# C Coding Guidelines

- *snake_case*: easier to type, harder to read
  - Though: some of the best ever written softwares were made in *snake_case*
- *camelCase*: harder to type, easier to read
  - Microsoft uses it...
- Dividing the code in functions increase its comprehension and readability.
- Code must not be generic, but very specific to what exactly you're doing.
- Code for debug purpose must be removed from the final form of the code.

## Variables

Local: **{name_of_var}**
Global: **g_{detailed_name_of_var}**

```
int i;
extern int g_alien_cnt;
```

## Functions

### Names

**{libLabel}_{object}**[_]**{action_or_verb}** or **{libLabel}_{action_or_verb}_{object}**

```
sfSyl_welcome_txt_print ()
sfSyl_print_welcome_txt ()
```

| test | test |
|---|---|
| lol | lel |

### Definitions

| test | test |
|---|---|
| **[attributes ]{type} {function_name}( {args} ) { /.../ }** | lel |

```
noreturn void
```

```
usage( int status )
{
    /*...*/
    exit( status );
}
```

- Rationale: easier to `grep` ("^func_name") ## Pointers **{type} *{var}**

```
int *var1, *var2;   /* 2 pointers */
int *var1, var2;    /* 1 pointer, 1 int ! */
```

## Typedefs

### [libLabel_]{name}_t

```
superint_t i;
sfs_superint_t j;
```

## Structures

### {name_of_struct}_s, {name_of_struct_var}

```
datstruct_s this_is_a_struct;
```

## Enums

### {name_of_enum}_e, {ENUM_CONST}, {name_of_enum_var}

```
enum mood_e { TAKE_IT, GIVE_IT, KEEP_IT } my_mood;
```

## Gotos

### [GT_]{ThisPart} or [GT_]{this_part}

```
EmergencyClosure:
GT_EmergencyClosure:
GT_emergency_closure:
```

## Define

### [TYPE_]{NAME_OF_DEF}

```
#define ALIENS_ON_PLANET_CNT    1234
```

## Macro (DEFINES)

### [M_]{OBJECT}_{VERB} or [M_]{VERB}_{OBJECT}

```
#define ALIENS_ON_PLANET_LOCATE ()
#define M_ALIENS_ON_PLANET_LOCATE ()
#define LOCATE_ALIENS_ON_PLANET ()
```

## Macro (header guars)

### {NAME_OF_HEADER}_H

```
MY_COOL_LIB_H
```

- Rationale: _ and __-starting header guars are used by standard library headers ## Parenthesis / braces **{func}( {args} );**

```
printf( "spaces btwn args and parenthesis : %d", true_dat );
```

**{statement} ({condition}) {**
/.../
**}**

```
if (true_dat == 1) {
    /*...*/
} else {
    /*...*/
}
```

## Code example

```
#ifndef THAT_GUARD_THOUGH_H
#define THAT_GUARD_THOUGH_H

#include "myheader.h"

#include <header1.h>
#include <header2.h>

#define STR_SIZE_OF_PLANET  "BIG"

noreturn void
f_datFunc( void )
{
    unsigned int aliens_cnt = 100;
    int happn = 0;
```

```
    printf( "This planet is %s.\n", STR_SIZE_OF_PLANET );
    if (aliens_cnt > 50) {
        puts( "it's happening" );
        happn = 1;
    } else if (aliens_cnt > 0) {
        puts( "we still have time" );
        happn = 0;
    } else { puts( "ERROR" ); goto GT_Habbening; }

    switch (happn) {
    case 0:
        return( EXIT_SUCCESS );
    default:
    GT_Habbening:
        return( EXIT_FAILURE );
    }
}


#endif      /* ndef _THAT_GUARD_THOUGH_ */
```

## General advices

- Always use header guards.
- Put braces even on one-line statements.

### Linux kernel coding style

GNU `indent` now has an option to format your code according to the Linux kernel
coding style: `indent -linux [file]`. Doc: https://www.kernel.org/doc/html/v4.10/process/coding-style.html

### References/resources

- *Notes on Programming in C*, Rob Pike