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, 7, 2
```

(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

```
5, 0, 5
```
2. (60 pts) Write a method that returns the sum of all the elements in each column in a matrix.

For example if
m =
1 2 3
4 5 6
7 8 9
this 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){
    int[] sum = new int[m[0].length];
    for (int i=0;i<m[0].length;i++){
        for (int j=0;j<m.length;j++){
            sum[i] += m[j][i];
        }
    }
    return sum;
}
```