My Notes

Important Concepts worth keeping

Today :

base case 停止條件

pivot item 樞紐

binary search 二元搜尋 (二元法) if ... else ...

Linear Recursion 線性遞迴

Tower of Hanoi 河內塔

True humility is not thinking less of yourself, it is thinking of yourself less. by C.S. Lewis.

My Questions
Problems & Difficulties needing exploration

My learning weather report

```
#include <math.h>
int number = 10
int numberSqrt = sqrt(number); // 10開根號=√10
                               //因10是int,取接近 3
int num = pow( 10, N ); // 10的N次方 = 10^N
```

C++ [string to integer]

```
#include <iostream>
#include <cstdlib> //一定要寫
#include <string>
using namespace std;

int main( ) {
    string str = "0123456789";
    unsigned long long int num ; //此型別範圍0~2^64
    num = atoll (str.c_str( )); // 字串轉int
    cout << num << endl ;
    return 0;
}
```

印出：0123456789

My Opinions
Thoughts, inspirations, and suggestions

```
int atoi( );
long long atoll( );
float atof( );
double atod( );
```

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C++ [integer to string]

```
#include <iostream>
#include <string>
#include <sstream> // 一定要寫
using namespace std;
string IntToString(long long int number);
int main(){
    long long int num = 12345810; // 型別-2^63 ~ 2^63
    string str = IntToString(num);
    int long1 = str = IntToString(num).length();
    cout << str << endl << long1 << endl;
}

string IntToString(long long int number){
    string str1;
    stringstream strtoint(str1);
    strtoint << number;
    return strtoint.str();
}
```


不要為明天憂慮，因為明天自有明天的憂慮，一天的難處一天當就夠了。《聖經》

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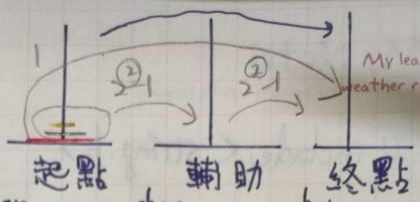
Tower of Hanoi 河內塔

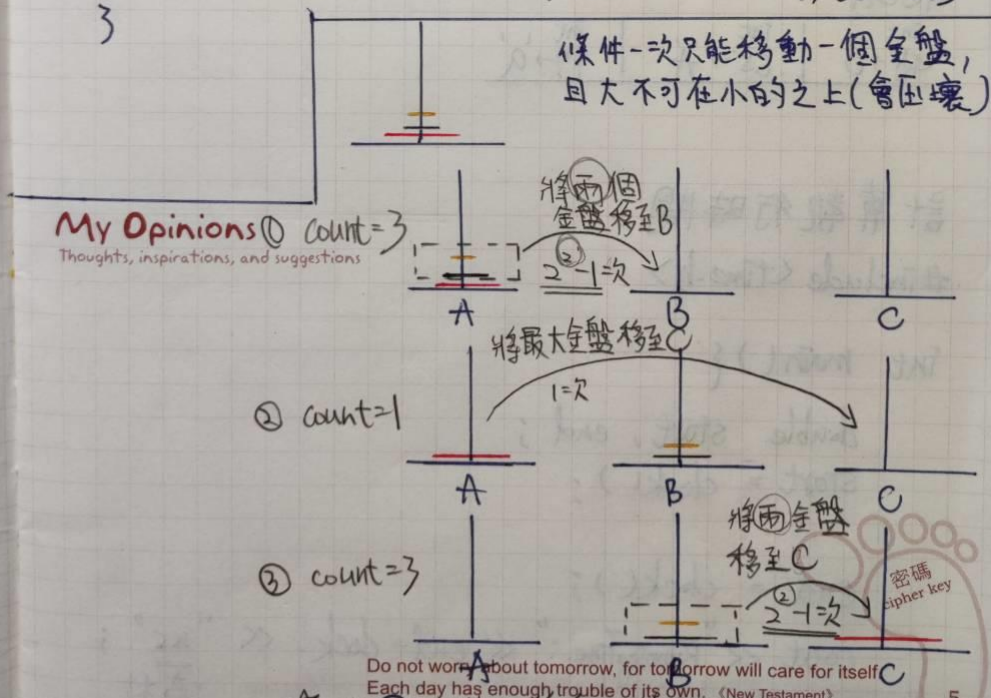



```
void SolveTowers( int count, char source, char destination, char spare )
  if (count is 1)
     Make a disk directly from source to destination
  else {
    ① SolveTowers (count-1, source, spare, destination)
    ② SolveTowers (1, source, destination, spare)
    ③ SolveTowers (count-1, spare, destination, source)
  }
```

count 個數　source 起點　destination 終點　spare 輔助

印將金盤從起點運到終點3!

條件-次只能移動一個金盤，且大不可在小的之上(會壓壞)



My Opinions
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☆ 有③個盤子移動至終點需要 2^3-1 次

密碼 cipher key

Do not worry about tomorrow, for tomorrow will care for itself.
Each day has enough trouble of its own. 《New Testament》

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```
#include <string.h>

char ch[100] = "Hollow!";
string str   = "Hello!";

int ch_long = strlen(ch);
int str_long = strlen(str);
```

ASCII

int 48→'0'	int 65→'A'	int 97→'a'

計算執行時間

```
#include <time.h>

int main(){
    double start, end;
    start = clock();

    end = clock();
    cout << "RunningTime:" << end-start << "ms";
```


Punctuality: Showing esteem for others by doing the right things at the right time. by IBL 高秋

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