process A's view of the system - Virtual

FFFFFFFF

n.a.

SA2 } pages for special OS
SA1   data structures
SA0   ("the attic")

C0000000
BFFFFFFF

SS0
SS1 } 3 pages for OS stack
SS2

n.a.

OS3 } N shared pages for OS
OS2   code & globals
OS1
OS0

80000000
7FFFFFFF

A Stack 0
A Stack 1 } 3 private pages
A Stack 2   for stack

not allocated

40000000
3FFFFFFF

A Heap1
A Heap 0 } 5 private pages for
A Code2   code/globals
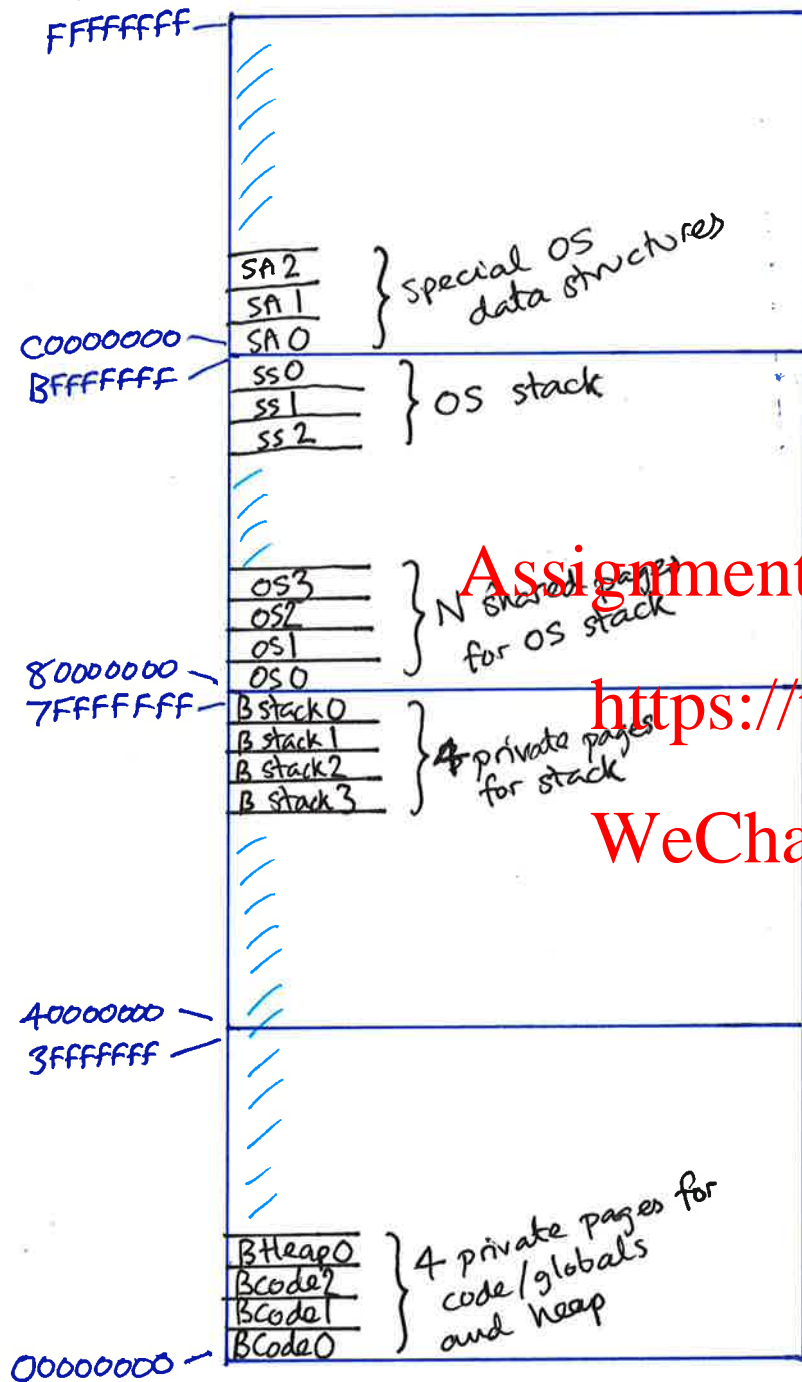A Code1   & heap
A Code0

