### **Question 1 [15 Points]**

Write a function named *replace\_array* that would replace each element of a 2D array with the **magic number**. The **magic number** for an index (i, j) is defined as

**magic number** **= (Product of all elements in row i, excluding A[i][j])**

**+ (Product of all elements in column j, excluding A[i][j]).**

**[You are not allowed to use any built-in functions prod()]**

| **Sample Input:** | **Sample Output:** | **Explanation:** |
| --- | --- | --- |
| | **1** | **2** | **3** | | --- | --- | --- | | **4** | **5** | **6** | | **9** | **8** | **7** | | **2** | **8** | **1** | | | **78** | **323** | **44** | | --- | --- | --- | | **48** | **152** | **41** | | **64** | **143** | **90** | | **44** | **82** | **142** | | **Consider index (2, 1). The Product of all elements in row 2, excluding A[2][1] is 9\*7=63. The Product of all elements in column 1, excluding A[2][1] is 2\*5\*8=80, so index (2, 1) will take the value of 63+80=143. The process will be the same for all the indices.** |