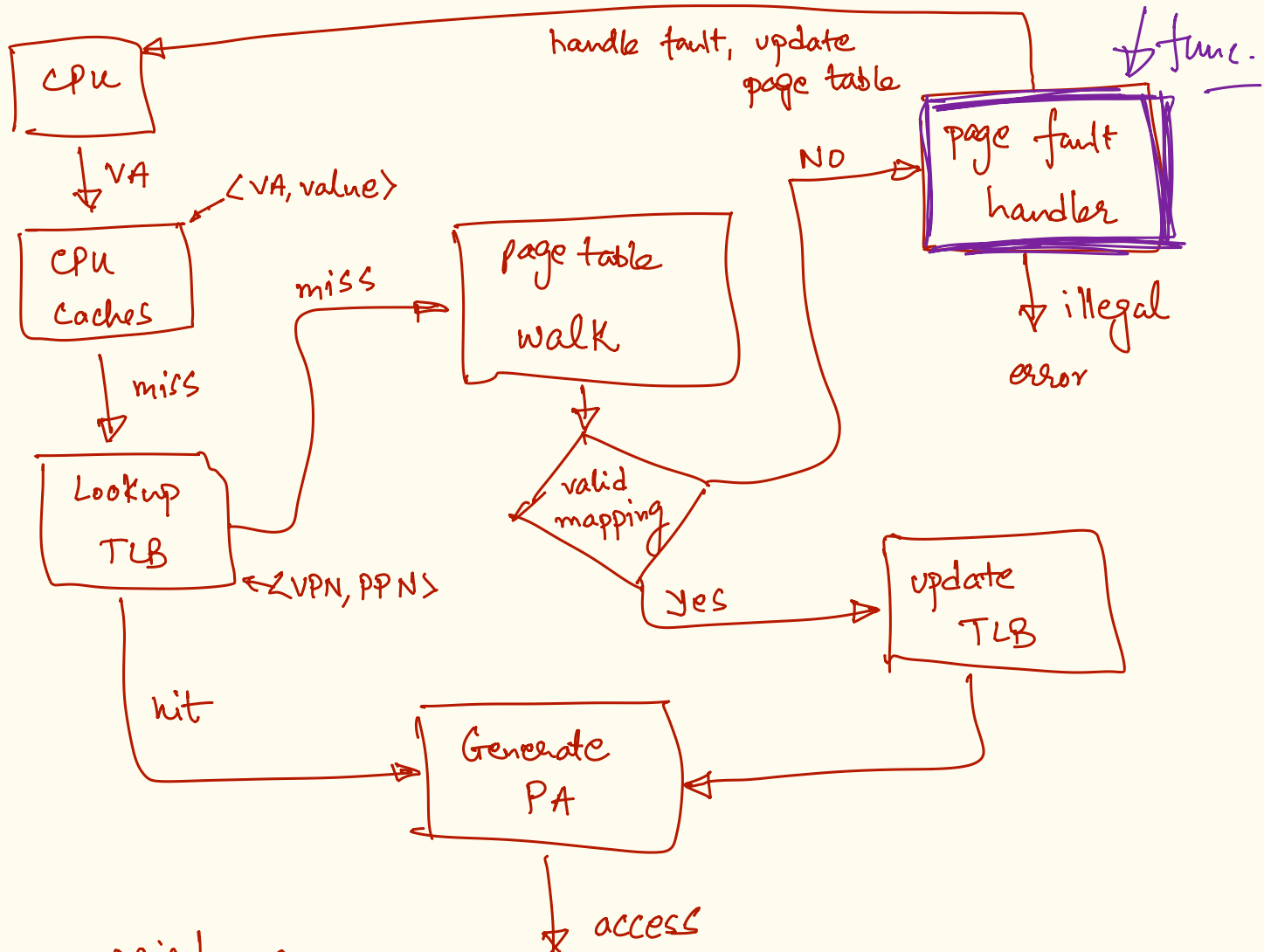


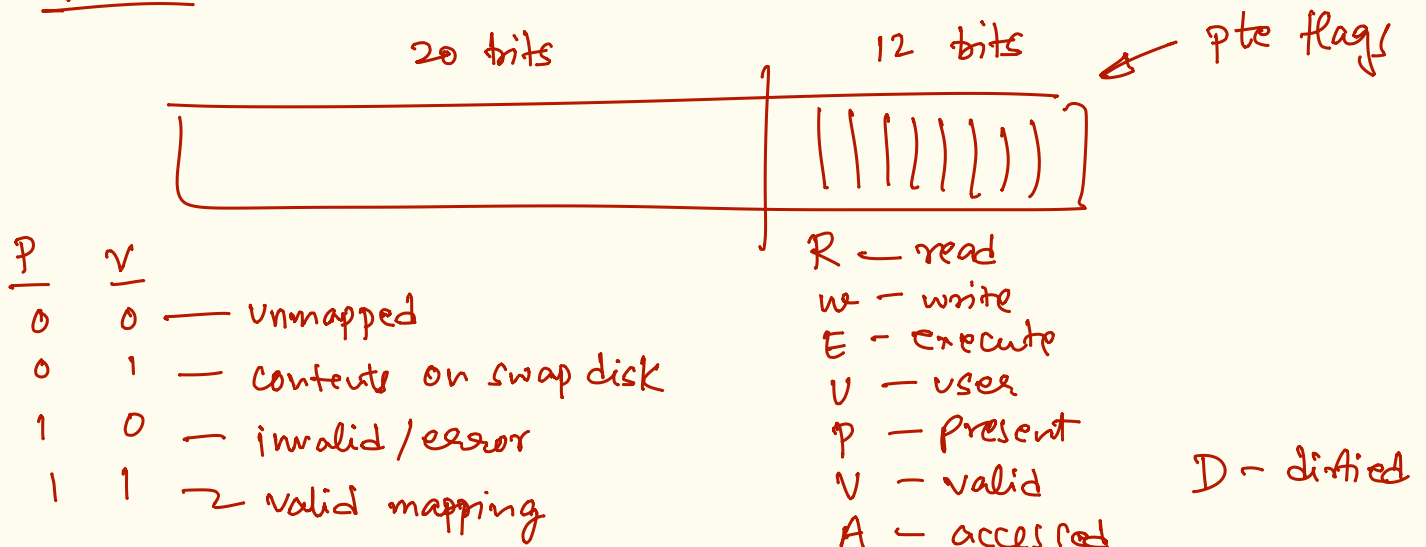
* the paging based address space abstraction in one picture



HW assistance

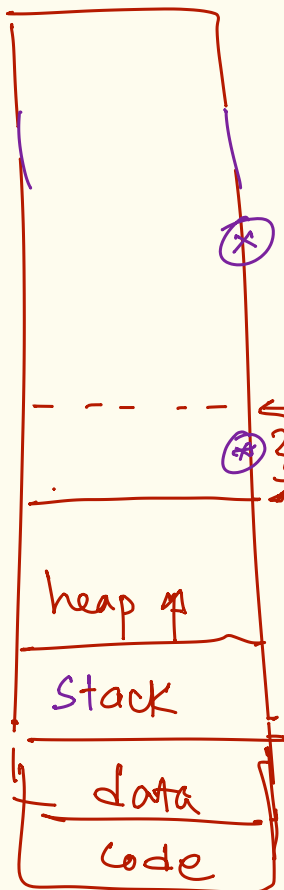
~ CR0, CR2, CR3, MMU, TLB, CPU caches
L1, L2, L2C

① pte.



(virtual) address space of a process

xv6



if (VA > SZ)

strk(100);

return

heap

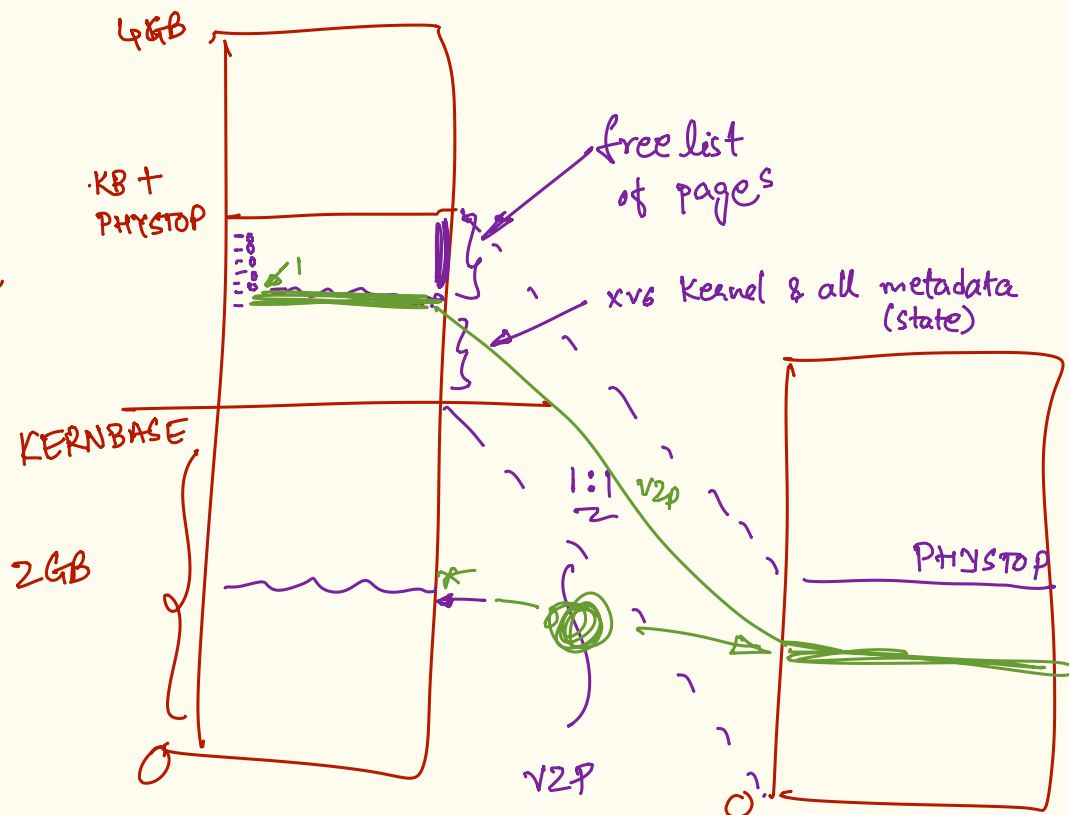
Stack

Data

Code

xv6

address space of each process



VA range

PA range

v2p
p2v
by OS
code

to identify virtual & physical pages

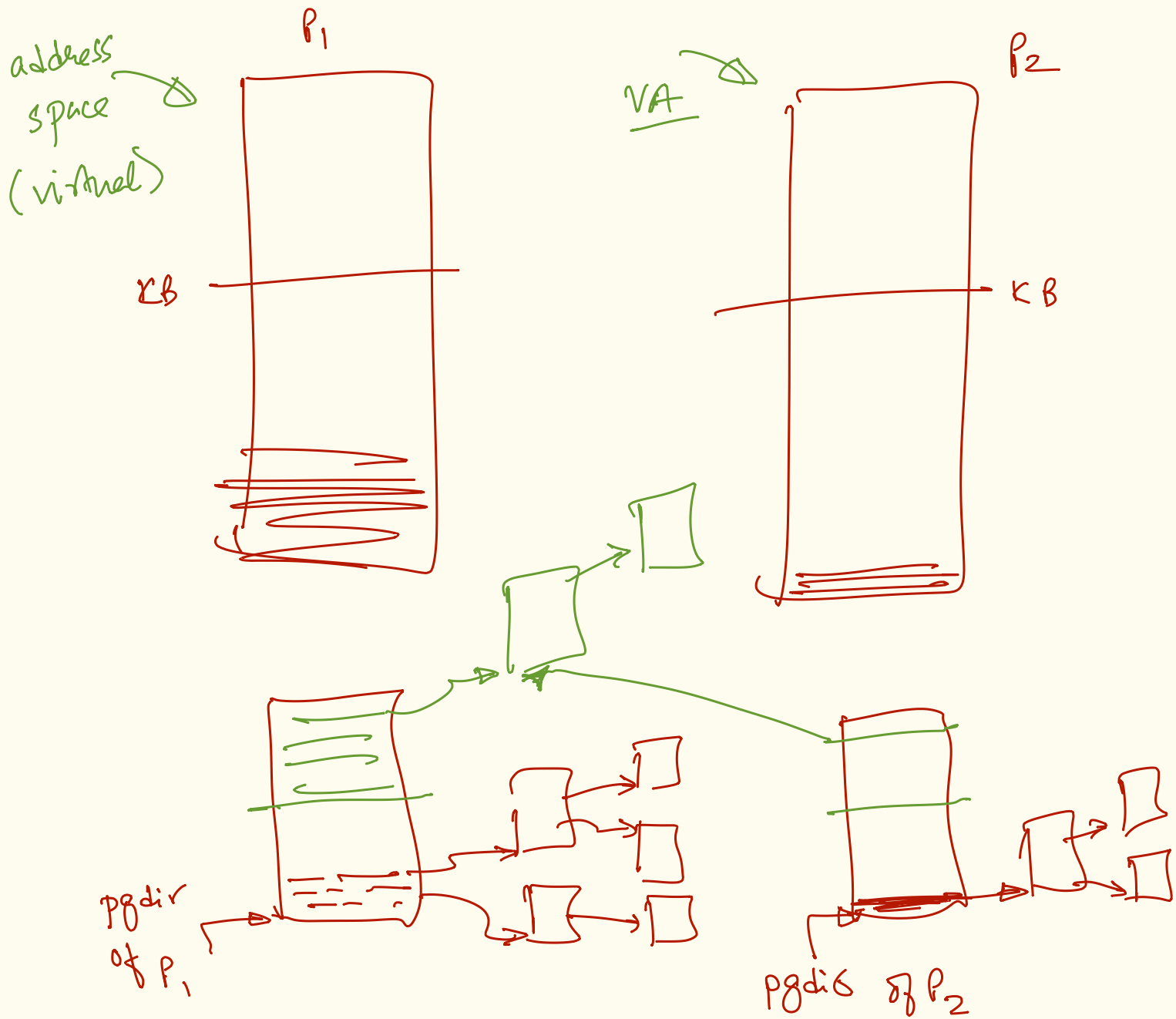
the

the KVA to PA

mappings are hand-crafted as

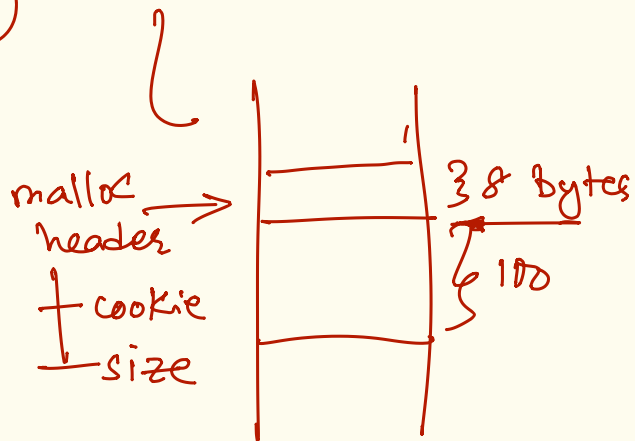
part of page table

setup of the init process.



⊛ VA space mgmt.

① - malloc



```
int * p = malloc(100);
```

```
*p = 23;
```

```
p++;
```

```
free(p);
```

② slab memory/allocation