

C Programming (W10)



Welcome!!

Please check attendance individually.
(Mobile App)

Things to do today

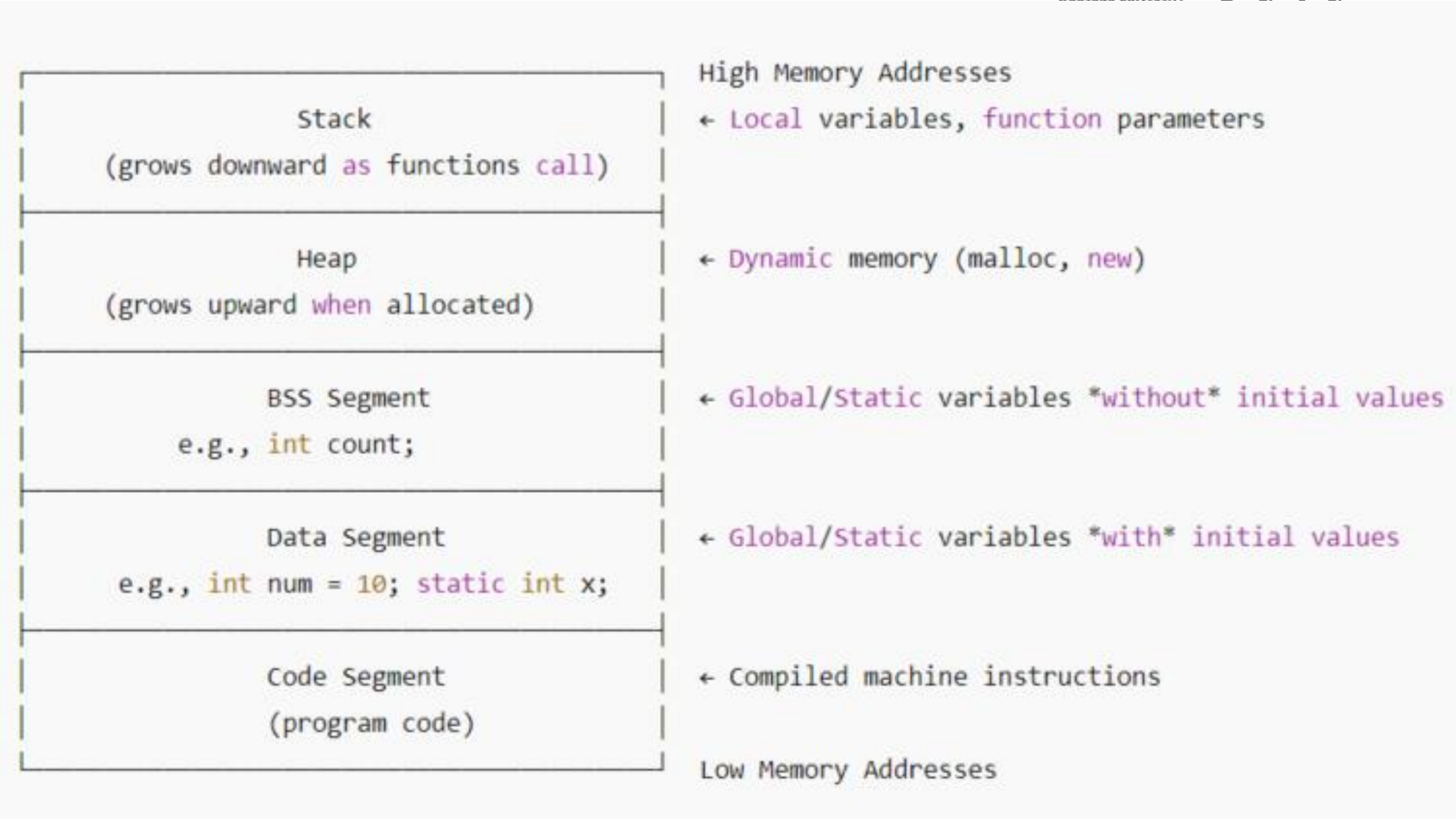
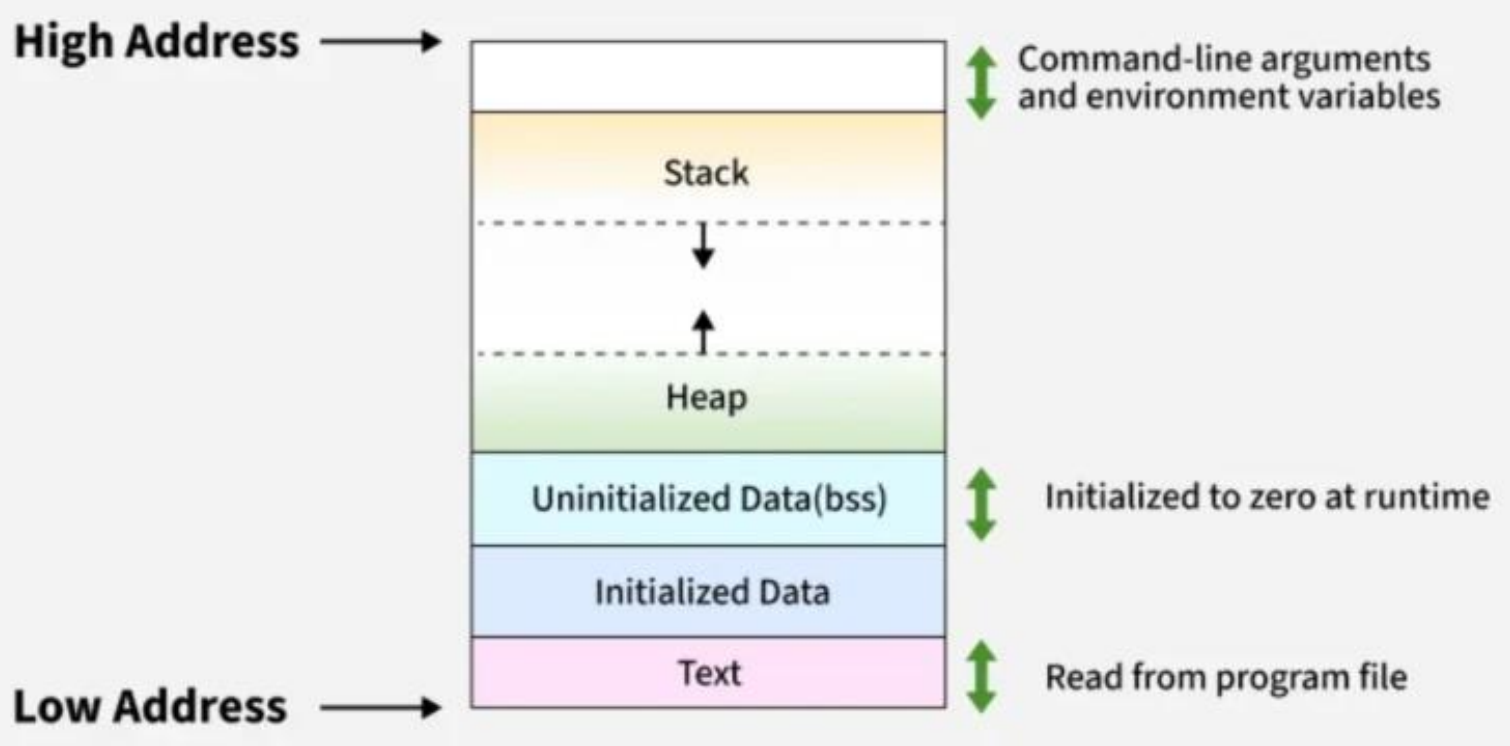
01

