**PYTHON**

**CIA TEST – 4**

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**Numpy**

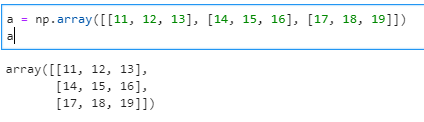
1. **Create a matrix A from 2D list containing elements from 11 to 19.**

Ans.

a = np.array([[11, 12, 13], [14, 15, 16], [17, 18, 19]])

a

**Output:**

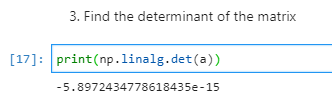
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1. **Find the determinant of the matrix**

**Ans.**

print(np.linalg.det(a))

**Output:**

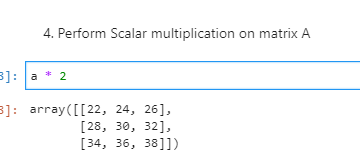
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1. **Perform Scalar multiplication on matrix A**

**Ans.**

a \* 2

**Output:**

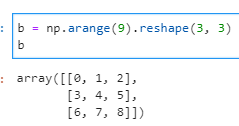
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1. **Create one more matrix B (use any builtin function to generate values) of same dimension as matrix A and perform multiplication. Display both matrices, their dimension and the result.**

**Ans.**

b = np.arange(9).reshape(3, 3)

b



print('First Matrix:\n', a)

print('\nDimension of Matrix a: ',a.shape)

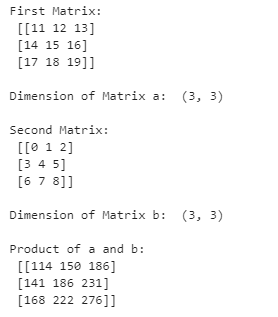
print('\nSecond Matrix:\n',b)

print('\nDimension of Matrix b: ', b.shape)

b.shape

mat\_multi = a @ b

print('\nProduct of a and b:\n',mat\_multi)



**PANDAS**

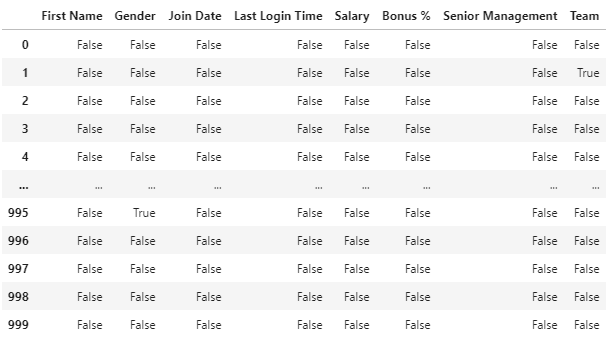
1. **Find the missing values and give a report of it.**

**Ans.**

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

df

df.isnull()



1. **Fetch employee names based on join date**

**Ans.**

col\_list = ['First Name', 'Join Date']

names\_date = pd.read\_csv('employees.csv', usecols=col\_list)

names\_date



1. **Fetch all the employees having Team = Finance and Salary >= 1,00,000**

**Ans.**

emp\_finance = df[(df["Team"] == "Finance") & (df["Salary"] > 100000)]

emp\_finance



1. **Fetch all the female employees of having Bonus more than 10%.**

**Ans.**

emp\_female\_bonus = df[(df['Gender'] == 'Female') & (df['Bonus %'] > 10)]

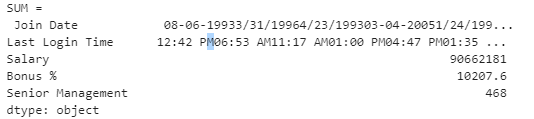
emp\_female\_bonus



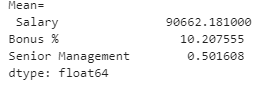
1. **Perform basic statistical analysis on the given dataset using any five statistical functions.**

**Ans.**

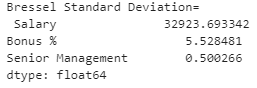
print('SUM =\n',df.sum())



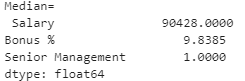
print('Mean=\n',df.mean())



print('Bressel Standard Deviation=\n',df.std())



print('Median=\n',df.median())



print('Minimum Values=\n',df.min())

