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

```
def max_conv_operator(samples, f_samples, input, L):
    return np.max(f_samples - L * np.abs(input - samples))

# def sharktooth_function(function, x_start, x_stop, number_of_sharkteeth, L, plot_arg):
#     samples = np.random.uniform(x_start,x_stop, number_of_sharkteeth)
#     f_samples = function(samples)
#     x = np.linspace(x_start, x_stop, 1000)
#     approximate_y = []
#     for i in range(len(x)):
#         approximate_y.append(max_conv_operator(samples, f_samples, x[i], L))
#     error = np.max(np.abs(f(x) - approximate_y))
#     if plot_arg == 1:
#         plt.plot(x,approximate_y)
#     else:
#         return error
```

```
sharktooth_function(np.sin, 0,4,100,1,0)
```

```
0.06595578752144393
```

```
errors = []
def f(x):
    return x**2
for i in range(1,150):
    errors.append(sharktooth_function(f,0,4,i,16,0))
import plotly.express as px
fig = px.line(x=list(range(len(errors))), y=errors, labels={'x':'Number of teeth', 'y':'Ma
fig.update_layout(template = 'plotly_dark')
fig.show()
```

```
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```