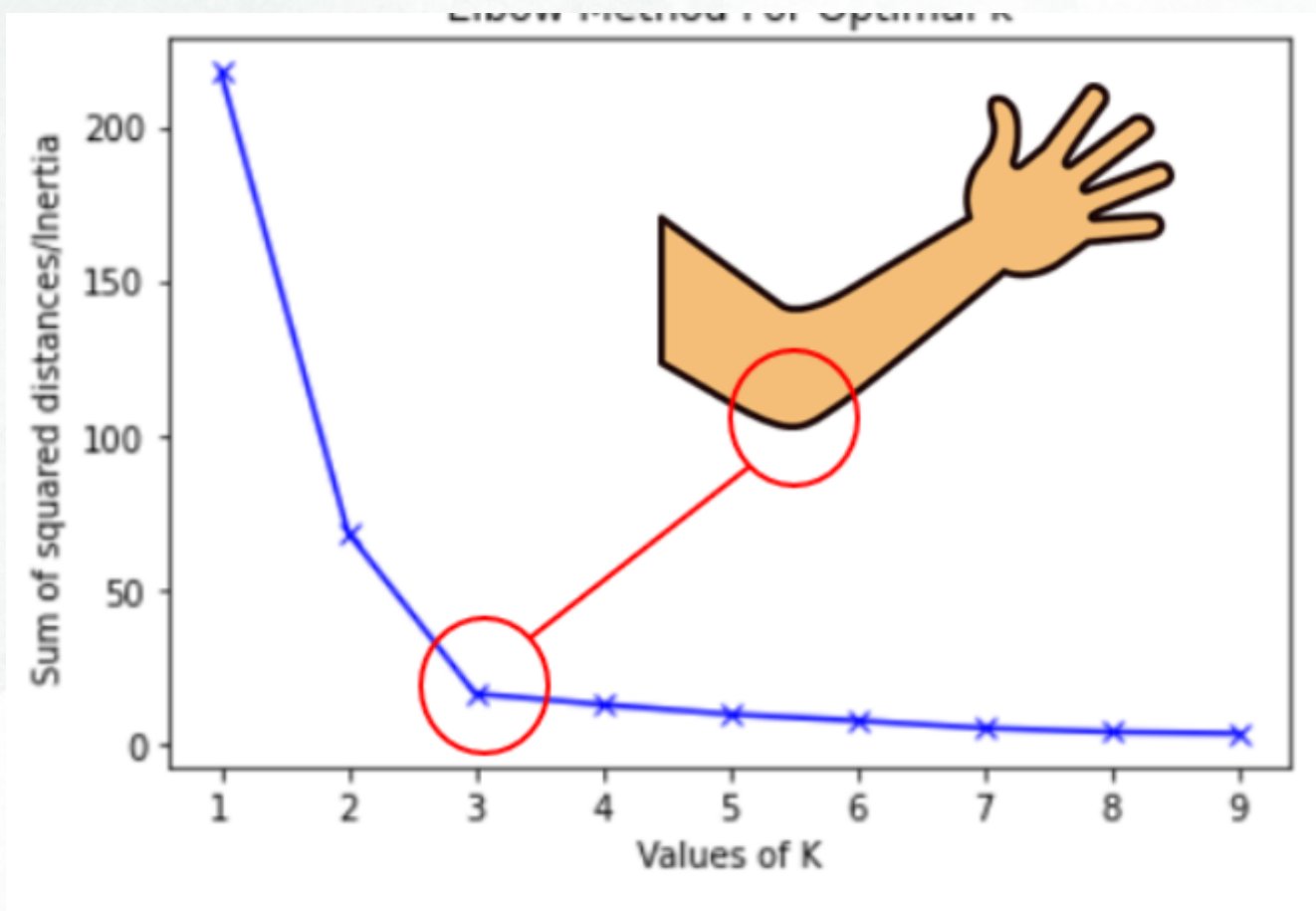# Do you know Elbow method ?

