1. There are eight vowels in Turkish. List them below:

[___] [___] [___] [___] [___] [___] [___] [___]

2. There are three dimensions of vowel variation in Turkish phonetics: the lips may be rounded or unrounded while the vowel is being pronounced, and the tongue may move in two dimensions — vertical (high - low), and horizontal (front - back). The position of the highest point of the tongue in the pronunciation of each vowel determines these two parameters, together with the roundedness of the lips, which determines the third.

Notice that there are two possible values for each parameter, and three parameters in all. Every vowel in Turkish has one value or the other for each of these three parameters. There are 8 vowels in Turkish, and there are $2^3$ possible combinations of three variables, each with two possible values. As it happens, the Turkish vowel system uses all possible combinations.

3. For each of the 8 vowels above, determine the values of the three parameters. Note, first of all, which vowels are pronounced with the lips rounded (+round); there are 4. The others are unrounded (-round). Then notice which vowels are produced with the (highest point of the) tongue relatively front in the mouth (+front), and which are produced in the back (-front); similarly, which are produced with the (highest point of the) tongue relatively high in the mouth (+high), and which are low (-high)?

[___] [___] [___] [___] [___] [___] [___] [___]
+round +round +round +round -round -round -round -round
+high +high -high -high +high +high -high -high
+front -front +front -front +front -front -front -front

4. Now that you have a useful classification for vowels, you can use the terminology to describe them. You can speak of low unround vowels, front vowels, the high front rounded vowel (there is only one in Turkish), etc. You should be able to describe the two types of vowel harmony much more easily. Start by looking at the vowels that show up in your lists, and classify them. The pattern should become much clearer then.