What is xv6?

The xv6 kernel provides a subset of the services and system calls that Unix kernels traditionally offer. It's a toy operating system consisting of about 6000 lines of codes just to provide comprehension of OS. It's a good start to understanding of big kernels.

What is a system call?

When a process needs to invoke a kernel service, it invokes a procedure call in the operating system interface. Such procedures are call system calls. The system call enters the kernel; the kernel performs the service and returns. Thus a process alternates between executing in user space and kernel space.

Files in xv6:

1. Kernel
2. User
3. Header
4. Tools

Installing qemu:

1. Copy paste xv6 file provided to you in your directory and untar it.
2. Go to terminal and write: **sudo apt-get install qemu-system**
3. Now open make file of xv6 and do following change. In emulator option write following line: **QEMU:= qemu-system -i386**
4. Now enter **make all** in your terminal. This will make your xv6.
5. Now enter **make qemu**. This will run qemu on your system.
6. Type ls to confirm qemu is in working state.

Important Files and working of system calls:

1. ./user/usys.S
2. ./user/user.h
3. ./kernel/bootmain.S
4. ./kernel/main.c mainc routine
5. ./kernel/trap.c
6. ./kernel/mmu.h
7. ./kernel/vector.S
8. ./kernel/trapasm.S
9. ./kernel/trap.c
10. ./kernel/syscall.c
11. ./kernel/sysproc.c
12. ./kernel/trapasm.S

Now make a new C function and make it by including it in ./user/makefile.mk and run it using qemu.

A useful link for different functions of xv6 is:

https://github.com/YehudaShapira/xv6-explained/blob/master/xv6%20Code%20Explained.md#2252-userinitvoid