

Introduction to Scientific Computing Software HW11

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本次作業要開始使用 Python 3 囉！這次作業希望大家使用 Jupyter 來練習寫 Python，作業請繳交 .ipynb 檔

- 請將以下 MATLAB 牛頓法程式翻譯成 Python 版本

Listing 1: myfun.m

```
1 function y=myfun(x)
2     y = -atan(x)+exp(x)-1.5;
3 end
```

Listing 2: myfund.m

```
1 function y=myfund(x)
2     y = exp(x)-1.0/(x^2+1.0);
3 end
```

Listing 3: mynewton.m

```
1 function xn=mynewton(x0,epsilon,maxIt)
2     itera = 0;
3     x_old = x0-myfun(x0)/myfund(x0);
4     x_new = x_old+2*epsilon;
5     while abs(x_new-x_old)>epsilon & itera<maxIt
6         x_old = x_new;
7         x_new = x_old-myfun(x_old)/myfund(x_old);
8         itera = itera+1;
9     end
10    xn=x_new;
11 end
```

Listing 4: hw11.m

```
1 x0=-7;
2 epsilon = 10^-3;
3 maxInt = 100;
4 x = mynewton(x0,epsilon,maxInt);
```