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1 Task 1

Write a NumPy program to create an array of all the even integers from 200 to 240.

```
[1]: import numpy as np
```

```
[2]: # Task 1
     start = 200
     end = 241
     a = np.arange(start, end, 2)
     a
```

```
[2]: array([200, 202, 204, 206, 208, 210, 212, 214, 216, 218, 220, 222, 224,
            226, 228, 230, 232, 234, 236, 238, 240])
```

2 Task 2

Write a NumPy program to generate an array of 10 random numbers from a standard normal distribution.

```
[3]: # Task 2
     # Standard Normal Distribution (mean=0, stdev=1).
     s = np.random.standard_normal(10)
     print(s)
```

```
[-0.39955445  0.22529204  1.08860462  0.51399819 -1.04110041  0.04553228
  0.11140743 -0.86624793 -1.40355598  0.4196999 ]
```

3 Task 3

Write a Python program to plot two or more lines and set the line markers. The code snippet gives the output shown in the following screenshot:

```
[4]: import matplotlib.pyplot as plt
     %matplotlib inline
```

```
[5]: # Task 3
     # Generate data for the first line
     x1 = np.linspace(0, 10, 20)
     # used broadcasting
     y1 = 2 * x1 + 1

     # Generate data for the second line
     x2 = np.linspace(0, 10, 20)
     y2 = np.cos(x2)

     # Create a figure and axes
     fig, ax = plt.subplots()

     # Plot the first line with a square marker
     ax.plot(x1, y1, '-o', label='2x + 1')

     # Plot the second line with a diamond marker
     ax.plot(x2, y2, '-x', label='cos')



     # Add a legend to the plot
     ax.legend()

     # Set the title and labels
     ax.set_title("Sine and Cosine")
     ax.set_xlabel("x")
     ax.set_ylabel("y")

     # Show the plot
     plt.show()
```
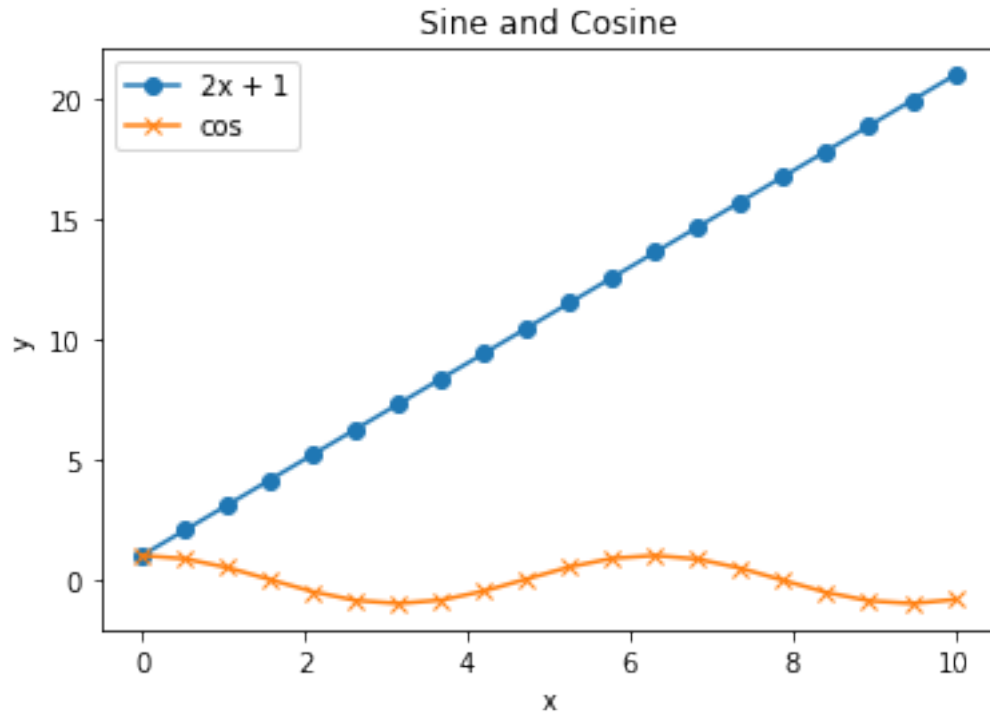
4 Task 4

Write a Python program to change the datatype of a given column or a Series.

```python
import pandas as pd
def change_column_dtype(s):
    return pd.to_numeric(s,errors='coerce')
s = pd.Series(['100', '200', 'python', '300.12', '400'])
result = change_column_dtype(s)
result
```

```
[6]: 0    100.00
     1    200.00
     2       NaN
     3    300.12
     4    400.00
     dtype: float64
```

5 Task 5

Write a pandas program to delete DataFrame row(s) based on given column value.

```python
[7]: import pandas as pd
     # dictionary
     d = {'col1': [1, 4, 3, 4, 5], 'col2': [4, 5, 6, 7, 8], 'col3': [7, 8, 9, 0, 1]}
     # change dictionary to pandas dataframe pandas library function can be applied␣
      ↪on it
     df = pd.DataFrame(data=d)
     print("Given DataFrame")
     print(df)
     # if 5 found on col2 that row will be deleted
     df = df[df.col2 != 5]
     print("New DataFrame")
     print(df)
     # if col2 has 6 in it remove that row
     df = df[df.col2 != 6]
     print(df)
```

```
Given DataFrame
   col1  col2  col3
0     1     4     7
1     4     5     8
2     3     6     9
3     4     7     0
4     5     8     1
New DataFrame
   col1  col2  col3
0     1     4     7
2     3     6     9
3     4     7     0
4     5     8     1
   col1  col2  col3
0     1     4     7
3     4     7     0
4     5     8     1
```

[ ]: