In [1]:

```
print("Hello World")
Hello World
```

In [2]:

```
import numpy                        #here we load numpy
from matplotlib import pyplot as plt
nx=41
dx = 2 / (nx-1)
nt = 25    #nt is the number of timesteps we want to calculate
dt = .025  #dt is the amount of time each timestep covers (delta t)
c = 1
print(dx)
print(.5/dx)
print(1/dx+1)
u = numpy.ones(nx)      #numpy function ones()
u[int(.5 / dx):int(1 / dx + 1)] = 2  #setting u = 2 between 0.5 and 1 as per our
I.C.s
print(u)
plt.plot(numpy.linspace(0, 2, nx), u,color = "green",linewidth=3)
plt.title("reactangular wave")
plt.xlabel("x-axis")
plt.ylabel("y-axis")
plt.grid(True)
plt.show()

# output : terminal ,pycharm
# 0.05
# 10.0
# 21.0
#[1. 1. 1. 1. 1. 1. 1. 1. 1. 1. 2. 2. 2. 2. 2. 2. 2. 2. 2. 2. 2. 1. 1. 1.
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0.05
10.0
21.0
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```

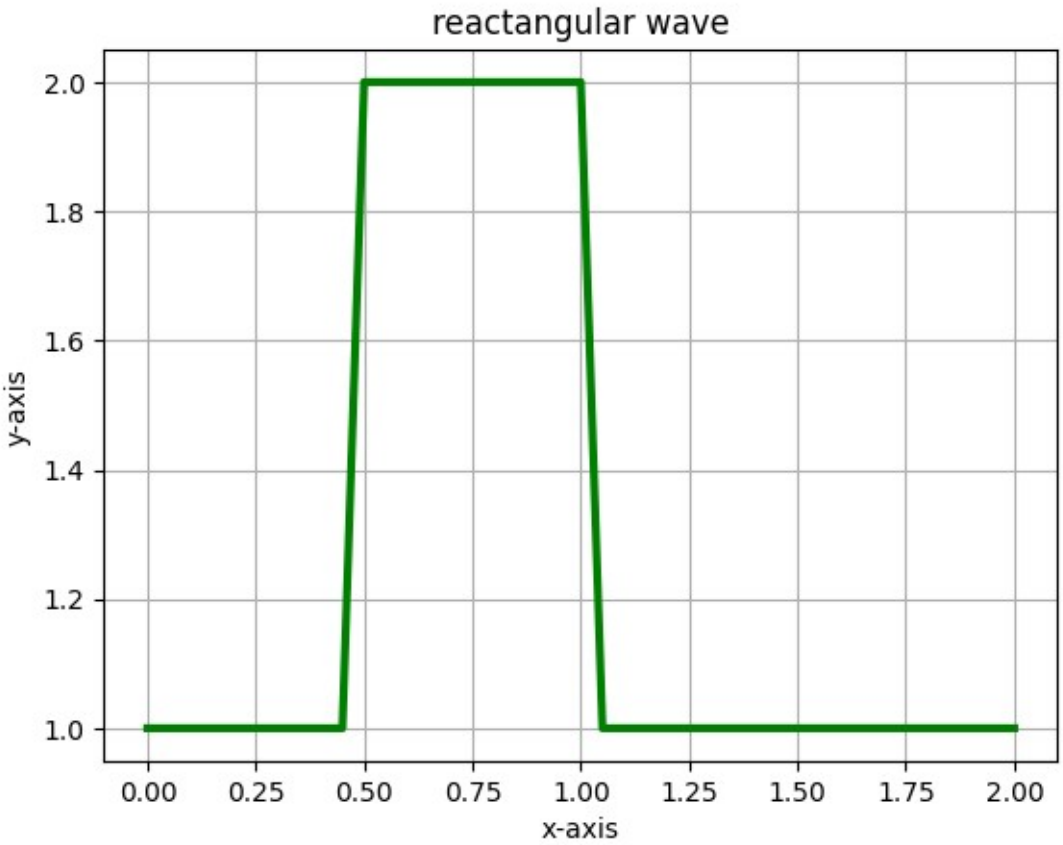
reactangular wave
2.0
1.8
1.6
1.4
1.2
1.0
y-axis
0.00
0.25
0.50
0.75
1.00
1.25
1.50
1.75
2.00
x-axis

In [ ]: