

一、專案題目及源起

- 專案題目：

「學費計算器」——你的學費是多少，我都幫你算好好

- 專案源起：

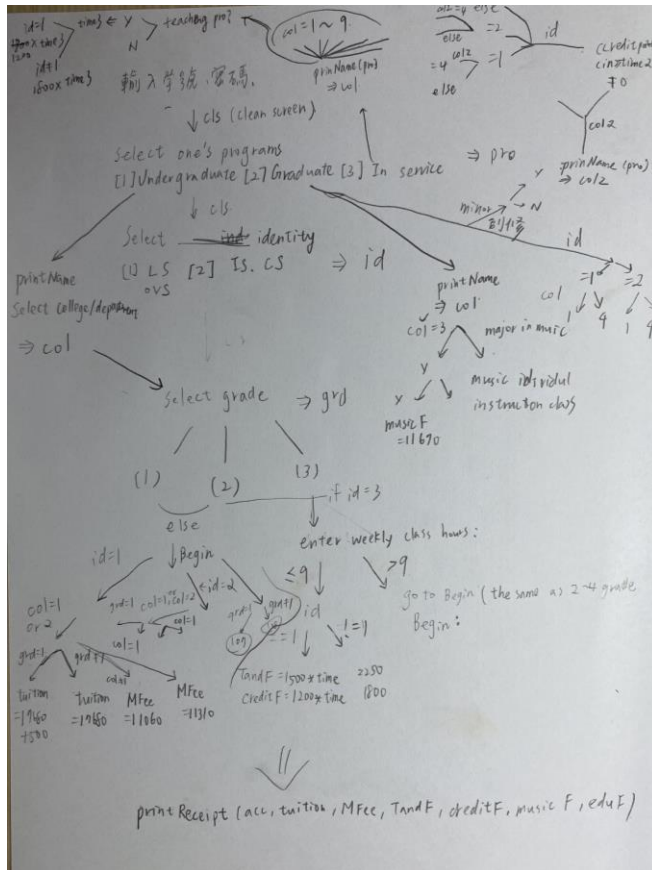
剛開始我們都有很多想法，例如我們想到用心理測驗配對的小遊戲，但最後發現實行上有許多阻礙。接著想到我們可以設計點餐系統解決每天都會遇到的選擇問題，但這在計算複雜上又稍嫌不足。經過一番波折，最後在創意的相互激盪下決定最理想選項：「學費計算器」。我們選擇它的理由如下：

1.解決生活問題(Live case)

The fact that National Chiao Tung University is one of the top universities in Taiwan, having a high reputation is obvious that the ones who wish to enter the school is not only Taiwanese students but also those coming from other countries. The struggle the students had to go through at first is related to the university's fee system, especially knowing the right way to pay. International schools could actually estimate their school fee even though it's clear that their fee is double the local students.

That's why we came up with an idea that might be useful and accessed easily. Most importantly, it can be used efficiently for the students to get the information. We would like to ensure that the students are prepared before the school semester starts. This results in the program our group made called Tuition Calculator. It provides an estimation of tuition fees and basically essential costs associated with the school. At last, it covers all the major offered by the school as an undergraduate graduate or in-service student.

2.符合複雜度要求(需紙筆計算)



(左圖為試著用紙筆計算考慮所有情形的複雜度示意圖)

根據學校學費計算的方式，可以劃分出許多不同的學雜費、身分、及學分費。這個複雜度雖然看似平凡，但事實上需要注意很多地方才能不漏掉每個但書。

例如：音樂研究所就有音樂個人課程要額外計價；同樣是學生也會因為學院、外籍生等因素影響學費；延畢生的學費也會因為大於九學分而有不同情形。

這些零零總總的條件若要自己從學校給的表格上對應其實相當不方便，

因此用一個直觀程式來解決人力耗費及可能出錯的問就顯得格外實用。

二、程式說明：輸入、出資料、參數設定及處理方法

● 輸入資料：

- 1.帳號(學號) -> 存成 int acc
- 2.密碼 -> 存成 int pass(預設值為 123456)
- 3.[數字](會有選項可以選) -> 存成 int pro, col, id, grd,num 等等。

● 輸出資料：

- 1.該位學生的學費單(包含各項費用的金額及總金額)
- 2.共有約六題選擇題，每個題目 3~9 總選項，每個選項含多種身分或學院(以區別不同費用)

● 參數設定：

全為整數，包含：

```
int acc = 0, pass = 0, int num
int pro, col, id, grd;
int tuition = 0, MFee = 0; // MFee = Miscellaneous Fees
int TandF = 0, creditF = 0;
// TandF = Tuition and Fees, creditF = Credit Fees
int musicF = 0; // musicF = Individual instruction Fees (only for the
student major in the Intsitute of Music)
int time = 0;
// for calculating the credit fees for part of the super senior
```

● 處理方法：

- 1.以函數 void printReceipt(int, int, int, int, int, int, int, int);輸出最後學費報表
 - 2.以函數 void printName(int)分別針對大學部、研究所、博士班的學生及在職專班(in service)列出所有學院、學系且依照不同學費分類的選項(以 if 區別)
- 因為程式中常常需要用到，所以作者將其寫成函數，可以避免許多冗餘的程式。程式中多次呼叫函數也更增加函數的節省效用。

3.主結構大致為用輸出(cout)提示使用者輸入(cin)約 5-6 個問題，用巢狀 if...else...區隔各種情形，最平凡的狀況大致上就是如以下程序：

STEP1.輸入帳號密碼(cin,cout)

STEP2.選擇在學階段(cin,cout)->三個選項(if)([1] Undergraduate [2] Graduate [3] In-service) ->每個都有很多分支(if)

STEP3.選擇身分(cin,cout)->兩個選項(if)

([1] Local Students and Overseas Chinese Students

[2] International Students and Chinese (PROC) Students)

->會影響分支的結果(if)

STEP4.選擇學院、學系(cin,cout) ->

- 三個選項(if) (For Undergraduate ;

[1] Colleges of Electrical and Computer Engineering

Colleges of Computer Science

Colleges of Engineering

Colleges of Photonics

Colleges Biological Science and Technology

Departments of Electrophysics

Departments of Applied Chemistry

Department Transportation and Logistic Management

[2] Departments of Applied Mathematics

College of Management

[3] College of Humanities and Social Sciences

College of Hakka Studies)->

- 四個選項(if) (For Graduate ;

[1] Colleges of Electrical and Computer Engineering

Colleges of Computer Science

Colleges of Engineering

Colleges of Photonics

Colleges of Biological Science and Technology

College of Technology Law

International College of Semiconductor Technology

College of Artificial Intelligence and Green Energy

Department Transportation and Logistic Management

Departments of Electrophysics

Departments of Applied Chemistry

International Master of Science Program for Interdisciplinary

Molecular Science of Materials and Chemical Biology

International Graduate Degree Program of Sustainable Chemical
Science and Technology

[2] Departments of Applied Mathematics

Institute of Statistics, Institute of Physics

College of Management

[3] College of Humanities and Social Sciences

College of Hakka Studies

[4] Degree Program of Global Business Administration)

-> 九個選項(if) (For in-service ;

[1] 電機學院在職專班

資訊學院在職專班

工學院在職專班

科技法律學院在職專班

[2] 理學院在職專班

客家文化學院在職專班

[3] 管理科學組在職專班

運輸物流組在職專班

經營管理組在職專班

[4] 工業工程與管理組在職專班

[5] 資訊管理組在職專班

- [6] 科技管理組在職專班
 - [7] 財務金融組在職專班
 - [8] 光電學院在職專班
 - [9] 高階主管管理碩士學程(EMBA)
- >會決定分支的結果(if)

STEP5.選擇年級三個選項(if)

- (三個選項 = [1] First grade
 [2] Second or above
 [3] Super senior)

->每個都有很多分支(if)

(ps.作者巧妙運用#include <stdlib.h>中的 system("cls");讓每個步驟或問題結束後的畫面得以清空)

三、分工狀況：組員的工作分配

- 程式設計：張鈞翔(程式發想、主要撰寫及註解)、余侑謙(程式部分撰寫及註解)
- 專案說明文件：柯慧慧(英文部分)、江詠筑(中文部分)