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| **Correlation** | **Causation** |
| Correlation is a statistical measure that describes the degree to which two variables are related | Causation implies that one event or variable causes another to happen. |
| There may be a correlation between ice cream sales and the number of people swimming at the beach — both increase during summer. But **eating ice cream doesn't cause people to swim**, nor does swimming cause ice cream sales to rise. | Smoking causes lung cancer. In this case, smoking is a **cause**, and lung cancer is the **effect**. |
| A coerrelation coefficient can range from -1 to +1 | X causes Y |
| In Excel=CORREL(range1, range2) |  |

