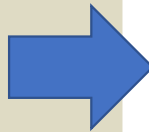


```

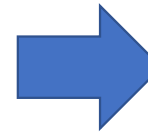
int foo( int n ) {
  int cnt = 0 ;
  -----(a)
  for( int i = 0 ; i < n ; i++ ) {
    -----(b) -----(c) -----(d)
    for( int j = 0 ; j < i ; j++ ) {
      -----(e) -----(f) -----(g)
      cnt++ ;
    } -----(h)
  }
  return cnt ;
  -----(i)
}

```



foo(2)の処理順序

- (a) cnt=0
- (b) i=0
- (c) i<2
- (e) j=0
- (f) j<0
- (d) i=1
- (c) i<2
- (e) j=0
- (f) j<1
- (h) cnt=1
- (g) j=1
- (f) j<1
- (d) i=2
- (c) i<2
- (i) return 1



foo(N) の各処理の回数は

- (a) 1
- (b) 1
- (c) N+1
- (d) N
- (e) N
- (f) N(N+1)/2+1
- (g) N(N+1)/2
- (h) N(N+1)/2
- (i) 1



$$\begin{aligned}
 T_{foo}(N) &= T_a + T_b \\
 &\quad + (N+1)T_c + NT_d + NT_e \\
 &\quad + (N(N+1)/2+1)T_f \\
 &\quad + (N(N+1)/2)(T_g + T_h) \\
 &\quad + T_i \\
 &= T_a + T_b + T_c + T_f + T_i \\
 &\quad + N(T_c + T_d + T_e + (T_f + T_g + T_h)/2) \\
 &\quad + N^2(T_f + T_g + T_h)/2 \\
 &= T_\alpha + NT_\beta + N^2T_\gamma
 \end{aligned}$$