

Problem 6

Bar plot of x and money below

```
import numpy as np
import matplotlib.pyplot as plt
#input
x = np.arange(4)
money = [1.5e5, 2.5e6, 5.5e6, 2.0e7]

plt.bar(x, money)
plt.xlabel("x")
plt.ylabel("money")
plt.show
```

Problem 7

Plot the graph of the function $\cos(8x)$ in red and x^2 in blue for $x \in [0,1]$ and add the label "x" and "f(x)" to the respective columns using fontsize 14.

```
import numpy as np
import matplotlib.pyplot as plt
#input
x = np.linspace(0, 1, 100)
plt.plot(x, np.cos(8*x), color='red')
plt.plot(x, x**2, color='blue')
plt.xlabel("x", fontsize=14)
plt.ylabel("f(x)", fontsize=14)
plt.show
```

Problem 8

Plot the graph of the function $\cos(8x)$ in red and x^2 in blue for $x \in [0,1]$ and add a legend with labels "cos(8x)" and " x^2 "

```
import numpy as np
import matplotlib.pyplot as plt
#input
x = np.linspace(0, 1, 100)
plt.plot(x, np.cos(8*x), color='red', label="cos(8x)")
plt.plot(x, x**2, color='blue', label="x^2")
plt.legend()
plt.xlabel("x", fontsize=14)
plt.ylabel("f(x)", fontsize=14)
plt.show
```

Problem 9

Generate samples from the [Laplace distribution](#) (use `np.random.laplace(0,2,100)`), and then plot a histogram of the samples using 30 bins.

```
import numpy as np
import matplotlib.pyplot as plt
#input
Data = np.random.laplace(0,2,100)
plt.hist(Data, bins=30)
plt.show()
```

Problem 10

Plot the graph of the 2D function $e^{-x^2-y^2}$ for $x,y \in [-3,3]$.

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

x = np.linspace(-3, 3, 100)
y = np.linspace(-3, 3, 100)
z = np.exp(-x**2 -y**2)

ax = plt.axes(projection='3d')
ax.plot3D(x, y, z)
```