

**Department of Computer Science and Engineering**

**29th Batch**

**Lab Report 8**

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| Course title | : Artificial Intelligence Lab |
| Course Code | : CSE - 414 |

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* **Question: KNN-Based Data Classification Using 150 Data Points.**
* **Solution(Code & Output):**

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| import pandas as pd  import numpy as np  import matplotlib.pyplot as plt  import seaborn as sns  from collections import Counter  df = pd.read\_csv("Sports.csv")  df.head()  df.info()  sns.scatterplot(data=df, x="Height", y="Weight", hue="Sports") |  |

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| def KNN(data, new\_sample, k):  dis = [ ]  for sample in data.iterrows():  ecd = np.linalg.norm(np.array([sample[1].Height, sample[1].Weight]) - np.array(new\_sample))  dis.append([ecd, sample[1].Sports])  dis = sorted(dis)[:k]  votes = [sample[1] for sample in dis]  print(dis)  print(votes)  result = Counter(votes).most\_common()[0][0]  print("The sample play: " + result)    sns.scatterplot(data=df, x="Height", y="Weight", hue="Sports", s=150)  plt.scatter(x=new\_sample[0], y=new\_sample[1], marker="\*", color="red", s=150)  while True:  h = input("Enter Height (or 'q' to quit): ")  if h == 'q':  break  w = input("Enter Weight: ")  KNN(data=df, new\_sample=[int(h), int(w)], k=3) |  |

* **Conclusion:**

In this lab, I created a dataset of 150 samples and applied the KNN algorithm to classify sports from height and weight data. I implemented a loop that takes user input repeatedly and provides predictions with real-time plots. This helped me understand both algorithm logic and user interaction in a data-driven system.