**Pandas Questions**

1. How do you read a CSV file and display the first 10 rows?

import pandas as pd

df = pd.read\_csv('filename.csv')

print(df.head(10))

1. How do you find the number of rows and columns in a DataFrame?

Print(“Rows and columns is :”,df.shape)

1. Given a DataFrame df, how do you display only the rows where age > 25?

Print(df[“age”]>25)

1. Replace all missing values in column salary with the **mean salary**.

dt = df['salary'].fillna(df['salary'].mean(), inplace=True)

print(“The missing values in column salary with the mean salary is :”,dt)

1. How do you rename the column emp\_id to employee\_id?

df = dt.rename(columns={'emp\_id': 'employee\_id'}, inplace=False)

print(df)

1. How to drop duplicate rows in a DataFrame?

da = dt.drop\_duplicates()

print(da)

1. How do you convert a column of string dates "2023-05-01" into datetime format?

Print(df['date'] = pd.to\_datetime(df['date']))

1. How to group a DataFrame by department and find the total salary for each?

ds = df.groupby('departemnt')['salary'].sum()

print(ds)

1. How do you sort a DataFrame by date in descending order?

sorted\_df = dt.sort\_values(by="age", ascending=True)

print(sorted\_df)

1. Create a new column total\_marks by adding three columns: math, science, and english.

import pandas as pd

df = pd.read\_excel('marks.xlsx')

df['total\_marks'] = df['math'] + df['science'] + df['english']

print(df)

1. How do you filter rows where column score is between 40 and 80?

df\_filtered = df[df['score'].between(40, 80)]

print(df\_filtered)

1. Display the top 3 rows with the highest values in column sales.

Ds= df.nlargest(3, 'sales')

Print(ds)

1. Find the average, min, and max of the price column using a single function.

Print(df. describe ())

1. How to set a column (e.g., date) as the index of a DataFrame?

dm = df.set\_index('math', inplace=False)

print(dm)

1. Convert a categorical column gender (with values M/F) into numeric using mapping (M → 1, F → 0).

dg = df['gender'] = df['gender'].map({'M': 1, 'F': 0})

Print(dg)

**NumPy Questions**

1. Create a 1D NumPy array from 0 to 9.

import numpy as np

arr = np.arange(10)

1. Create a 3x3 NumPy array filled with random integers between 1 and 100.

arr = np.random.randint(1, 101, (3, 3))

print(arr)

1. How do you find the mean and standard deviation of a NumPy array?

mean = np.mean(arr)

std = np.std(arr)

print("\n mean is mean", mean)

print("\n standard deviation is", std)

1. Given an array, replace all values greater than 50 with 50.

at = arr[arr > 50] = 50

print(at)

1. Create a NumPy array and reshape it from 1D to 2D (e.g., 12 elements → 3x4).

arr = np.arange(12).reshape(3, 4)

print(arr)

1. Find the number of even numbers in a NumPy array.

num\_even = np.sum(arr % 2 == 0)

print(num\_even)

1. How do you flatten a 2D NumPy array to 1D?

flat\_arr = arr.flatten()

print(flat\_arr)

1. Create an array of 10 random floats between 0 and 1.

arr = np.random.rand(10)

print(arr)

1. Multiply two NumPy arrays element-wise.

arr1 = np.array([1,2,3,4,5])

arr2 = np.array([1,2,3,4,5])

res = arr1 \* arr2

print("res is ", res)

1. Given a NumPy array, how do you find the index of the maximum value?

index\_max = np.argmax(arr)

print(index\_max)