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CPSC/SEGR 5031
Data Structures & Algorithms
HW #7

II. Binomial coefficient

a. $C(n,k) = C(n-1,k-1) + C(n-1,k)$ for $n \geq k \geq 0$

$C(n,0) = C(n,n) = 1$

b.
```
int Binomial (int n, int k){
    int bc = 1;
    for(int i = k+1; i <= n; i++){
        bc = (i * bc)/(i - k);
    }
    return bc;
}
```

III. Exercises 8.2 # 1 a; b

a. $n = 5$ (# of elements); $W = 6$ (max weight).
Elements (weight, benefit): 1(3, $25), 2(2, $20), 3(1, $15), 4(4, $40), 5(5, $50)

W \ item	0	1	2	3	4	5
0	0	0	0	0	0	0
1	0	0	0	15	15	15
2	0	0	20	20	20	20
3	0	25	25	35	35	35
4	0	25	25	40	40	40
5	0	25	45	45	55	55
6	0	25	45	60	60	65

6. The maximal value is 65;
the items that make up the optimal subset are item 5 and item 3.