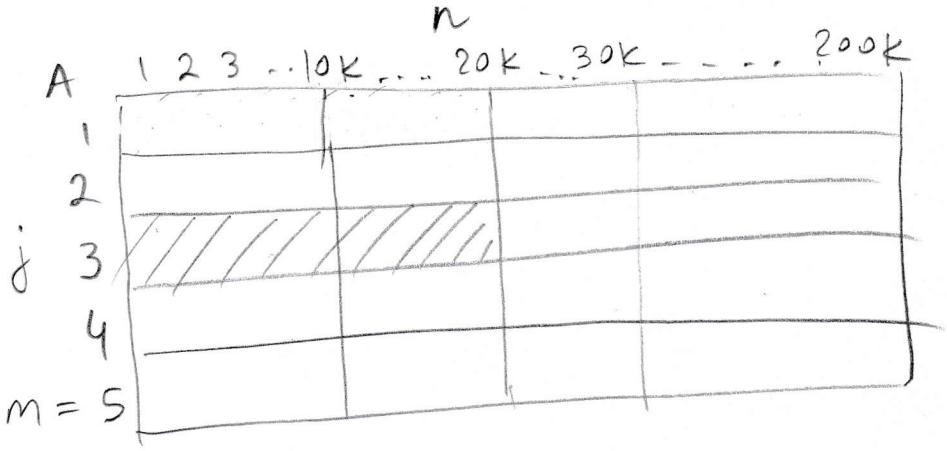
Programming Project

- Start by implementing the 3 algorithms and test on small n for correctness. Follow the pseudocode from the textbook/notes.

```
ALG1 (A, n, i){
...
}
ALG2 (A, n, i){
...
}
ALG3 (A, n, i){
...
}
```




```
main {
//generate numbers for array A[1..m, 1..n]
m = 5
for j = 1 to m
    for k = 1 to n
        A[j, k] = rand()
//measurements for ALG1
for (n = 10000 ; n ≤ 200.000 ; n = n + 10000)
    i = ⌊2n/3⌋
    for (j = 1 ; j ≤ m ; j = j + 1)
        B[1..n] = A[j, 1..n]
        t1 = time()
        ALG1(B, n, i)
        t2 = time()
        tALG1[j, n] = t2 - t1
```

// compute the average

$$t_{avg\_ALG1}[n] = \frac{t_{ALG1}[1,n] + t_{ALG1}[2,n] + \ldots + t_{ALG1}[m,n]}{m}$$

// this is the value that you plot in the graph "Empirical RT"

// repeat for ALG2

// repeat for ALG3

- Note: when you allocate the array A, feel free to use dynamic allocation using pointers for C, vector for C++, etc.

Graph