1. **What is the difference between shallow copy and deep copy?**

**Ans:**

| **Shallow Copy** | **Deep Copy** |
| --- | --- |
| Shallow Copy stores the references of objects to the original memory address. | Deep copy stores copies of the object’s value. |
| Shallow Copy reflects changes made to the new/copied object in the original object. | Deep copy doesn’t reflect changes made to the new/copied object in the original object. |
| Shallow Copy stores the copy of the original object and points the references to the objects. | Deep copy stores the copy of the original object and recursively copies the objects as well. |
| A shallow copy is faster. | Deep copy is comparatively slower. |
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1. **what is the difference between numpy array and numpy matrix functions?**

**Ans:**

| Numpy np.array() | Numpy np.matrix() |
| --- | --- |
| Syntax:  numpy.array(object, dtype=None) | Syntax: numpy.matrix(object, dtype=None) |
| Numpy arrays (nd-arrays) are N-dimensional where, N=1,2,3… | Numpy matrices are strictly 2-dimensional. |
| nd-arrays are base classes for matrix objects | Matrix objects are a subclass of nd-array. |
| Matrix objects have arr.I for the inverse. | Array objects don’t. |
| If a and b are matrices, then a@b or np.dot(a,b) is their matrix product | If a and b are matrices, then a\*b is their matrix product. |