

## Homework 2. (return until April 14th)

Name each file that you submit with your name. All code must be sufficiently commented.

### 1.) Your first fully self-designed program.

Write a program to that measures the average length of the fingerprint or coral pattern.

**Hint:** You should describe in detail how you define average length and the tools you want to use. Here are many ways possible.

### 2.) Describe computing for dummies

Describe the algorithm to measure the average length of the fingerprint or coral pattern with the 1000 most used words in English (<http://splasho.com/upgoer5/>). If you can't solve #1, simply describe the algorithm to count the dots from the class.

### 3.) Reading other programming languages

Often a piece of code is not available in the language you are familiar with. However, you know the basic constructs of every programming language now, which enables you to read the structure of many other languages like the C program below.

- Translate the program into python.
- What is the program calculating? (One sentence answer)
- The program uses a technique called recursion. Where is the recursion executed in the program?

```
#include<stdio.h>

int f(int);

main()
{
    int n, i = 0, c;
    printf("output:\n");
    for ( c = 1 ; c <= 100 ; c++ )
    {
        printf("%d\n", f(i));
        i++;
    }
    return 0;
}

int f(int n)
{
    if ( n == 0 )
        return 0;
    else if ( n == 1 )
        return 1;
    else
        return ( f(n-1) + f(n-2) );
}
```

### 4.) Plant Project (present on May 2nd).

Choose a plant computing project to present at the end of the semester. If you have no own idea, just discuss it in the class.