np. array, np.arange, np.linspace, np.ones, np.zeros, np.eye, np.random.rand, np.randint, np.reshape ,np.seed

1. **Why do data analysts prefer NumPy arrays over Python lists?**
2. **Explain the difference between np.arange() and np.linspace().**
3. **What is an identity matrix and how do you create it in NumPy?**
4. **What is the purpose of reshape() in NumPy?**
5. **What is the difference between rand() and randint() in np.random?**
6. **What is the use of np.random.seed() during analysis or ML experiments?**
7. **What will happen if you try to reshape an array to incompatible shape?**
8. **Give real-life use case where zeros() or ones() are useful in data analysis.**
9. **Can reshape() change the original array size? Explain why or why not.**

CODING QUESTIONS

create a numpy array from a Python list

Q1) Create a 1D array from 10 to 50 with step 5

Q2) Create 20 evenly spaced numbers between 5 and 10 using linspace

Q3) Create a 3×4 matrix of all ones

Q4) Create a 5×5 identity matrix

Q5) Create a 2×3 array with random decimals (0 to 1)

Q6) Create an array of 8 random integers between 100 and 200

Q7) Create numbers 0–11 then reshape to 3×4

Q8) What error comes if you try:

np.arange(10).reshape(3,4) **ans is valueerror**

Q9) Create 10 random integers between 1–9 and make it 2×5

Q10) Generate array [0–15], convert to 4×4, then extract diagonal