Lecture Notes (Ch.10)
- Array

02

03

Actual Memory Layout in a C Program



Memory Area	What Goes Here	Example Code	Lifetime
Code Segment	Compiled program instructions	<code>`main()`, other functions</code>	Exists while program runs
Data Segment	Initialized global/static variables	<code>`int a = 10;`</code>	Exists while program runs
BSS Segment	Uninitialized global/static variables	<code>`static int x;`</code>	Automatically set to 0, exists while program runs
Heap	Dynamically allocated memory	<code>`malloc()`, `new`</code>	Must be manually freed by programmer
Stack	Local variables, function parameters	<code>`int i;` `void func(int n)`</code>	Created when function is called, removed when it returns

A pointer represents an address

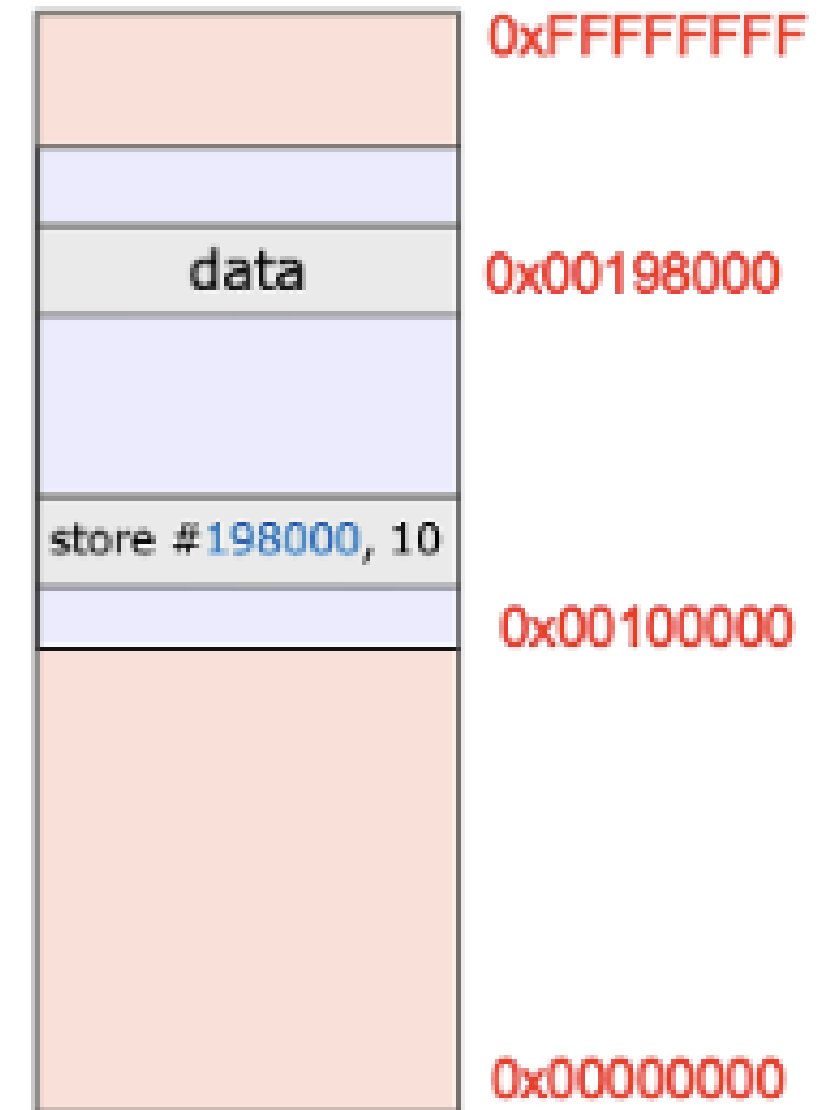
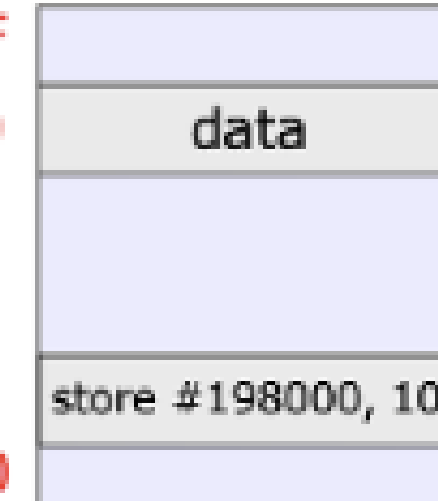
■ Compile time

```
void func( )  
{  
    int data;  
  
    ...  
    data = 10;  
    ...  
}
```

0x001FFFFFFF

0x00198000

0x00100000



A
d
d
r
e
s
s
e
s

0xFFFFFFFF	1000 0000
...	...
0x00000008	0100 1001
0x00000007	1100 1100
0x00000006	0110 1110
0x00000005	0110 1110
0x00000004	0000 0000
0x00000003	0110 1011
0x00000002	0101 0001
0x00000001	1100 1001
0x00000000	0100 1111

Main Memory

```
0x0010 00000000  
0x0011 00000000  
0x0012 00000000  
0x0013 00000000  
...  
0x0035  
0x0036  
0x0037  
0x0038
```

int arr[10]

See you next week!

DO NOT miss the classes

