ODE

Very simplified algorithm of
ODE integration by odeint() function

Initial conditions t=0 and y=2.0

Program steps

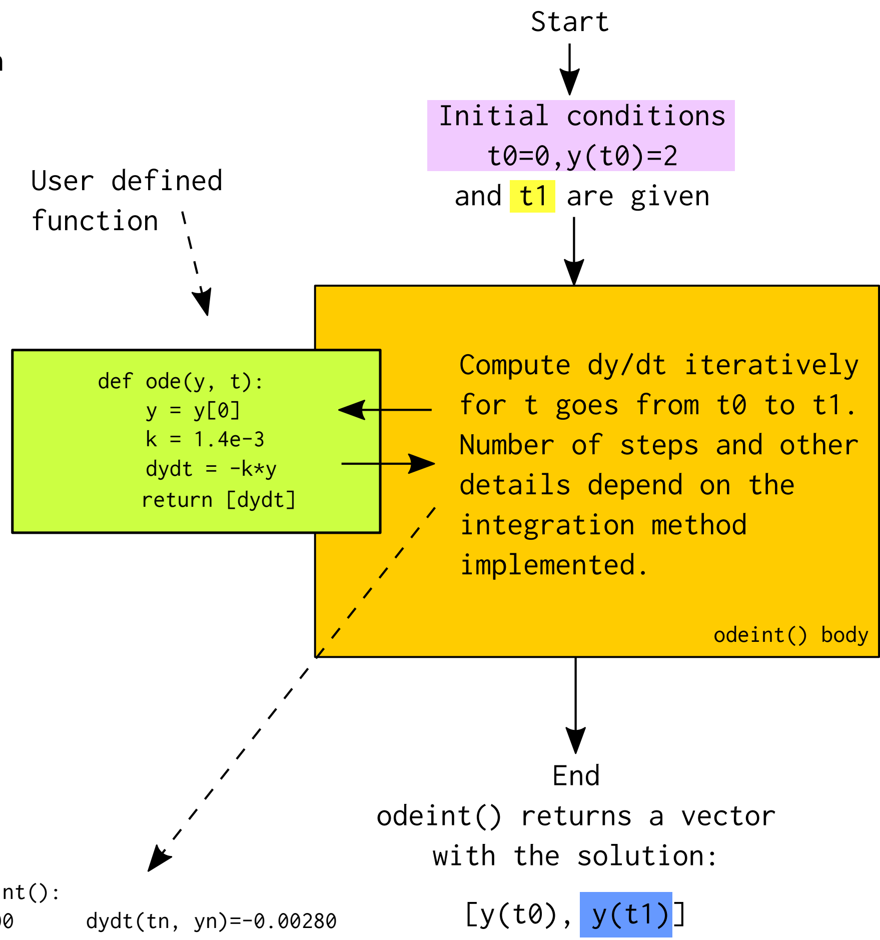
1
```
import numpy as np
from scipy.integrate import odeint
```

3
```
def ode(y, t):
    y = y[0]
    k = 1.4e-3
    dydt = -k*y
    return [dydt]
```

2
```
t0 = 0
y0 = 2
t1 = 18
results = odeint(ode, [y0], [t0, t1])
```

4
```
y = results[:,0]
y1=y[1]
```

The solution for t=18: y=1.95022976479



Calculations done by odeint():

tn=0.00000	yn=2.00000	dydt(tn, yn)=-0.00280
tn=0.00220	yn=1.99999	dydt(tn, yn)=-0.00280
tn=0.00220	yn=1.99999	dydt(tn, yn)=-0.00280
tn=0.00439	yn=1.99999	dydt(tn, yn)=-0.00280
tn=0.00439	yn=1.99999	dydt(tn, yn)=-0.00280
tn=3.28786	yn=1.99082	dydt(tn, yn)=-0.00279
tn=3.28786	yn=1.99082	dydt(tn, yn)=-0.00279
tn=6.57133	yn=1.98168	dydt(tn, yn)=-0.00277
tn=6.57133	yn=1.98168	dydt(tn, yn)=-0.00277
tn=9.85481	yn=1.97260	dydt(tn, yn)=-0.00276
tn=9.85481	yn=1.97260	dydt(tn, yn)=-0.00276
tn=23.66719	yn=1.93482	dydt(tn, yn)=-0.00271
tn=23.66719	yn=1.93482	dydt(tn, yn)=-0.00271
tn=20.20912	yn=1.94421	dydt(tn, yn)=-0.00272
tn=20.20912	yn=1.94421	dydt(tn, yn)=-0.00272