

Operating Systems Notes

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1 Page Tables

Pages. Memory is split into pages of equal size. Inside one page, the offset tells "which byte within this page."

Offset Bits. How many bits to count all bytes in one page.

Eg. A 4KB page has 4096 bytes. Since $4096 = 2^{12}$, the page offset uses 12 bits.

Virtual Page Number (VPN). Given a 32-bit virtual address and 4KB pages, there would be 20 bits left for the VPN. This implies that there are 2^{20} virtual pages if there are 20 VPN bits.

Page Table Entry (PTE). One record in the page table that maps a virtual page to a physical frame and bits like valid/present, R/W/X permissions, dirty, accessed, etc.

```
1 def hello_world():
2     print("Hello, \LaTeX!")
```