In [2]:
```
import tensorflow as tf
import numpy as np
```

In [3]:
```
aleatorio_a =np.random.uniform(0,50,(4,4))
```

In [5]:
```
print (aleatorio_a)
```

```
[[30.98967266 17.72189986 47.61555674 35.61781136]
 [ 8.066773   35.42912876 18.22131595  8.01276717]
 [ 2.95301238 18.97480341 15.12828242 48.63989307]
 [47.04282674 23.68832578  4.02286273 33.53628195]]
```

In [9]:
```
aleatorio_b = np.random.uniform(0,50,(4,4))
```

In [10]:
```
print (aleatorio_b)
```

```
[[28.94350641 14.89019513  4.47876027 22.60001806]
 [42.31802544 44.39367568 17.33788315 12.69537748]
 [27.61521494 32.57633765 22.90510142 37.14441748]
 [18.89477653 30.76574554 43.30899422 15.00617258]]
```

In [11]:
```
a = tf.placeholder(tf.float32)
b = tf.placeholder(tf.float32)
```

In [12]:
```
suma = a+b
multiplicacion= a*b
```

In [15]:
```
with tf.Session() as session:
    resultado_suma=session.run(suma, feed_dict={a:10, b:20})
    print(resultado_suma)
```

```
30.0
```

In [16]:
```
with tf.Session() as session:
    resultado_suma=session.run(suma, feed_dict={a:aleatorio_a, b:aleatorio_b})
    print(resultado_suma)
```

```
[[59.93318  32.612095 52.09432  58.21783 ]
 [50.384796 79.82281  35.55912  20.708145]
 [30.568228 51.55114  38.033386 85.78431 ]
 [65.93761  54.45407  47.331764 48.542454]]
```

In [19]:
```
with tf.Session() as session:
    resultado_multiplicacion=session.run(multiplicacion, feed_dict={a:10, b:20})
    print(resultado_multiplicacion)
```

```
200.0
```

In [ ]:
```
ejemplo de red neuronal
```

In [21]:
```
caracteristicas= 10
neuronas=4
```

In [22]:
```
x =tf.placeholder(tf.float32,(None, caracteristicas))
```

In [24]:
```
W = tf.Variable(tf.random.normal([caracteristicas,neuronas]))
```

In [26]:
```
b = tf.Variable(tf.ones([neuronas]))
```

In [ ]:
```

```

In [ ]:
```
multiplicacion = tf.matmul(x,W)
```

In [31]:
```
z = tf.add(multiplicacion,b)
```

In [42]:
```
activacion = tf.sigmoid(z)
```

In [ ]:
```

```

In [33]:
```
inicializacion = tf.global_variables_initializer()
```

In [35]:
```
valores_x = np.random.random([1, caracteristicas])
```

In [36]:
```
valores_x
```

Out[36]:
```
array([[0.75029813, 0.26969814, 0.49369049, 0.44827758, 0.70396629,
        0.31905917, 0.03504331, 0.91463596, 0.31415256, 0.1190766 ]])
```

