Example 8: A die is rolled, find the probability of getting an even number.

The event of interest is "getting an even number". so $E = \{2,4,6\}$, the even numbers on a die. The sample space S is given by $S = \{1,2,3,4,5,6\}$.

Empirical Probability

It uses real data on present situations to determine how likely outcomes will occur in the future.

Let us clarify this using an example

Q) 30 people were asked about the colors they like and here are the results:



Independent Events

Independent Events: Two events may be independent when the actual happening of one does not influence in any way the probability of the happening of the other one.

Example: Event of getting a head on the first coin and the event of getting a tail on the second coin in a simultaneous throw.

Two events E and F are independent if and only if

$$P(\mathsf{E} \text{ and } \mathsf{F}) = P(E)P(F) \text{ or } P(E \cap F) = P(E)P(F)$$

Now, refer the above example and find the probability of obtaining two heads.