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Q1. Import NumPy as np

Code

```
import numpy as np
```

Q2. Create an array of 10 zeros?

Code

```
import numpy as np

X = np.zeros(10)

print(X)
```

Output

```
[0. 0. 0. 0. 0. 0. 0. 0. 0. 0.]
```

Q3. Create an array of 10 ones?

Code

```
import numpy as np

y  = np.ones(10)


print(y)
```

Output

```
[1. 1. 1. 1. 1. 1. 1. 1. 1. 1.]
```

Q3. Create an array of 10 fives?

Code

```
import numpy as np

fives_array = 5 * np.ones(10)


print(fives_array)
```

Output

```
[5. 5. 5. 5. 5. 5. 5. 5. 5. 5.]
```

Q4. Create an array of the integers from 10 to 50?

Code

```
import numpy as np

integers_array = np.arange(10, 51)

print(integers_array)
```

Output

```
[10 11 12 13 14 15 16 17 18 19 20 21 22 23 24 25 26 27 28 29 30 31 32 33
 34 35 36 37 38 39 40 41 42 43 44 45 46 47 48 49 50]
```

Q5. Create an array of all the even integers from 10 to 50?

Code

```
import numpy as np

even_integers_array = np.arange(10, 51, 2)

print(even_integers_array)
```

Output

[10 12 14 16 18 20 22 24 26 28 30 32 34 36 38 40 42 44 46 48 50]

Q6. Create a 3*3 matrix with values ranging from 0 to 8?

Code

```
import numpy as np

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

print(matrix)
```

Output

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

Q7. Create a 3*3 identity matrix?

```
import numpy as np

identity_matrix = np.identity(3)

print(identity_matrix)
```

Output

```
[[1. 0. 0.]
 [0. 1. 0.]
 [0. 0. 1.]]
```

Q8. Use numpy to generate a random number between 0 and 1?

Code

```
import numpy as np

random_number = np.random.rand()

print(random_number)
```

Output

```
0.7091141907248609
```

Q9. use numpy to generate an array of 25 random numbers sampled from a standard normal distribution?

Code

```
import numpy as np

random_numbers = np.random.randn(25)

print(random_numbers)
```

Output

```
[ 0.03412912  0.65106094  0.59116982 -0.67857925 -0.08096045 -1.60825159
  0.41713062  1.05906485 -0.32285713 -1.25614845  0.16311102  0.6075286
 -0.96859995  1.1691496  -0.07967268  0.79922551 -0.16569001  0.07938997
 -0.71470092  0.83775334  0.15139109  0.17577732 -0.46706021  1.14678763
 -0.87510417]
```

Q10. create the following matrix ?(in the question given)

Code

```
import numpy as np
```

```
matrix = np.arange(0.01, 1.01, 0.01).reshape(10, 10)

print(matrix)
```

Output

```
array([[0.01, 0.02, 0.03, 0.04, 0.05, 0.06, 0.07, 0.08, 0.09, 0.1 ],
       [0.11, 0.12, 0.13, 0.14, 0.15, 0.16, 0.17, 0.18, 0.19, 0.2 ],
       [0.21, 0.22, 0.23, 0.24, 0.25, 0.26, 0.27, 0.28, 0.29, 0.3 ],
       [0.31, 0.32, 0.33, 0.34, 0.35, 0.36, 0.37, 0.38, 0.39, 0.4 ],
       [0.41, 0.42, 0.43, 0.44, 0.45, 0.46, 0.47, 0.48, 0.49, 0.5 ],
       [0.51, 0.52, 0.53, 0.54, 0.55, 0.56, 0.57, 0.58, 0.59, 0.6 ],
       [0.61, 0.62, 0.63, 0.64, 0.65, 0.66, 0.67, 0.68, 0.69, 0.7 ],
       [0.71, 0.72, 0.73, 0.74, 0.75, 0.76, 0.77, 0.78, 0.79, 0.8 ],
       [0.81, 0.82, 0.83, 0.84, 0.85, 0.86, 0.87, 0.88, 0.89, 0.9 ],
       [0.91, 0.92, 0.93, 0.94, 0.95, 0.96, 0.97, 0.98, 0.99, 1.  ]])
```

Q11. Create an array of 20 linearly spaced points between 0 and 1?

Code

```
import numpy as np

linear_space = np.linspace(0, 1, 20)

print(linear_space)
```

Output

```
[0.         0.05263158 0.10526316 0.15789474 0.21052632 0.26315789
 0.31578947 0.36842105 0.42105263 0.47368421 0.52631579 0.57894737
 0.63157895 0.68421053 0.73684211 0.78947368 0.84210526 0.89473684
 0.94736842 1.        ]
```