

# Homework 5

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CS270 Fall 2020

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## 1 Practice Problems, 3.38, 3.41, 3.45, 3.48

3.38  $M = 5, N = 7$

```
3.41 void st_init(struct test *st) {  
    st->s.y = st->s.x;  
    st->p = &(st->s.y);  
    st->next = st;  
}
```

- A. 8 Bytes for p, 2 bytes for s.x, 2 for s.y, 8 bytes for s->next
- B. 20 Bytes
- C. (see code)

3.45 A. \*a = 0 bytes, b = 8 bytes, c = 12 bytes, d = 16 bytes, e = 24 bytes, f = 32 bytes, g = 40 bytes, \*h = 48 bytes

- B. 56 bytes
- C. \*a, \*h, f, e, b, g, d, c

3.48 A. Unprotected:  $v = \text{\%rsp} + 24$ ,  $\text{buf} = \text{\%rsp}$  Protect:  $\text{canary} = \text{offset } 40$ ,  $v = \text{offset } 8$ ,  $\text{buf} = \text{offset } 16$

- B. The positioning of v allows the programmer to avoid a overflow of buf that might conflict with v

## 2 Homework Problem 3.68

$$A = 9$$

$$B = 5$$