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

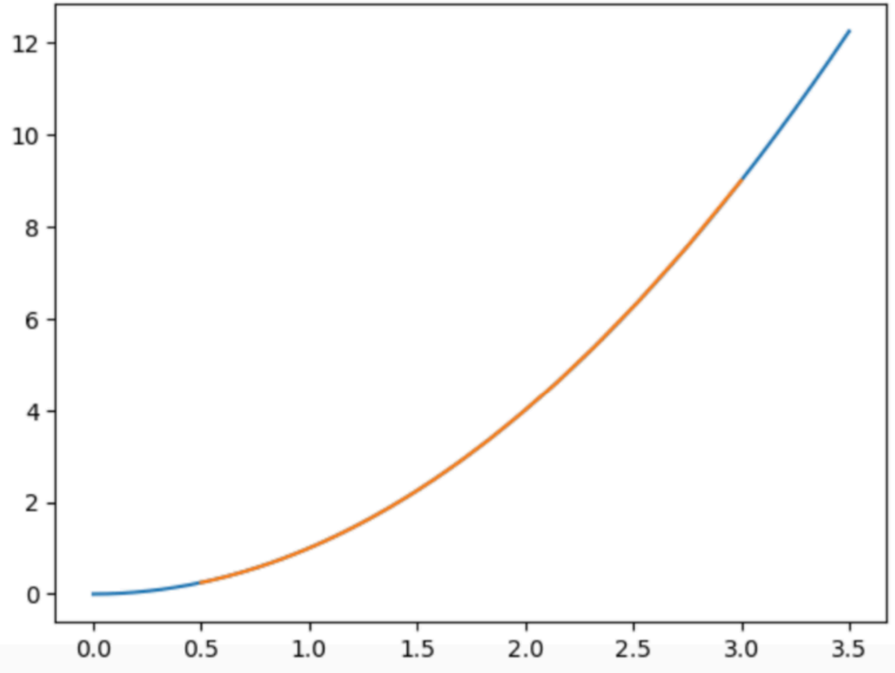
def gradient_descent(f, learning_rate, initial_point):
    def deriv(f, base_point):
        return(f(base_point+10**(-5))-f(base_point) -10**(-5))/(2*10**(-5))
    x_coords = [initial_point]
    y_coords = [f(initial_point)]

    for i in range(100):
        gradient = deriv(f, x_coords[-1])
        update = -learning_rate*gradient
        x_coords.append(x_coords[-1] + update)
        y_coords.append(f(x_coords[-1]))

    plot_range = np.linspace(min(x_coords)-0.5, max(x_coords) + 0.5, 10000)
    function_range = [f(i) for i in plot_range]
    plt.plot(plot_range, function_range)
    plt.plot(x_coords, y_coords)
    return round(x_coords[-1],3),round(y_coords[-1],3)

result = gradient_descent(lambda x: x**2, 0.1, 3.0)#where we have function, learning rate, initial point
print("The Minimum Point Value is:", result)
```

```
The Minimum Point Value is: (0.5, 0.25)
```



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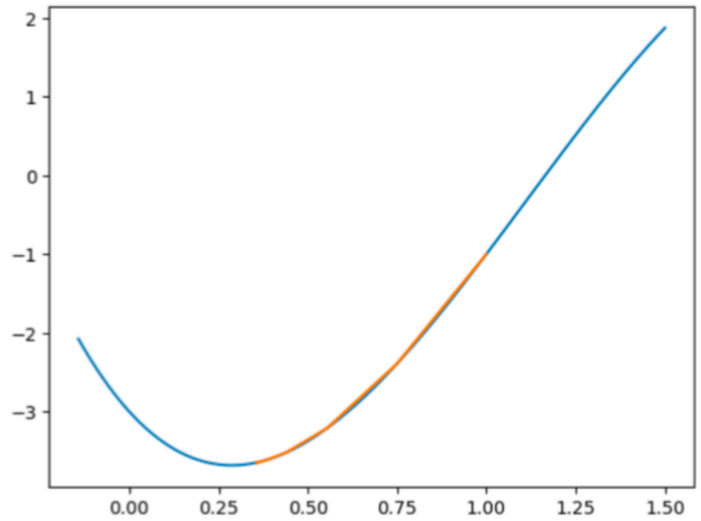
    function_range = [f(i) for i in plot_range]
    plt.plot(plot_range, function_range)
    plt.plot(x_coords, y_coords)
    return round(x_coords[-1],3),round(y_coords[-1],3)

result = gradient_descent(lambda x: -3*x**3 + 10*x**2 - 5*x - 3, 0.1, 1.0) # chose starting point of 1
print("The Minimum Point Value is:", result)
```

```
The Minimum Point Value is: (0.358, -3.646)
```



The function is non differentiable at 0 And

There is a flat gradient away from 0, x>1: derivative = 1 but x<0, derivative = -1,

Therefore, the
magnitude of the gradient is 1 except at the minimum where it is undefined