00000000
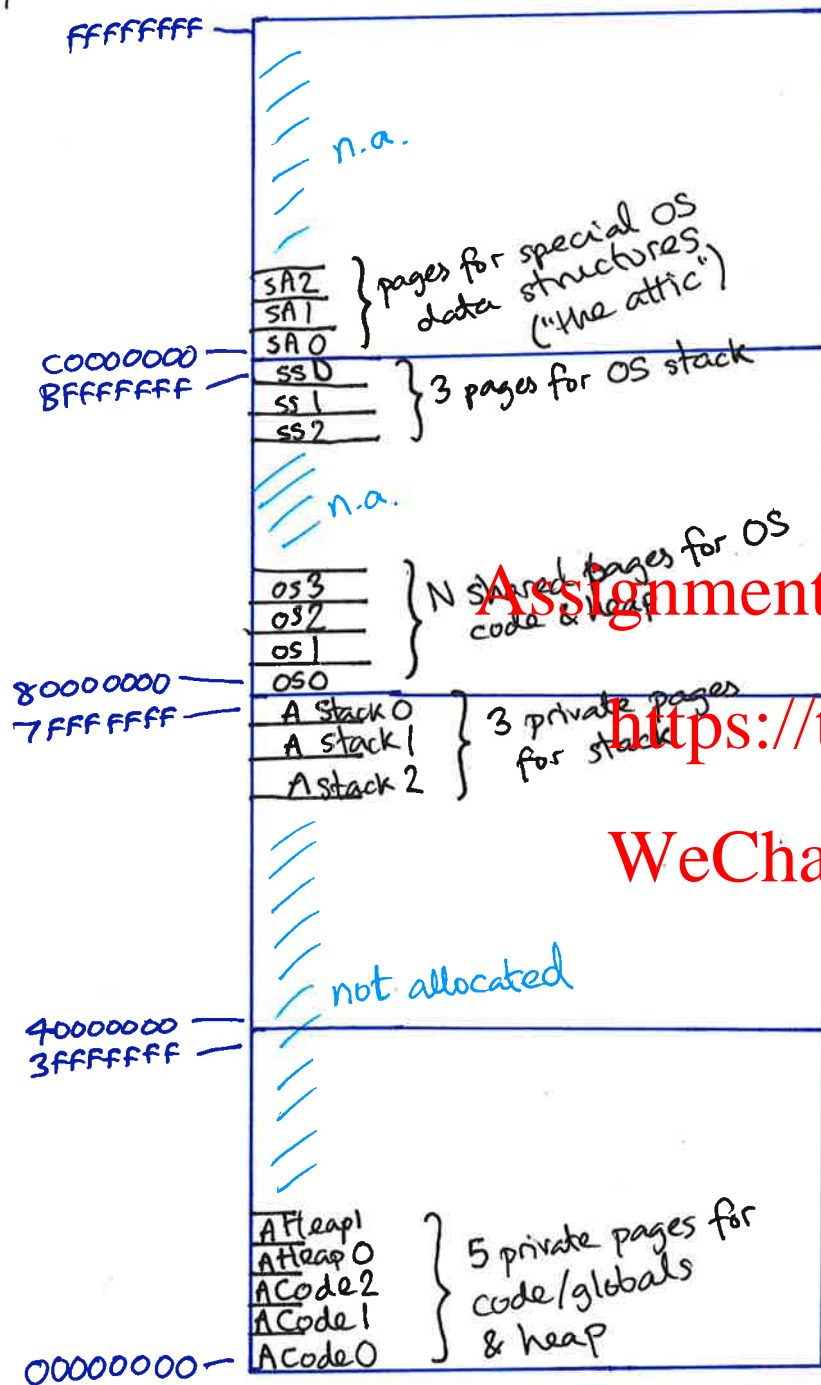
process B's view of the system - Virtual

FFFFFFFF —

C0000000 —
| SA 2 |
| SA 1 |
| SA 0 |
} Special OS data structures

BFFFFFFF —
| SS 0 |
| SS 1 |
| SS 2 |
} OS stack

| OS 3 |
| OS 2 |
| OS 1 |
80000000 — | OS 0 |
} N shared pages for OS stack

7FFFFFFF —
| B stack0 |
| B stack 1 |
| B stack2 |
| B stack 3 |
} 4 private pages for stack

40000000 —
3FFFFFFF —

| B Heap0 |
| B code? |
| B code1 |
| B code0 |
} 4 private pages for code/globals and heap

00000000 —

What's actually in memory – Physical

Address	Contents
2A000	Free
29000	OS attic page table
28000	B's stack page table
27000	A stack 0
26000	Free
25000	B stack 0
24000	B's code/heap page table
23000	Free
22000	A code 1
21000	B stack 1
20000	Free
1F000	B code 0
1E000	Free
1D000	B's page directory
1C000	OS stack page table
1B000	A Heap 0
1A000	Free
19000	A stack 1
18000	A's stack page table
17000	B code 1
16000	A code 2
15000	A's code/heap page table
14000	Free
13000	A Heap 1
12000	A stack 2
11000	B stack 3
10000	Free
F000	A code 0
E000	B stack 2
D000	B code 2
C000	OS code/heap page table
B000	A's page directory
A000	B Heap 0
9000	SA2
8000	SA1
7000	SA0
6000	SS2
5000	SS1
4000	SS0
3000	OS3
00002000	OS2
00001000	OS1
00000000	OS0

OS's pages in use — very likely these were allocated all at once, at startup

page table structure when
process A is running

PDBR

0000 B000.

BFFF

BC00
BBFF

B800
B7FF

B000

29000

1C000

C000

18000

15000

9000 — SA2
8000 — SA1
7000 — SA0
4000 — SS0
5000 — SS1
6000 — SS2
3000 — os3
2000 — os2
1000 — os1
0 — os0
27000 — Astack0
19000 — Astack1
12000 — Astack2
13000 — AHeap1
1B000 — AHeap0
16000 — Acode2
22000 — Acode1
F000 — Acode0