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DIVISION:EXTC-H SCILAB TUTORIAL:3

DATE:28/02/2013 TOPIC:EULERS METHOD

QUESTION:

Using Eulers method find approximate value of y at x=1,h=0.2. For eqn:dy/dx=x+y

PROGRAM:

deff('[z]=f(x,y)','z=x+y')//Define the function

x0=input('Enter the initial value of x=');

y0=input('Enter the initial value of y=');

xn=input('Enter the final value of xn=');

h=input('Enter the increment of x=');

x=[x0:h:xn]

y=zeros(x)

n=length(y)

y(1)=y0

for j=1:n-1

y(j+1)=y(j)+h\*f(x(j),y(j))

end

ymax=max(y(j+1))

disp(ymax,'ymax=')

INPUT:

Enter the initial value of x=-->0

Enter the initial value of y=-->1

Enter the final value of xn=-->1

Enter the increment of x=-->0.2

OUTPUT:

x =

0. 0.2 0.4 0.6 0.8 1.

y =

0. 0. 0. 0. 0. 0.

n =

6.

y =

1. 0. 0. 0. 0. 0.

y =

1. 1.2 0. 0. 0. 0.

y =

1. 1.2 1.48 0. 0. 0.

y =

1. 1.2 1.48 1.856 0. 0.

y =

1. 1.2 1.48 1.856 2.3472 0.

y =

1. 1.2 1.48 1.856 2.3472 2.97664

ymax =

2.97664

ymax=

2.97664