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Operating Systems

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OS Memory Management

To implement paging into our memory management scheme, we will need to add another table declaring the pages and offset in memory to where they are addressed. This table would look like:

|  |  |
| --- | --- |
| Page # | Offset (Physical Memory Address) |
| 0 | 1 |
| 1 | 5 |
| 2 | 3 |
| 3 | 6 |

|  |  |
| --- | --- |
| Physical Memory | |
| 0 |  |
| 1 | Page 0 |
| 2 |  |
| 3 | Page 2 |
| 4 |  |
| 5 | Page 1 |
| 6 | Page 3 |

The offset would be the base memory that each process has which is what the management structure would now how would be the base memory in RAM. (ie the offset). So instead of it showing the entire memory scheme, it will only have the PID’s base address in the table structured similar to this. Once the Physical Memory hits it’s limit is when the paging process above begins.

|  |  |
| --- | --- |
| PID | Base Mem |
| 111 | 1 |
| 222 | 3 |

This would load memory like so: (for this instance, let’s say memory size is 7)

The Logical Memory (Memory Addressed to the hard drive by the CPU) is where it will be stored on another memory source (in this case the hard drive) so we will have to search the hard drive to find that page. For this we will need to associate PID’s with page numbers so we will need another table like this:

|  |  |
| --- | --- |
| Page # | PID |
| 0 | 111 |
| 1 | 222 |
| 2 | 111 |

And so on…