Code-Layout,Readability and Reusability

Date	**04 November 2023**
Team ID	**NM2023TMID10132**
Project Name	**How to create a reel design using canva**

CODE:

```
import numpy as np

import matplotlib.pyplot as plt


# Reel parameters

diameter_reel = 0.2  # meters

width_reel = 0.1  # meters

core_diameter = 0.05  # meters

material_density = 1000  # kg/m^3

material_width = 0.05  # meters

material_thickness = 0.002  # meters

material_length = 50  # meters

tension_constant = 100  # N/m


# Simulation parameters

time_step = 0.5  # seconds

total_time = 30  # seconds


# Initialize lists to store data

time = [0]

material_length_on_reel = [0]

tension = [0]
```

```
# Simulation loop
while time[-1] < total_time:
    time.append(time[-1] + time_step)

    # Calculate the change in material length on the reel
    delta_length = (2 * np.pi * diameter_reel * time_step) * (core_diameter + material_length_on_reel[-1])

    # Update material length on the reel
    material_length_on_reel.append(material_length_on_reel[-1] + delta_length)

    # Calculate tension on the material
    tension.append(tension_constant * material_length_on_reel[-1])

# Plot results
plt.figure()
plt.subplot(2, 1, 1)
plt.plot(time, material_length_on_reel)
plt.xlabel('Time (s)')
plt.ylabel('Material Length on Reel (m)')

plt.subplot(2, 1, 2)
plt.plot(time, tension)
plt.xlabel('Time (s)')
plt.ylabel('Tension (N)')

plt.show()
```

OUTPUT:


File
Fashion Sale
www.reallygreatsite.com
UP TO 50% OFF
10.0s
Add
Duplicate
Delete
Color
10.0s