Assignment 6

1. Fill in the function "plot_std_normal_with_probability()" to draw the standard normal distribution curve.
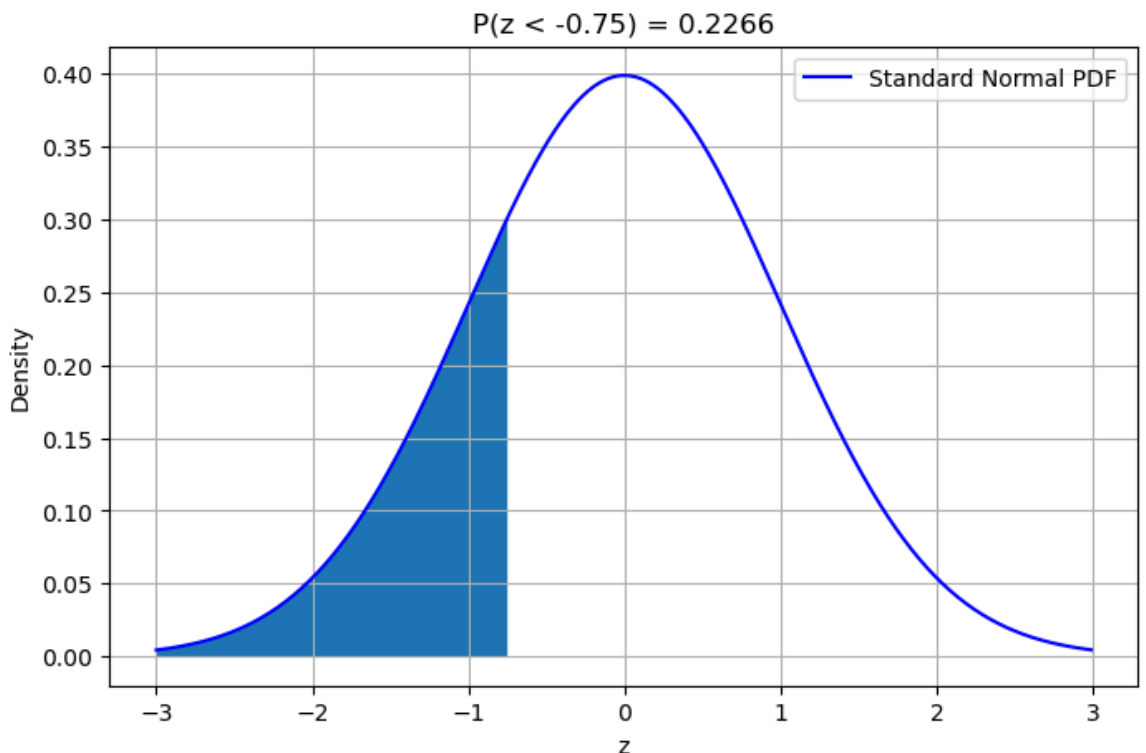
```
In [19]: import numpy as np
         import matplotlib.pyplot as plt
         from scipy.stats import norm

         def plot_std_normal_with_probability(title, x, interval_1):
             y = norm.pdf(x)

             plt.figure(figsize=(8, 5))
             plt.plot(x, y, 'b', label='Standard Normal PDF')
             plt.fill_between(x, y, 0, where=interval_1)
             plt.title(title)
             plt.xlabel('z')
             plt.ylabel('Density')
             plt.grid()
             plt.legend()
             plt.show()

         x = np.arange(-3, 3, 0.01)
         z0 = -0.75
         p = norm.cdf(z0)

         plot_std_normal_with_probability(f'P(z < {z0}) = {p:.4f}', x, x < z0)
```



```
In [ ]:
```

2. Use norm.cdf() and plot_std_normal_with_probability() to draw the standard normal distribution in the following area and draw the corresponding graph in Python. P(-0.75 <

z < 1.5) = 0.7066

In [17]:
```python
import numpy as np
import matplotlib.pyplot as plt
from scipy.stats import norm

def plot_std_normal_with_probability(title, x, interval_1):

    y = norm.pdf(x)
    plt.figure(figsize=(8, 5))
    plt.plot(x, y, 'b', label='Standard Normal PDF')
    plt.fill_between(x, y, 0, where=interval_1)
    plt.title(title)
    plt.xlabel('z')
    plt.ylabel('Density')
    plt.grid()
    plt.legend()
    plt.show()


x = np.arange(-3, 3, 0.01)
z1, z2 = -0.75, 1.5

p = norm.cdf(z2) - norm.cdf(z1)

plot_std_normal_with_probability(f'P({z1} < z < {z2}) = {p:.4f}', x,
```