

OML Lab Assignment 4

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Q1.

```
lab.py > ...
1  from numpy import *
2
3
4  def fun(x):
5      return 4*x[0]*2 - 3*x[0]*x[1] + 2*x[1]*2 - x[0] + 2*x[1]
6
7
8  def gradf(x):
9      f0, n, h1, = fun(x), len(x), pow(10, -5)
10     g = zeros((n, 1), dtype=float)
11     for i in range(0, n):
12         x1 = x.copy()
13         x1[i] = x1[i] + h1
14         # print(x,x1)
15         g[i] = (fun(x1)-f0)/h1
16     return g
17
18
19 # (52,53) R=52
20 x0, beta1, beta2, r, eps, iter1 = array(
21     [[52.0], [53.0]], pow(10, -4), 0.9, 0.5, pow(10, -3), 0
22     print(gradf(x0))
23
```

PROBLEMS OUTPUT TERMINAL JUPYTER COMMENTS DEBUG CONSOLE

Try the new cross-platform PowerShell <https://aka.ms/pscore6>

```
PS C:\Users\Ayush Abrol\Desktop\OML\Lab 6> python -u "c:\Users\Ayush Abrol\Desktop\OML\Lab 6\lab.py"
[[-151.99999998]
 [-150.00000003]]
PS C:\Users\Ayush Abrol\Desktop\OML\Lab 6> █
```

