# Contents

# 1  Section1

## 1.1  basic

```cpp
#include <bits/stdc++.h>
using namespace std;
#define ll long long

int main() {

    cout<<"for define \n";
    return 0;
}
```

# 2  Section2 Math

## 2.1  GCD

```cpp
#include<iostream>
using namespace std;
int GCD(int x,int y){
    while(y != 0){
        return GCD(y,x%y);
    }
    return x;
}

int main(){
    int a,b;
    cin>>a>>b;
    int gcd = GCD(a,b);
    int lcm = a*b/gcd;

    cout<<"最大公因數為: "<<gcd<<'\n';
    cout<<"最小公倍數為: "<<lcm<<'\n';
    return 0;
}
```

# 3  Section3 String

## 3.1  string

```cpp
#include<iostream>
#include<string>
using namespace std;

int main(){
//初始化字串
    string s1 = "",s2 = "";
    long long a;
    int b;

//吃整行(含空格)
    getline(cin,s1);

//compare,assign,串接
    s1 == s2;
    s1 = s2;
    s1 += s2[i];

//字串切割,i:起始位置,len:幾個
    s1 = s1.substr(i,len);

//轉成數字或數字轉字串
    s1 = to_string(a);
    s2 = to_string(b);
    a = stoll(s1);
    b = stoi(s2);

//判斷數字,字母
    isdigit(s1[i]);
    isalpha(s2[i]);
    return 0;
}
```

# 4  Section4 小工具

## 4.1  permutation

```cpp
#include<iostream>
#include<algorithm>
using namespace std;

int main(){
    string a = "abc";
    string b = "cba";
    sort(a.begin(),a.end());
    do{
        cout<<a<<"\n";//把更新的字串印出
    }while(next_permutation(a.begin(),a.end()));//產生下一個排列

    bool isSamePer =
        is_permutation(a.begin(),a.end(),b.begin());//檢查b字串

    prev_permutation(a.begin(),a.end());//產生上一個排列結果

    return 0;
}
```

# 5  Java

## 5.1  java biginterger

```java
import java.io.*;
import java.util.*;
import java.math.BigInteger;

public class bigint {
    public static void main(String args[]) {
        Scanner cin = new Scanner(System.in);
//Java大數運算宣告BigInteger
    //首先宣告plus代表做加法運算
        BigInteger plus = BigInteger.valueOf(0);
    //首先宣告minus代表做減法運算
        BigInteger minus = BigInteger.valueOf(0);
        while ( cin.hasNext() ) {
    //接下來讀入一整行字串
            String str = cin.next();
```

```
16       //宣告num代表讀入進來的一整行數字
17       //然後把str丟到BigInteger num裡面
18           BigInteger num = new BigInteger(str);
19           if ( str.equals("0") ) break;
20           else {
21               plus = plus.add(num);
22               minus = minus.subtract(num);
23           }
24       }
25       System.out.print("The plus sum is " + plus +
             "\n");
26       System.out.print("The minus sum is " + minus
             + "\n");
27   }
28 }
```

# 6  數學公式

## 6.1  thm

- 中文測試

- $\sum\limits_{i=1}^{n} i^2 = \frac{n(n+1)(2n+1)}{6}$