

## Task 6: K-Nearest Neighbors (KNN) Classification

- **Objective:** Understand and implement KNN for classification problems.
- **Tools:** Scikit-learn, Pandas, Matplotlib

### Hints/Mini Guide:

1. Choose a classification dataset and normalize features.
2. Use KNeighborsClassifier from sklearn.
3. Experiment with different values of K.
4. Evaluate model using accuracy, confusion matrix.
5. Visualize decision boundaries.

**Dataset:** You can use any dataset relevant to the task, e.g., Iris Dataset

link to download: [click here to download dataset](#)

**What You'll Learn :** Instance-based learning, Euclidean distance, K selection.

### Interview Questions:

1. How does the KNN algorithm work?
2. How do you choose the right K?
3. Why is normalization important in KNN?
4. What is the time complexity of KNN?
5. What are pros and cons of KNN?
6. Is KNN sensitive to noise?
7. How does KNN handle multi-class problems?
8. What's the role of distance metrics in KNN?

### Submit Here:

After completing the task, paste your GitHub repo link and submit it using the link below:

-  [\[Submission Link\]](#).

## 📌 Task Submission Guidelines

- 🕒 **Time Window:**

You can complete the task anytime between 10:00 AM to 10:00 PM on the given day. Submission link closes at 10 :00 PM

- 🔍 **Self-Research Allowed:**

You are free to explore, Google, or refer to tutorials to understand concepts and complete the task effectively.

- 🔧 **Debug Yourself:**

Try to resolve all errors by yourself. This helps you learn problem-solving and ensures you don't face the same issues in future tasks.

- 💰 **No Paid Tools:**

If the task involves any paid software/tools, do not purchase anything. Just learn the process or find free alternatives.

- 📁 **GitHub Submission:**

Create a new GitHub repository for each task.

Add everything you used for the task — code, datasets, screenshots (if any), and a **short README.md** explaining what you did.

- 📌 **Submit Here:**

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- 👉 [[Submission Link](#)].

Best  
of  
Luck