In [43]:
```
with tf.Session() as session:
    session.run(inicializacion)
    resultado = session.run(activacion, feed_dict={x:valores_x})
```

```
---------------------------------------------------------------------------
InvalidArgumentError                      Traceback (most recent call last)
~\anaconda3\envs\pruebasTensorflow\lib\site-packages\tensorflow_core\python\client\session.py
in _do_call(self, fn, *args)
   1364     try:
-> 1365       return fn(*args)
   1366     except errors.OpError as e:

~\anaconda3\envs\pruebasTensorflow\lib\site-packages\tensorflow_core\python\client\session.py
in _run_fn(feed_dict, fetch_list, target_list, options, run_metadata)
   1349       return self._call_tf_sessionrun(options, feed_dict, fetch_list,
-> 1350                                       target_list, run_metadata)
   1351

~\anaconda3\envs\pruebasTensorflow\lib\site-packages\tensorflow_core\python\client\session.py
in _call_tf_sessionrun(self, options, feed_dict, fetch_list, target_list, run_metadata)
   1442                                             fetch_list, target_list,
-> 1443                                             run_metadata)
   1444

InvalidArgumentError: You must feed a value for placeholder tensor 'Placeholder' with dtype f
loat
         [[{{node Placeholder}}]]

During handling of the above exception, another exception occurred:

InvalidArgumentError                      Traceback (most recent call last)
<ipython-input-43-db2abe97000a> in <module>
      1 with tf.Session() as session:
      2     session.run(inicializacion)
----> 3     resultado = session.run(activacion, feed_dict={x:valores_x})

~\anaconda3\envs\pruebasTensorflow\lib\site-packages\tensorflow_core\python\client\session.py
in run(self, fetches, feed_dict, options, run_metadata)
    954     try:
    955       result = self._run(None, fetches, feed_dict, options_ptr,
--> 956                          run_metadata_ptr)
    957       if run_metadata:
    958         proto_data = tf_session.TF_GetBuffer(run_metadata_ptr)

~\anaconda3\envs\pruebasTensorflow\lib\site-packages\tensorflow_core\python\client\session.py
in _run(self, handle, fetches, feed_dict, options, run_metadata)
   1178     if final_fetches or final_targets or (handle and feed_dict_tensor):
   1179       results = self._do_run(handle, final_targets, final_fetches,
-> 1180                              feed_dict_tensor, options, run_metadata)
   1181     else:
   1182       results = []

~\anaconda3\envs\pruebasTensorflow\lib\site-packages\tensorflow_core\python\client\session.py
in _do_run(self, handle, target_list, fetch_list, feed_dict, options, run_metadata)
   1357     if handle is None:
   1358       return self._do_call(_run_fn, feeds, fetches, targets, options,
-> 1359                            run_metadata)
   1360     else:
   1361       return self._do_call(_prun_fn, handle, feeds, fetches)

~\anaconda3\envs\pruebasTensorflow\lib\site-packages\tensorflow_core\python\client\session.py
in _do_call(self, fn, *args)
   1382                   '\nsession_config.graph_options.rewrite_options.'
   1383                   'disable_meta_optimizer = True')
-> 1384       raise type(e)(node_def, op, message)
   1385
   1386   def _extend_graph(self):

InvalidArgumentError: You must feed a value for placeholder tensor 'Placeholder' with dtype f
loat
         [[node Placeholder (defined at C:\Users\SARA\anaconda3\envs\pruebasTensorflow\lib\si
te-packages\tensorflow_core\python\framework\ops.py:1748) ]]

Original stack trace for 'Placeholder':
  File "C:\Users\SARA\anaconda3\envs\pruebasTensorflow\lib\runpy.py", line 193, in _run_module
e_as_main
    "__main__", mod_spec)
  File "C:\Users\SARA\anaconda3\envs\pruebasTensorflow\lib\runpy.py", line 85, in _run_code
    exec(code, run_globals)
  File "C:\Users\SARA\anaconda3\envs\pruebasTensorflow\lib\site-packages\ipykernel_launcher.p
y", line 16, in <module>
    app.launch_new_instance()
  File "C:\Users\SARA\anaconda3\envs\pruebasTensorflow\lib\site-packages\traitlets\config\app
lication.py", line 664, in launch_instance
    app.start()
  File "C:\Users\SARA\anaconda3\envs\pruebasTensorflow\lib\site-packages\ipykernel\kernelapp.
py", line 583, in start
    self.io_loop.start()
  File "C:\Users\SARA\anaconda3\envs\pruebasTensorflow\lib\site-packages\tornado\platform\asy
ncio.py", line 149, in start
    self.asyncio_loop.run_forever()
  File "C:\Users\SARA\anaconda3\envs\pruebasTensorflow\lib\asyncio\base_events.py", line 541,
in run_forever
    self._run_once()
  File "C:\Users\SARA\anaconda3\envs\pruebasTensorflow\lib\asyncio\base_events.py", line 178
6, in _run_once
    handle._run()
  File "C:\Users\SARA\anaconda3\envs\pruebasTensorflow\lib\asyncio\events.py", line 88, in _r
un
    self._context.run(self._callback, *self._args)
  File "C:\Users\SARA\anaconda3\envs\pruebasTensorflow\lib\site-packages\tornado\ioloop.py",
line 690, in <lambda>
