Untitled-1

```
# %% [markdown]
# MUHAMMAD ABDULLAH
#
# B22F0577AI054
#
# SUBMITTED TO: MAM ANILA HABIB
#
# PROGRAMMING FOR AI LAB
#
# AI LAB:12

# %% [markdown]
# Creating NumPy Arrays

# %%
import numpy as np
my_list = [0,1,2,3,4,5,6,7,8,9,10]
nparr = np.array(my_list)
print(nparr)

# %% [markdown]
# From Build-in Method:

# %%
arr=np.arange(0,11)
print(arr)

# %% [markdown]
# UNIVERSAL FUNCTION – ufunc
# ARITHMETIC OPERATIONS WE CAN PERFORM WITH NUMPY ARRAYS

# %% [markdown]
# ADDING ARRAYS

# %%
nparr_added = nparr + nparr
print(nparr_added)

# %% [markdown]
# SUBTRACTING ARRAYS

# %%
nparr_sub= nparr - nparr
print(nparr_sub)

# %% [markdown]
# MULTIPLICATING OR DIVISION ARRAYS

# %%
nparr_mult = nparr * nparr
print(nparr_mult)

# %% [markdown]
# MULTIPLY BY A SCALARS
```

```
55
56 # %%
57 nparr_esc = nparr * 10
58 print(nparr_esc)
59
60 # %% [markdown]
61 # ONE DIVIDED BY ZERO
62
63 # %%
64 # inf signifies infinity for one divided
65 # by zero at the very first element
66 nparr_one_div = 1/nparr
67 print(nparr_one_div)
68
69 # %% [markdown]
70 # EXPONENT — ARRAYS — Squaring everything — Two options
71
72 # %%
73 np_arr_exp1 = nparr ** 2
74 print(np_arr_exp1)
75 np_arr_exp2 = np.square(nparr)
76 print(np_arr_exp2)
77
78 # %% [markdown]
79 # SQUARE ROOT
80
81 # %%
82 nparr_sr = np.sqrt(nparr)
83 print(nparr_sr)
84
85 # %% [markdown]
86 # EXPONENTIAL WITH ARRAYS
87
88 # %%
89 np_arr_exp3 = np.exp(nparr)
90 print(np_arr_exp3)
91
92 # %% [markdown]
93 # MAX & MIN
94
95 # %%
96 nparr_max = np.max(arr)
97 print(nparr_max)
98
99 # %%
100 nparr_min = np.min(arr)
101 print(nparr_min)
102
103 # %% [markdown]
104 # TRIGONOMETRIC FUNCTIONS — Passing every element into sine function
105
106 # %%
107 nparr_sin = np.sin(nparr)
108 print(nparr_sin)
109
110 # %% [markdown]
```

```
# LOGARITHMIC — Note: the very first one is minus infinity

# %%
nparr_log = np.log(nparr)
print(nparr_log)
```