Exersice 1

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1 Definition

"void main()" misuse was brought up on Wednesday; "this function will return no kind of data, i.e. nothing". We chose to define void as it has legitimate uses that were not mentioned as well, such as moving nonspecific data (void i/go) or referring to locations in memory (void*).

What is void? Void is a null data-type, marking spaces in memory where contents are not designated as any particular kind of data.

2 Translation of code

```
#include <iostream>
#include <cmath>

const float pos = (1+std::sqrt(5))/2;
const float neg = (1-std::sqrt(5))/2;

bool check_if_fib(int x) {
        int estimate_n = std::log(x)/std::log(pos);

        int fib_n = (std::pow(pos,estimate_n)-std::pow(
            neg,estimate_n))/std::sqrt(5);
        int fib_p = (std::pow(pos,estimate_n-1)-std::pow(
            neg,estimate_n-1))/std::sqrt(5);

        int fibo_next;

        while( x >= fib_n){
                std::cout <<
                        estimate_n
                        << "\t"
                        << fib_n
                        << "\n";
```

```
                fibo_next = fib_n + fib_p;

                estimate_n++;

                fib_p = fib_n;
                fib_n = fibo_next;
        }
        return x == fib_p;
}

bool print_fibo_until(int x) {
        int n, fibo_n = 1;
        int fibo_previous = 0;

        int fibo_next;

        while( x >= fibo_n){
                std::cout << n << "\t" << fibo_n << std::
                    endl;

                fibo_next = fibo_n + fibo_previous;

                n++;

                fibo_previous = fibo_n;
                fibo_n = fibo_next;
        }
        return x == fibo_previous;
}

int main() {
        int y = 876545678;

        //if(print_fibo_until(y)){
        if(check_if_fib(y)){
                std::cout << y << " is a Fibonacci number
                    \n";
        } else {
                std::cout << y << " is not a Fibonacci
                    number\n";
        }

        return 0;
}
```

This gives the output:

```
42        267914410
43        433494619
44        701409029
876545678 is not a Fibonacci number
```