    lambda f: self._run_callback(functools.partial(callback, future))
  File "C:\Users\SARA\anaconda3\envs\pruebasTensorflow\lib\site-packages\tornado\ioloop.py",
line 743, in _run_callback
    ret = callback()
  File "C:\Users\SARA\anaconda3\envs\pruebasTensorflow\lib\site-packages\tornado\gen.py", lin
e 787, in inner
    self.run()
  File "C:\Users\SARA\anaconda3\envs\pruebasTensorflow\lib\site-packages\tornado\gen.py", lin
e 748, in run
    yielded = self.gen.send(value)
  File "C:\Users\SARA\anaconda3\envs\pruebasTensorflow\lib\site-packages\ipykernel\kernelbas
e.py", line 361, in process_one
    yield gen.maybe_future(dispatch(*args))
  File "C:\Users\SARA\anaconda3\envs\pruebasTensorflow\lib\site-packages\tornado\gen.py", lin
e 209, in wrapper
    yielded = next(result)
  File "C:\Users\SARA\anaconda3\envs\pruebasTensorflow\lib\site-packages\ipykernel\kernelbas
e.py", line 268, in dispatch_shell
    yield gen.maybe_future(handler(stream, idents, msg))
  File "C:\Users\SARA\anaconda3\envs\pruebasTensorflow\lib\site-packages\tornado\gen.py", lin
e 209, in wrapper
    yielded = next(result)
  File "C:\Users\SARA\anaconda3\envs\pruebasTensorflow\lib\site-packages\ipykernel\kernelbas
e.py", line 541, in execute_request
    user_expressions, allow_stdin,
  File "C:\Users\SARA\anaconda3\envs\pruebasTensorflow\lib\site-packages\tornado\gen.py", lin
e 209, in wrapper
    yielded = next(result)
  File "C:\Users\SARA\anaconda3\envs\pruebasTensorflow\lib\site-packages\ipykernel\ipkernel.p
y", line 300, in do_execute
    res = shell.run_cell(code, store_history=store_history, silent=silent)
  File "C:\Users\SARA\anaconda3\envs\pruebasTensorflow\lib\site-packages\ipykernel\zmqshell.p
y", line 536, in run_cell
    return super(ZMQInteractiveShell, self).run_cell(*args, **kwargs)
  File "C:\Users\SARA\anaconda3\envs\pruebasTensorflow\lib\site-packages\IPython\core\interac
tiveshell.py", line 2858, in run_cell
    raw_cell, store_history, silent, shell_futures)
  File "C:\Users\SARA\anaconda3\envs\pruebasTensorflow\lib\site-packages\IPython\core\interac
tiveshell.py", line 2886, in _run_cell
    return runner(coro)
  File "C:\Users\SARA\anaconda3\envs\pruebasTensorflow\lib\site-packages\IPython\core\async_h
elpers.py", line 68, in _pseudo_sync_runner
    coro.send(None)
  File "C:\Users\SARA\anaconda3\envs\pruebasTensorflow\lib\site-packages\IPython\core\interac
tiveshell.py", line 3063, in run_cell_async
    interactivity=interactivity, compiler=compiler, result=result)
  File "C:\Users\SARA\anaconda3\envs\pruebasTensorflow\lib\site-packages\IPython\core\interac
tiveshell.py", line 3254, in run_ast_nodes
    if (await self.run_code(code, result,  async_=asy)):
  File "C:\Users\SARA\anaconda3\envs\pruebasTensorflow\lib\site-packages\IPython\core\interac
tiveshell.py", line 3331, in run_code
    exec(code_obj, self.user_global_ns, self.user_ns)
  File "<ipython-input-11-4ed639d73737>", line 1, in <module>
    a = tf.placeholder(tf.float32)
  File "C:\Users\SARA\anaconda3\envs\pruebasTensorflow\lib\site-packages\tensorflow_core\pyth
on\ops\array_ops.py", line 2619, in placeholder
    return gen_array_ops.placeholder(dtype=dtype, shape=shape, name=name)
  File "C:\Users\SARA\anaconda3\envs\pruebasTensorflow\lib\site-packages\tensorflow_core\pyth
on\ops\gen_array_ops.py", line 6688, in placeholder
    "Placeholder", dtype=dtype, shape=shape, name=name)
  File "C:\Users\SARA\anaconda3\envs\pruebasTensorflow\lib\site-packages\tensorflow_core\pyth
on\framework\op_def_library.py", line 794, in _apply_op_helper
    op=op_def)
  File "C:\Users\SARA\anaconda3\envs\pruebasTensorflow\lib\site-packages\tensorflow_core\pyth
on\util\deprecation.py", line 507, in new_func
    return func(*args, **kwargs)
  File "C:\Users\SARA\anaconda3\envs\pruebasTensorflow\lib\site-packages\tensorflow_core\pyth
on\framework\ops.py", line 3357, in create_op
    attrs, op_def, compute_device)
  File "C:\Users\SARA\anaconda3\envs\pruebasTensorflow\lib\site-packages\tensorflow_core\pyth
on\framework\ops.py", line 3426, in _create_op_internal
    op_def=op_def)
  File "C:\Users\SARA\anaconda3\envs\pruebasTensorflow\lib\site-packages\tensorflow_core\pyth
on\framework\ops.py", line 1748, in __init__
    self._traceback = tf_stack.extract_stack()
```

In [44]:
```
print (resultado)
```

```
---------------------------------------------------------------------------
NameError                                 Traceback (most recent call last)
<ipython-input-44-afd19bb470e5> in <module>
----> 1 print (resultado)

NameError: name 'resultado' is not defined
```

In [ ]:
```

```

In [ ]:
```

```

In [ ]:
```

```

In [ ]:
```

```

In [ ]:
```

```

In [ ]:
```

```

In [ ]:
```

```

In [ ]:
```

```

In [ ]:
```

```

In [ ]:
```

```

In [ ]:
```

```

In [ ]:
```

```

In [ ]:
```

```

In [ ]:
```

```

In [ ]:
```

```

In [ ]:
```

```

In [ ]:
```

```

In [ ]:
```

```

In [ ]:
```

```

In [ ]:
```

```

In [ ]:
```

```