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In [3]: import numpy as np
import matplotlib.pyplot as plt
```

```
In [9]: %matplotlib inline
def gradient_descent(x,y):
    m_curr = b_curr=0
    rate=0.01
    n=len(x)
    plt.scatter(x,y,color='red',marker='+',linewidth='3')
    for i in range(1000):
        y_predicted = m_curr*x + b_curr
        print (m_curr,b_curr,i)
        plt.plot(x,y_predicted,color='green')
        md= -(2/n)*sum(x*(y-y_predicted))
        yd= -(2/n)*sum(y-y_predicted)
        m_curr = m_curr- rate * md
        b_curr=b_curr- rate * yd
```

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In [10]: x=np.array([1,2,3,4,5])
y=np.array([5,6,9,11,13])
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In [11]: gradient_descent(x,y)
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2.133988138082302 2.3772920371450774 790
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2.1337587013838486 2.3781203764263634 792
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2.1314411549829404 2.386487454287132 813
2.1313348536294656 2.386871235902413 814
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2.116746566889349 2.439539579872551 999
```

```
-----
----
TypeError                                Traceback (most recent call l
ast)
c:\python37\lib\site-packages\IPython\core\formatters.py in __call__(se
lf, obj)
    339                 pass
    340             else:
--> 341                 return printer(obj)
    342             # Finally look for special method names
    343             method = get_real_method(obj, self.print_method)

c:\python37\lib\site-packages\IPython\core\pylabtools.py in <lambda>(fi
g)
    246
    247     if 'png' in formats:
--> 248         png_formatter.for_type(Figure, lambda fig: print_figure
(fig, 'png', **kwargs))
    249     if 'retina' in formats or 'png2x' in formats:
    250         png_formatter.for_type(Figure, lambda fig: retina_figur
e(fig, **kwargs))

c:\python37\lib\site-packages\IPython\core\pylabtools.py in print_figur
e(fig, fmt, bbox_inches, **kwargs)
    130         FigureCanvasBase(fig)
    131
```

```

--> 132     fig.canvas.print_figure(bytes_io, **kw)
      133     data = bytes_io.getvalue()
      134     if fmt == 'svg':

c:\python37\lib\site-packages\matplotlib\backend_bases.py in print_figure(self, filename, dpi, facecolor, edgecolor, orientation, format, bbox_inches, pad_inches, bbox_extra_artists, backend, **kwargs)
      2215         orientation=orientation,
      2216         bbox_inches_restore=_bbox_inches_restore,
-> 2217         **kwargs)
      2218     finally:
      2219         if bbox_inches and restore_bbox:

c:\python37\lib\site-packages\matplotlib\backend_bases.py in wrapper(*args, **kwargs)
      1637         kwargs.pop(arg)
      1638
-> 1639     return func(*args, **kwargs)
      1640
      1641     return wrapper

c:\python37\lib\site-packages\matplotlib\backends\backend_agg.py in print_png(self, filename_or_obj, metadata, pil_kwargs, *args)
      507         *metadata*, including the default 'Software' key.
      508         """
--> 509     FigureCanvasAgg.draw(self)
      510     mpl.image.imsave(
      511         filename_or_obj, self.buffer_rgba(), format="png",
      origin="upper",

c:\python37\lib\site-packages\matplotlib\backends\backend_agg.py in draw(self)
      405         (self.toolbar._wait_cursor_for_draw_cm() if self.toolbar
      406         else nullcontext()):
-> 407     self.figure.draw(self.renderer)
      408     # A GUI class may be need to update a window using
      this draw, so
      409     # don't forget to call the superclass.

```

```

c:\python37\lib\site-packages\matplotlib\artist.py in draw_wrapper(arti
st, renderer, *args, **kwargs)
    39         renderer.start_filter()
    40
---> 41         return draw(artist, renderer, *args, **kwargs)
    42     finally:
    43         if artist.get_agg_filter() is not None:

c:\python37\lib\site-packages\matplotlib\figure.py in draw(self, render
er)
    1862         self.patch.draw(renderer)
    1863         mimage._draw_list_compositing_images(
-> 1864             renderer, self, artists, self.suppressComposit
e)
    1865
    1866         renderer.close_group('figure')

c:\python37\lib\site-packages\matplotlib\image.py in _draw_list_composi
ting_images(renderer, parent, artists, suppress_composite)
    130         if not_composite or not has_images:
    131             for a in artists:
--> 132                 a.draw(renderer)
    133         else:
    134             # Composite any adjacent images together

c:\python37\lib\site-packages\matplotlib\artist.py in draw_wrapper(arti
st, renderer, *args, **kwargs)
    39         renderer.start_filter()
    40
---> 41         return draw(artist, renderer, *args, **kwargs)
    42     finally:
    43         if artist.get_agg_filter() is not None:

c:\python37\lib\site-packages\matplotlib\cbook\deprecation.py in wrappe
r(*inner_args, **inner_kwargs)
    409         else deprecation_addendum,
    410         **kwargs)
--> 411         return func(*inner_args, **inner_kwargs)

```

```

412
413     return wrapper

c:\python37\lib\site-packages\matplotlib\axes\_base.py in draw(self, re
nderer, inframe)
2746         renderer.stop_rasterizing()
2747
-> 2748         mimage._draw_list_compositing_images(renderer, self, ar
tists)
2749
2750         renderer.close_group('axes')

c:\python37\lib\site-packages\matplotlib\image.py in _draw_list_composi
ting_images(renderer, parent, artists, suppress_composite)
130     if not_composite or not has_images:
131         for a in artists:
--> 132             a.draw(renderer)
133     else:
134         # Composite any adjacent images together

c:\python37\lib\site-packages\matplotlib\artist.py in draw_wrapper(arti
st, renderer, *args, **kwargs)
39         renderer.start_filter()
40
---> 41         return draw(artist, renderer, *args, **kwargs)
42     finally:
43         if artist.get_agg_filter() is not None:

c:\python37\lib\site-packages\matplotlib\collections.py in draw(self, r
enderer)
929     def draw(self, renderer):
930         self.set_sizes(self._sizes, self.figure.dpi)
--> 931         Collection.draw(self, renderer)
932
933

c:\python37\lib\site-packages\matplotlib\artist.py in draw_wrapper(arti
st, renderer, *args, **kwargs)
39         renderer.start_filter()

```

```

40
---> 41         return draw(artist, renderer, *args, **kwargs)
42     finally:
43         if artist.get_agg_filter() is not None:

c:\python37\lib\site-packages\matplotlib\collections.py in draw(self, r
enderer)
402         renderer.draw_markers(
403             gc, paths[0], combined_transform.frozen(),
--> 404             mpath.Path(offsets), transOffset, tuple(facecol
ors[0]))
405     else:
406         renderer.draw_path_collection(

```

TypeError: must be real number, not str

<Figure size 432x288 with 1 Axes>