1. Consider the code below:

```java
int[][] A = {{1, 2, 3, 4},
{5, 6, 7, 8},
{9, 0, 1, 2},
{3, 4, 5, 6}};

int[] arr = new int[A.length-1];
for (int i = 0; i < A.length-1; i++) {
    for (int j = 0; j < A[i].length; j++) {
        if (i == j-1) {
            arr[i] = A[i][j];
        }
    }
}
```

(1) (20 pts) Draw the array arr after the following code executes.

(2) (20 pts) Assume the if statement (and ONLY the if statement) in the above code is changed to:

```java
if(i == j) {
    arr[i] = A[i+1][j];
}
```

Draw the array arr with the above code substitution.
2. (60 pts) Write a method that returns the sum of all the elements in each column in a matrix. For example if
\[
\begin{pmatrix}
1 & 2 & 3 \\
4 & 5 & 6 \\
7 & 8 & 9
\end{pmatrix}
\]
the method should return \{12, 15, 18\} since
1+4+7=12;
2+5+8=15;
3+6+9=18.

```java
public static int[] sumColumn(int[][] m){
```