**Lab Report – KNN2**

**#QUESTION 1**

import pandas as pd

import numpy as np

data = pd.read\_csv(r'E:\Sem3-GH\Sem3Lab\AI\knn\iris.csv')

"""print("Shape of the data:", data.shape)

print("Type of the data:", type(data))

print("First 3 rows of the data:")

print(data.head(3))"""

**#QUESTION 2**

#from sklearn import datasets

#iris = datasets.load\_iris()

"""print("Keys:", data.keys())

print("Shape of the data:", data.shape)

print("Feature names:", iris.feature\_names)

print("Description:\n", iris.DESCR)"""

**#QUESTION 3**

#print(data.info())

**#QUESTION 4**

import pandas as pd

data = pd.read\_csv(r'E:\Sem3-GH\Sem3Lab\AI\knn\iris.csv')

stats = data.describe()

print(stats)

**#QUESTION 5**

import pandas as pd

data = pd.read\_csv(r'E:\Sem3-GH\Sem3Lab\AI\knn\iris.csv')

setosa = data[data['species'] == 'setosa']

versicolor = data[data['species'] == 'versicolor']

virginica = data[data['species'] == 'virginica']

print("Setosa Observations:")

print(setosa.head())

print("\nVersicolor Observations:")

print(versicolor.head())

print("\nVirginica Observations:")

print(virginica.head())

**#QUESTION 6**

import pandas as pd

data = pd.read\_csv(r'E:\Sem3-GH\Sem3Lab\AI\knn\iris.csv')

print("Original DataFrame:")

print(data.head())

data.drop('Id', axis=1, inplace=True)

print("\nModified DataFrame:")

print(data.head())

**#QUESTION 7**

import pandas as pd

data = pd.read\_csv(r'E:\Sem3-GH\Sem3Lab\AI\knn\iris.csv')

first\_four\_cells = data.iloc[:2, :2]

print(first\_four\_cells)

**#QUESTION 8**

import pandas as pd

import matplotlib.pyplot as plt

data = pd.read\_csv(r'E:\Sem3-GH\Sem3Lab\AI\knn\iris.csv')

data.boxplot()

plt.title('General Statistics of Iris Dataset')

plt.ylabel('Measurement (cm)')

plt.xticks(rotation=45)

plt.grid(False)

plt.show()

**#QUESTION 9**

import seaborn as sns

import matplotlib.pyplot as plt

ax=plt.subplots(1,1,figsize=(10,8))

sns.countplot('species',data=iris)

plt.title("Iris Species Count")

plt.show()

**#QUESTION 10**

import pandas as pd

import matplotlib.pyplot as plt

data = pd.read\_csv('iris.csv')

species\_counts = data['species'].value\_counts()

plt.figure(figsize=(6, 6))

plt.pie(species\_counts, labels=species\_counts.index, autopct='%1.1f%%', startangle=140)

plt.title('Frequency of Species in Iris Dataset')

plt.axis('equal') # Equal aspect ratio ensures that pie is drawn as a circle.

plt.show()