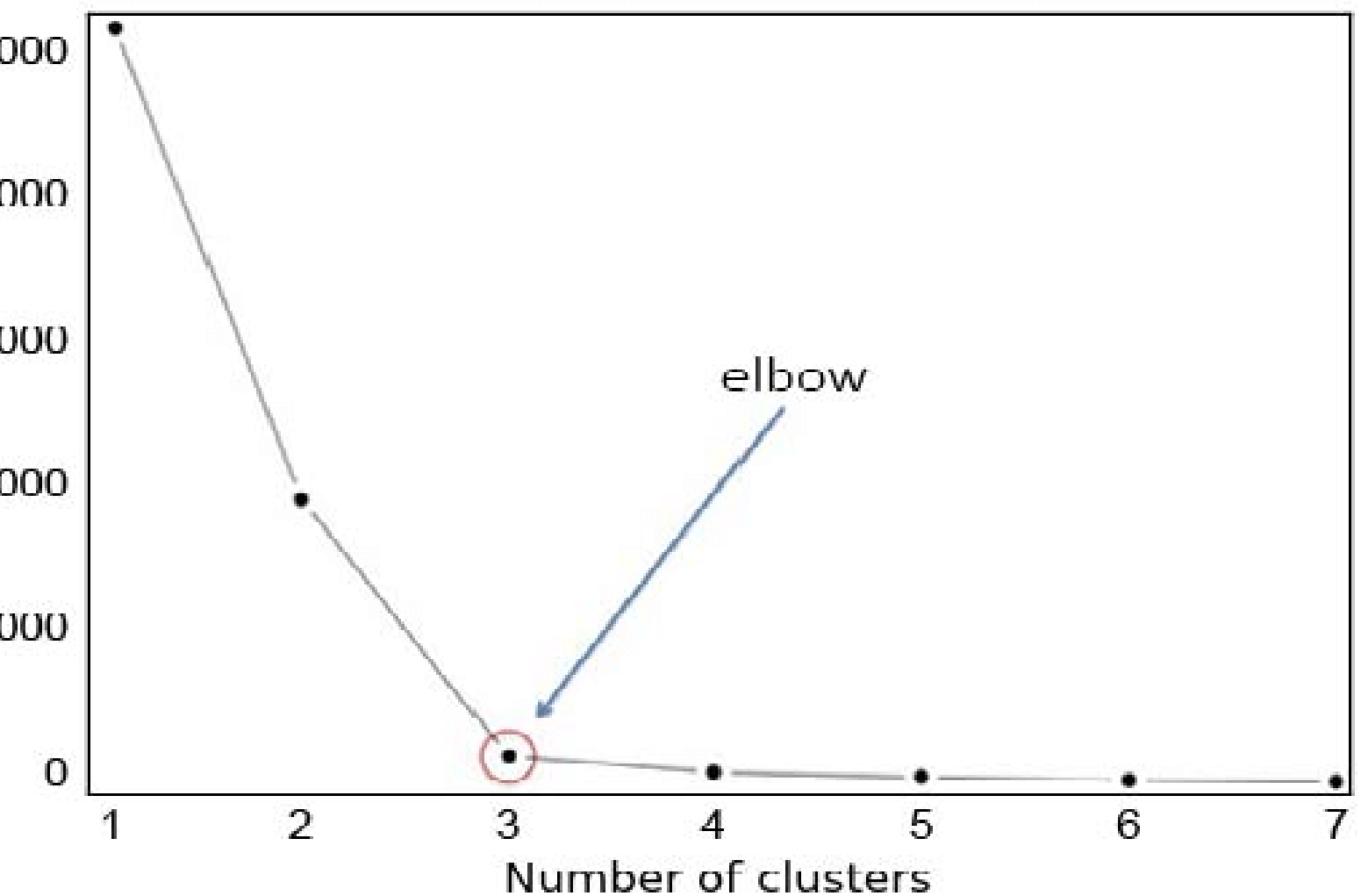
Are you an AI Enthusiastic ?

Follow me →

Imagine you have a box filled with different types of colorful candies,

but you don't know how many different colors there are.

You want to organize the candies into groups based on their colors,

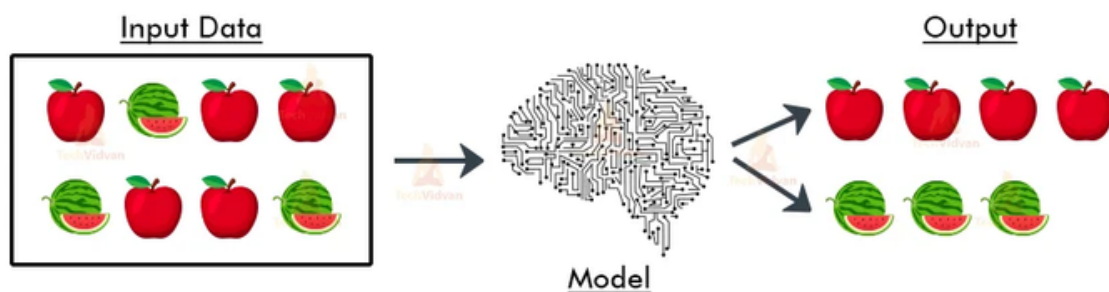So, we use Elbow method to decide how many groups or clusters.

Where we use Elbow Method?

Its comes under

Unsupervised Learning in ML

Input Data

Output

Model

Clustering

- In Unsupervised learning ,We use Elbow method to find number of clusters .

- In elbow method, X-axis represents number of clusters and Y-axis represents within-cluster sum of squares or inertia .

- Identify the elbow point: Look for the point on the curve where the decrease in WCSS or inertia becomes less pronounced and the number of clusters increases . This is the elbow point.

Coding Part of Elbow Method

```python
from sklearn.cluster import KMeans
list1=[]
for i in range(1,11):
    kmeans=KMeans(n_clusters=i,init='k-means++',random_state=42)
    #for model creation
    kmeans.fit(X)
    list1.append(kmeans.inertia_)
#range=no.of clusters,list1
plt.plot(range(1,11),list1)
plt.title('The Elbow Method')
plt.xlabel('Number of clusters')
plt.ylabel('WCSS')
plt.show()
```


The Elbow Method