

# Just random notes

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August 2, 2021

## Runtime

Runtime describes software/instructions that are executed while your program is running, especially those instructions that you did not write explicitly, but are necessary for the proper execution of your code.

## KISS *Keep It simple, stupid*

The KISS principle states that most systems work best if they are kept simple rather than made complicated.

## Container

Group of namespaces and control groups applied to a process.

## Linux kernel namespace

Limit what the process sees, here some namespaces

- item
- pid
- net
- mnt
- uts
- ipc
- user

C functions to manage them

- clone()
- unshare()

## Linux kernel cgroup *Control group*

Limit what the process can use, here some cgroups

- memomry
- CPU
- network
- devices
- pids

## C++ inheritance class

Single inheritance

```
class Rectangle: public Shape {
public:
    int getArea() { return (width * height); }
};
```

Multiple inheritance

```
class Rectangle: public Shape1, Shape2, Shape3 {
public:
    int getArea() { return (width * height); }
};
```

## C++ namespace

Namespaces allow to group entities like classes, objects and functions under a name. Example of declaration

```
namespace myNamespace
{
    int a = 0;
}
```

Usage

```
std::cout << myNamespace::a << std::endl
```

or

```
using namespace myNamespace;  
std::cout << a << std::endl
```

C++ `cout` *character out*

C++ `endl` *end line*

Makefile special variables

```
all: library.cpp main.cpp
```

```
$(@) evaluates to all
```

```
$< evaluates to library.cpp
```

```
$(^) evaluates to library.cpp main.cpp
```

Web CGI *Common Gateway Interface*

Set of standards that define how information is exchanged between the web server and a custom script.

socket

It's a network connector, it allows communication between two different processes on the same or different machines. To be more precise, it's a way to talk to other computers using standard Unix file descriptors.

```
int socket(int domain, int type, int protocol);
```

## 0.1 domain (socket protocol) examples

Local communication AF\_UNIX, AF\_LOCAL

IPv4 Internet protocols AF\_INET

IPv6 Internet protocols AF\_INET6

## 0.2 type (precise persistent connection or not) examples

Two-way reliable communication SOCK\_STREAM

Connectionless SOCK\_DGRAM

C++ static method

```
class Rectangle {  
public:  
    static int perimeter;  
}  
...  
std::cout << Rectangle::perimeter << std::endl
```