MACHINE VISION

LAB 3 : HISTOGRAM EQUALIZATION

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CODE:

```
import matplotlib.pyplot as plt
import numpy as np
import cv2

#As per given data on board
numbers = [10,15,5,6,21,37,41,17,54,65,27,33,3,64,2]

# Define the bins for the categories
divisions_along_x_axis = [0, 9, 19, 29, 39, 49, 59, 69, 79]

# Categorize the random numbers into the bins
counts, _ = np.histogram(numbers, bins=divisions_along_x_axis)

# Plotting the histogram using matplotlib
plt.hist(numbers, bins=divisions_along_x_axis,
edgecolor='black')
plt.title('Numbers Histogram')
plt.xlabel('Divisions along X Axis')
plt.ylabel('Frequency')
plt.xticks(bins)

# Plotting the line graph using matplotlib
plt.figure(figsize=(10, 6))
plt.plot(bin_centers, counts, marker='o', linestyle='-',
color='r')
plt.title('Numbers Line Graph')
plt.xlabel('Number Ranges')
plt.ylabel('Frequency')
```

OUTPUT:

jupyter 21BAI1876_LAB_3_HISTOGRAM_PLOTTING Last Checkpoint: 21 minutes ago (autosaved)

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Trusted | Python 3 (ipykernel)

Run Code

In [19]:
```
import matplotlib.pyplot as plt
import numpy as np
import cv2
```

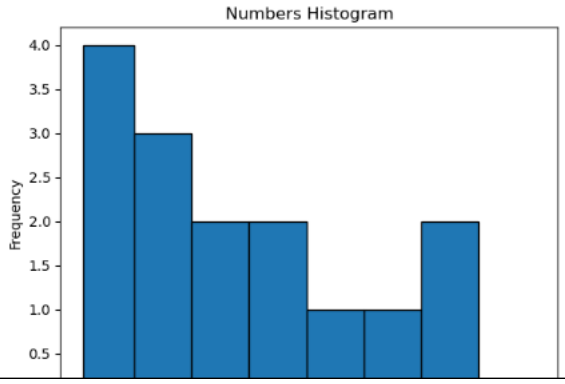
In [20]:
```
numbers = [10,15,5,6,21,37,41,17,54,65,27,33,3,64,2]

# Define the bins for the categories
divisions_along_x_axis = [0, 9, 19, 29, 39, 49, 59, 69, 79]

# Categorize the random numbers into the bins
counts, _ = np.histogram(numbers, bins=divisions_along_x_axis)
```

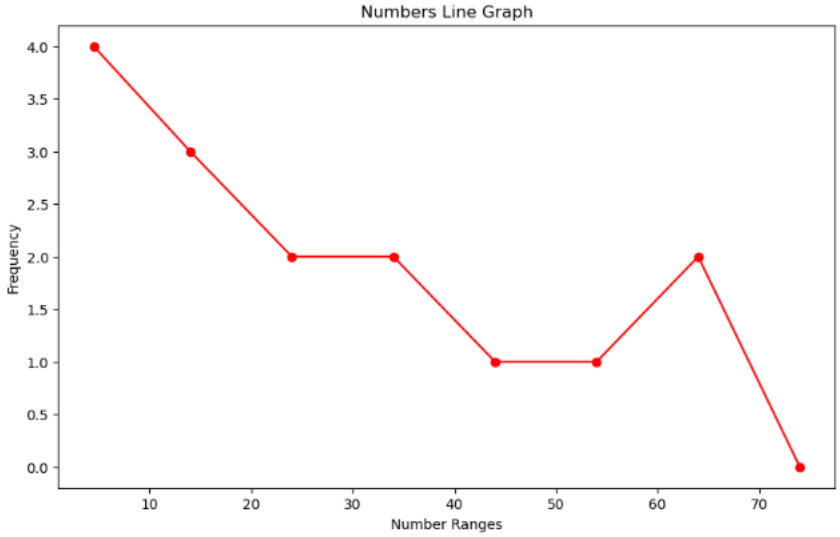
In [21]:
```
# Plotting the histogram using matplotlib
plt.hist(numbers, bins=divisions_along_x_axis, edgecolor='black')
plt.title('Numbers Histogram')
plt.xlabel('Divisions along X Axis')
plt.ylabel('Frequency')
plt.xticks(bins)
```

Out[21]:
```
([<matplotlib.axis.XTick at 0x214b3e209d0>,
  <matplotlib.axis.XTick at 0x214b3e20550>,
  <matplotlib.axis.XTick at 0x214b3e05950>,
  <matplotlib.axis.XTick at 0x214b40a39d0>,
  <matplotlib.axis.XTick at 0x214b40a2fd0>,
  <matplotlib.axis.XTick at 0x214b40af4d0>,
  <matplotlib.axis.XTick at 0x214b40b5610>,
  <matplotlib.axis.XTick at 0x214b40b7850>,
  <matplotlib.axis.XTick at 0x214b40b9ad0>],
 [Text(0, 0, '0'),
  Text(9, 0, '9'),
  Text(19, 0, '19'),
  Text(29, 0, '29'),
  Text(39, 0, '39'),
  Text(49, 0, '49'),
  Text(59, 0, '59'),
  Text(69, 0, '69'),
  Text(79, 0, '79')])
```



In [29]:
```
# Plotting the line graph using matplotlib
plt.figure(figsize=(10, 6))
plt.plot(bin_centers, counts, marker='o', linestyle='-', color='r')
plt.title('Numbers Line Graph')
plt.xlabel('Number Ranges')
plt.ylabel('Frequency')
```

Out[29]: Text(0, 0.5, 'Frequency')



In [ ]: