():
    if request.method == 'POST':
        addID = str(request.form['new_id'])
        new_song = str(request.form['new_song'])
        new_artist = str(request.form['new_artist'])
        cursor = conn.cursor()
        command = "SELECT COUNT(*) count FROM %s WHERE ID = '%s'"
        cursor.execute(command%(table, addID))
        result = cursor.fetchall()
        count = str(result[0][0])
        # ID判斷
        if count == "0" and addID != "":
            cursor = conn.cursor()
            command = "INSERT INTO %s(ID, song, artist, image)VALUES('%s','%s','%s','https:/
            cursor.execute(command%(table, addID, new_song, new_artist))
            conn.commit()
            ShowAll()
            return render_template('Home.html',
                                   id_list=id_list,
                                   img_list=img_list,
                                   song_list=song_list,
                                   artist_list=artist_list,
                                   len_list=len_list,
                                   url_list=url_list)
        else:
            flash("* ID不可為空白或ID已存在,請輸入新的ID!")
            return render_template('addPage.html', new_song=new_song, new_artist=new_artist)

if __name__ == '__main__':
    app.secret_key = "1234"
    app.run(debug=True)
```

Home.html U × updPage.html U addPage.html U

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```html
<!DOCTYPE html>
<html lang="en">
<head>
    <meta charset="UTF-8">
    <meta http-equiv="X-UA-Compatible" content="IE=edge">
    <meta name="viewport" content="width=device-width, initial-scale=1.0">
    <title>KKBOX歌單系統-Home</title>
    <style>…
    </style>
</head>
<body>
<section id="about">
    <div>123</div>
</section>
    <div class="TopBox">
        <img class="logo" src="https://yt3.ggpht.com/p82KPe8FLvWqZFiAwqFr5vLSMMXVz1oNu-s5k7
        <form action="/addPage" method="post">
            <input class="TopBigBut" id="TopBigBut_1" type="submit" value="新增歌曲頁面"/>
        </form>
        <form action="/chinese_list" method="post">
            <input class="TopBigBut" id="TopBigBut_2" type="submit" value="錢櫃國語點播榜"/>
        </form>
        <form action="/japan_list" method="post">
            <input class="TopBigBut" id="TopBigBut_3" type="submit" value="日語單曲日榜"/>
        </form>
        <form action="/hiphop_list" method="post">
            <input class="TopBigBut" id="TopBigBut_4" type="submit" value="嘻哈單曲週榜"/>
        </form>
        <form action="/rmb_list" method="post">
            <input class="TopBigBut" id="TopBigBut_5" type="submit" value="R&B單曲週榜"/>
        </form>
        <form action="/edm_list" method="post">
            <input class="TopBigBut" id="TopBigBut_6" type="submit" value="電子單曲週榜"/>
        </form>
        <form action="/american_list" method="post">
            <input class="TopBigBut" id="TopBigBut_7" type="submit" value="英美金曲榜"/>
        </form>
        <div class="SelectBox">
            <form action="/select" method="post">
                搜尋歌名或歌手：
                <input type="text" name="song" value="{{inp_song}}" class="textbox">
                <input type="submit" class="button" value="搜尋"/>
            </form>
        </div>
    </div>
```

```
<center>
    {% if id_list != undefined %}
        <table style="font-size:18px">
            <tr>
                <th>專輯封面</th>
                <th>歌名</th>
                <th>藝人</th>
                <th>刪除</th>
                <th>修改</th>
            </tr>
            {% for i in range(0, len_list) %}
                <tr>
                    <td><img src="{{img_list[i]}}" width="80"></td>
                    <td style="width:350px"><a href="{{url_list[i]}}">{{song_list[i]}}</a></td>
                    <td style="width:250px">{{artist_list[i]}}</td>
                    <td>
                        <form action="/updPage" method="post">
                            <input type="hidden" name="theUpdID" value="{{id_list[i]}}">
                            <input class="updBut" type="submit" value="改"/>
                        </form>
                    </td>
                    <td>
                        <form action="/delPage" method="post">
                            <input type="hidden" name="theDelID" value="{{id_list[i]}}">
                            <input class="delBut" type="submit" value="刪"/>
                        </form>
                    </td>
                </tr>
            {% endfor %}
        </table>
    {% endif %}
</center>
    <div class="div_goTop">
        <a href="#about" id="goTop">回到頂部</a>
    </div>
</body>
</html>
```

updPage.html U addPage.html U

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```
<body>
<center>
    <h1>--------新增歌曲--------</h1>
    <img src="https://i.kfs.io/muser/global/118660154v4/cropresize/300x300.jpg" width="150"><br><br
    <div class="InsertBox">
        <form action="/DoAdd" method="post">
            輸 入 ID : <input class="textbox" type="text" name="new_id" value=""/><br><br>
            輸入歌名 : <input class="textbox" type="text" name="new_song" value="{{new_song}}"/><br>
            輸入藝人 : <input class="textbox" type="text" name="new_artist" value="{{new_artist}}"/>
            <input class="OKBut" type="submit" value="新增"/>
        </form>
        <div class="flashMessage">
            {% with messages = get_flashed_messages() %}
                {% if messages %}
                    <ul class=flashes>
                    {% for message in messages %}
                        {{ message }}
                    {% endfor %}
                    </ul>
                {% endif %}
            {% endwith %}
        </div>
    </div>
</center>
</body>
</html>
```

<table>
<tr><td></td><td>

updPage.html U ×

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```
<body>
<center>
    <h1>--------修改歌曲資訊--------</h1>
    <img class="img" src="{{result[0][5]}}" width="300"><br><br>
    ----------------------------------------------------------------
    {% if result != undefined %}
        <div class="UpdateBox">
            <form action="/DoUpd" method="post"><br>
                歌名 : <input class="textbox" type="text" name="new_song" value="{{result[0][2]}}"/><b
                藝人 : <input class="textbox" type="text" name="new_artist" value="{{result[0][3]}}"/>
                <input class="textbox" type="hidden" name="theUpdID" value="{{result[0][0]}}">
                <input class="OKBut" type="submit" value="儲存"/>
            </form>
        </div>
    {% endif %}
</center>
</body>
</html>
```

</td></tr>
<tr><td>修課心得感想
(200 字)</td><td>

在這學期的程式設計，很感謝老師這麼用心準備課程，也很有耐心的解決我們每一個人的疑難雜症。

期中考以前我們學的是 canvas，利用 canvas 我寫出了自己的第一支小遊戲貪吃蛇，雖然花了很多時間，但是做出來的成果還不錯，很有成就感。

後面我們學的是 flask，flash 可以用來架設網站，利用它我寫出一個小系統，這個系統可以連結資料庫 database，做出新增/查詢/修改/刪除等功能，雖然在製作的過程中，我遇到了很多困難，還有很多解不開的 bug，但是在整個元旦假期的努力之下，最後還是把這個小系統完成了，看起來相當不錯，非常的開心。

總之很感謝這學期老師的教導，也很感謝老師幫我解決很多電腦上的問題。

</td></tr>
</table>