

gradient_descent.py

```
# -*- coding: utf-8 -*-  
"""Gradient_descent.ipynb
```

Automatically generated by Colaboratory.

Original file is located at
<https://colab.research.google.com/drive/1aEhPTnsKlc7H80TkvTjiIQtkHCZS1rx>
"""

```
cur_x = 2 # The algorithm starts at x=3  
rate = 0.01 # Learning rate  
precision = 0.000001 #This tells us when to stop the algorithm  
previous_step_size = 1 #  
max_iters = 10000 # maximum number of iterations  
iters = 0 #iteration counter  
  
df = lambda x: 2*(x+3) #Gradient of our function  
  
while previous_step_size > precision and iters < max_iters:  
    prev_x = cur_x #Store current x value in prev_x  
    cur_x = cur_x - rate * df(prev_x) #Grad descent  
    previous_step_size = abs(cur_x - prev_x) #Change in x  
    iters = iters+1 #iteration count  
    print("Iteration",iters,"\nX value is",cur_x) #Print iterations  
  
print("The local minimum occurs at", cur_x)
```