

# Requirement 1

1. `a = 0x7ffd714f2610, b = 0x5632051e62a0, c = 0x7ffd714f2637`  
**Prints the Address that the pointers are pointing at**  
**a -> arr allocated in the stack,**  
**b -> arr allocated in the heap of size 16 bytes,**  
**c -> just a pointer which is currently pointing at nothing (or garbage)**
2. `a[0] = 200, a[1] = 101, a[2] = 102, a[3] = 103`  
**c is Now pointing at the beginning of the array (a) a[0]**  
**The for loop make a = {100, 101, 102, 103}**  
**c[0] = 200 makes a = {200, 101, 102, 103}**
3. `a[0] = 200, a[1] = 300, a[2] = 301, a[3] = 302`  
**c[1] = 300 makes a = {200, 300, 102, 103}**  
**\*(c+2) = 301 = (a[2] = 301) makes a = {200, 300, 301 103}**  
**3[c]=302 is the same as a[3]=302 makes a = {200, 300, 301 302}**
4. `a[0] = 200, a[1] = 400, a[2] = 301, a[3] = 302`  
**c is now pointing at element a[1]**  
**(\*c = 400) = (a[1] = 400) which makes a = {200, 400, 301 302}**
5. `a[0] = 200, a[1] = 128144, a[2] = 256, a[3] = 302`  
**c = (int \*)((char \*)c + 1); this line basically mean we are offsetting the pointer value of c by one byte sizeof(char which mean it that instead of pointing at c[1] which is 32 bits (4 bytes) which is this is what comes out in the printf**
6. `a = 0x7ffebc1089d0, b = 0x7ffebc1089d4, c = 0x7ffebc1089d1`  
**b = (int \*)a + 1; → offsets b by 4 bytes sizeof(int)**  
**c = (int \*)((char \*)a + 1); → offsets c by 1 byte sizeof(char)**

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1: a = 0x7fffa07270b0, b = 0x561c8891b2a0, c = 0x7fffa07270d7
contents: a = -1603112746, b = 0, c = -1237006080
pointers: a = 0x7fffa07270b0, b = 0x561c8891b2a0, c = 0x7fffa07270d7

2: a[0] = 200, a[1] = 101, a[2] = 102, a[3] = 103
contents: a = 200, b = 0, c = 200
pointers: a = 0x7fffa07270b0, b = 0x561c8891b2a0, c = 0x7fffa07270b0

3: a[0] = 200, a[1] = 300, a[2] = 301, a[3] = 302
contents: a = 200, b = 0, c = 200
pointers: a = 0x7fffa07270b0, b = 0x561c8891b2a0, c = 0x7fffa07270b0

4: a[0] = 200, a[1] = 400, a[2] = 301, a[3] = 302
contents: a = 200, b = 0, c = 400
pointers: a = 0x7fffa07270b0, b = 0x561c8891b2a0, c = 0x7fffa07270b4

5: a[0] = 200, a[1] = 128144, a[2] = 256, a[3] = 302
contents: a = 200, b = 0, c = 500
pointers: a = 0x7fffa07270b0, b = 0x561c8891b2a0, c = 0x7fffa07270b5

6: a = 0x7fffa07270b0, b = 0x7fffa07270b4, c = 0x7fffa07270b1
contents: a = 200, b = 128144, c = -1879048192
pointers: a = 0x7fffa07270b0, b = 0x7fffa07270b4, c = 0x7fffa07270b1
```