

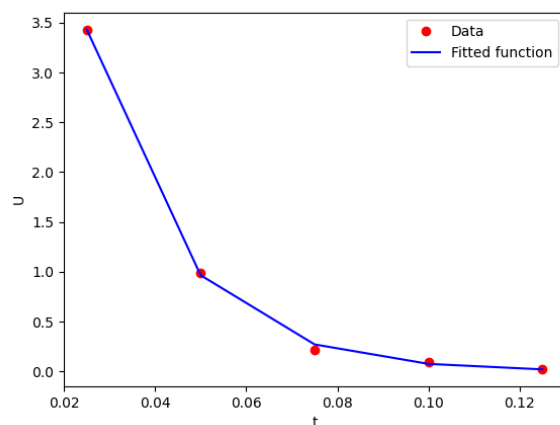
1. Import the required Python modules: NumPy, Matplotlib, and SciPy's optimization library.
2. Define input data as arrays t (time) and u (voltage across a capacitor)
3. Define the model function that will fit the data. The `expon_func` function has an exponential trend, and takes as input the time variable t and parameters A and B . The function returns the output variable U_C that represents the voltage across a capacitor in an RLC circuit.

```
def expon_func(t, A, B):
    return A * np.exp(B * t)
```

- a.
4. Fit the model function to the data using `curve_fit` from SciPy's optimization library. The `curve_fit` function optimizes the values of the parameters to minimize the difference between the model function and the data points. The initial guess for the parameters p_0 is set to $(12, 0.05)$.
- a. The p_0 parameter is set to $(12, 0.05)$, which specifies an initial guess of $A = 12$, $B = 0.05$. These values are chosen based on a visual inspection of the data.

```
x, y = opt.curve_fit(expon_func, t, u, p0=(12, 0.05))
```

- b.
5. Send the acquired data back to the `expon_func` to calculate the best fit for $U_C(t)$
6. Plots the given points and the best fit.
7. Calculate RC
8. Prints RC value.



After comparing the data points and the fitted function it is accurate.

RC = 0.0197186201386328 RC value