Example: K-Nearest Neighbour

Player	Age	Gender	Class
A	32	0	Football
B	40	0	Neither
C	16	1	Cricket
D	34	1	Cricket
E	55	0	Neither
F	40	0	Cricket
G	20	1	Neither
H	15	0	Cricket
I	55	1	Football
J	15	0	Football

Note: Here male is denoted with numeric value 0 and female with 1.

Question: Find in which class of sports person X lie whose k factor is 3 and age is 5.

Compute distance between two points: Euclidean distance $d(p,q) = \sqrt{\sum_i (p_i - q_i)^2}$

Manhatten distance $d(p,q) = \sum_i |p_i - q_i|$

q norm distance $d(p,q) = (\sum_i |p_i - q_i|^q)^{1/q}$

To find the distance (d) between any two points using say Euclidean Distance:

$d=\sqrt{((x2-x1)^2+(y2-y1)^2)}$

To find out the distance between A and X as follows: $d=\sqrt{((age2-age1)^2+(gender2-gender1)^2)}$

$d=\sqrt{((5-32)^2+(1-0)^2)}$

$d=\sqrt{729+1}$

$d=27.02$

Similarly, we find out all distance one by one.

D (X & ?)	Distance (d)	Class
A	27.02	Football
B	35.01	Neither
C	11	Cricket
D	29	Cricket
E	50.01	Neither
F	35.01	Cricket
G	15	Neither
H	10.05	Cricket
I	50	Football
J	10.05	Football

D (X & ?)	Sorted d	Class
H	10.05	Cricket
J	10.05	Football
C	11	Cricket
G	15	Neither
A	27.02	Football
D	29	Cricket
B	35.01	Neither
F	35.01	Cricket
I	50	Football
E	50.01	Neither

As the value of k=3 for person X;

The first K=3 closest person (as highlighted with blue) are

H: 10.05 Cricket; J 10.05 Football and C 11 Cricket

And the voting majority is Cricket so person X is classified as Cricket.

i.e as per KNN algorithm; the person X will be in the class of people who like cricket.