# [0|1] NumPY Speedrun

1. **Create a 1D array of numbers from 0 to 9**

   ```
   Desired output:
   ```

   ```
   array([0, 1, 2, 3, 4, 5, 6, 7, 8, 9])
   ```

2. **Create a 3×3 numpy array of all True's**

   ```
   Desired output:
   ```

   ```
   array([[ True,  True,  True],

          [ True,  True,  True],

          [ True,  True,  True]], dtype=bool)
   ```

3. **Extract all odd numbers from arr (use some sort of conditions)**

   ```
   Given:
   ```

   ```
   arr = np.array([0, 1, 2, 3, 4, 5, 6, 7, 8, 9])
   ```

   ```
   Desired output:
   ```

   ```
   array([1, 3, 5, 7, 9])
   ```

4. **Replace all odd numbers in arr with -1 (use some sort of conditions)**

   ```
   Given:
   ```

   ```
   arr = np.array([0, 1, 2, 3, 4, 5, 6, 7, 8, 9])
   ```

   ```
   Desired output:
   ```

   ```
   array([ 0, -1,  2, -1,  4, -1,  6, -1,  8, -1])
   ```

## 5. Convert a 1D array to a 2D array with 2 rows

Given:

```
arr = np.array([ 0, 1, 2, 3, 4, 5, 6, 7, 8, 9])
```

Desired output:

```
array([[0, 1, 2, 3, 4],

       [5, 6, 7, 8, 9]])
```

## 6. Get all items between 5 and 10 from a

Given:

```
a = np.array([2, 6, 1, 9, 10, 3, 27])
```

Desired output:

```
array([6, 9, 10])
```

## 7. How to create a 2D array containing random floats between 5 and 10?

## 8. Create the ranks for the given numeric array a

Given:

```
np.random.seed(10)

a = np.random.randint(20, size=10)

print(a)

[ 9  4 15  0 17 16 17  8  9  0]
```

Desired output:

```
[4 2 6 0 8 7 9 3 5 1]
```

9. **Write a NumPy program to compute the multiplication of two given matrices**

   Given:

   [[1, 0], [0, 1]]

   [[1, 2], [3, 4]]

   Desired output:

   [1, 2]

   [3, 4]

10. **Write a NumPy program to compute the determinant of an array**

    Given:

    [[1 2],

     [3 4]]

    Desired Output:

    -2.0000000000000004

11. **Write a NumPy program to compute the inverse of a given matrix**

    Given:

    [[1 2],

     [3 4]]

Desired output:

```
[[-2.    1. ],
 [ 1.5 -0.5]]
```