

Problem 3.60:

- A. X is stored in %rdi
N is stored in %esi
Result is stored in %rax
Mask is stored in %rdx
- B. Initial value of result: 0
Initial value of mask: 1
- C. The test condition is mask != 0;
- D. Mask gets updated by the salq command on line 10; Mask gets left shifted by the value in %cl, which is N
- E. Result gets updated by the orq command on line 9; Result gets OR'ed with the value in %r8, which is (X & mask)
- F.

```
arken@Arken: ~/cs224/hw4
1 long loop(long x, long n)
2 {
3     long result = 0;
4     long mask;
5     for (mask = 1; mask != 0; mask = mask << n)
6     {
7         result |= (x & mask);
8     }
9     return result;
10 }
```

Problem 3.65:

- A. Register %rdx holds a pointer to array element A[i][j]
- B. Register %rax holds a pointer to array element A[j][i]
- C. The value of M is 15

Problem 3.66:

NR: #define NR n*3

NC: #define NC 1+(n*4)

Problem 3.67:

- A. Diagram
- B.
- C. The elements of structure argument *s* are stored on the stack, so `process` can access them.
- D. Process moves the intended value from a stack location to the register where structure *r* is storing its value.
- E.
- F. Function arguments are simply stored on the stack.

Problem 3.68:

Value of A:

Value of B: