Coulomb's Law for electric force says

$F = k (Q1 \times Q2) / d^2$, where k is just a constant (a number with some units, which does not change), Q1 is the charge of the first particle, Q2 is the charge of the second particle, and d is the distance between the centers of the two particles.

Let's try plugging some numbers into Coulomb's Law. Let's say that Q1 = 1 Coulomb of charge, and Q2 = 1 Coulomb of charge also. Let's say that d = 1 meters between the centers of the charges. With the values plugged in, Coulomb's Law looks like

$F = k (1 C \times 1 C) / (1 m)^2$
$F = k (1 C^2) / 1 m^2$

Let's ignore the units to make things a little easier.

$F = k (1) / (1)$
$F = k \times 1$

Let's ignore k because it does not EVER change, and because it makes things easier.

$F = 1$

Now, let's try **doubling the charge of one particle**. So instead of Q1 = 1 C, let's say Q1 = 2 C. We are not doing anything with Q2, and so it will remain 1 C. We are also not changing the distance between the two particles, and so d will remain 1 m.

$F = k (2 C \times 1 C) / (1 m)^2$

Again, to make things easy, let's ignore k and the units.

$F = (2 \times 1) / (1)^2$
$F = 2/1$
$F = 2$

If we compare this with the force found earlier (highlighted in yellow), we can see that **when we double the charge of ONE particle**, the electric force between the particles goes from 1 to 2, or in other words, **the electric force doubles**.

Now, instead of doubling the charge of one particle, let's double the charge of both. So, instead of plugging in Q1 = 1 C, we will plug in Q1 = 2 C, and instead of plugging in Q2 = 1 C, we will plug in Q2 = 2 C. We are not changing the distance between the two particles, and so d will stay 1 m.

F = k (2 C x 2 C) / (1 m)^2

Again, to make things easier, let's ignore k and the units.

F = (4) / (1)
F = 4

If we compare this to the force we found **before we changed the charge of either particle**(highlighted in yellow), the electric force between the particles increased from 1 to 4, and so **by doubling the charge of both particles, we increased the electric force by a factor of 4**, or we quadrupled the electric force between the particles.

Now, instead of changing the charges of the particles, let's change the distance between the particles. This time we will use a distance of 2 meters, instead of 1 meter, and so d = 2 m. We will not be changing the charge of either particle, and so Q1 = 1 C, and Q2 = 1 C.

F = k (1 C x 1 C) / (2 m) ^2

Again, to make things easier, let's ignore k and the units.

F = (1 x 1) / (2)^2
F = 1 / (2)^2
F = 1 / 4

If we compare this force with the original force found between the particles (highlighted in yellow), we see that the original force was 1, and the final force after we doubled the distance between the two particles was 1/4. Thus, **when we doubled the distance between the two particles without changing the charge of either particle, we reduced the force between the two particle by a factor of 4. In other words, the force between the two particles after doubling the distance between them is 1/4 the size of the force before moving the particles.**