// Hace un grafo en Pyton //

```
class Vertice:
   def __init__(self, n):
      self.nombre = n


class Grafo:
   vertices = {}
   bordes = []
   indices_bordes = {}

   def agregar_vertice(self, vertex):
      if isinstance(vertex, Vertice) and vertex.nombre not in self.vertices:
         self.vertices[vertex.nombre] = vertex
         for fila in self.bordes:
            fila.append(0)
         self.bordes.append([0] * (len(self.bordes) + 1))
         self.indices_bordes[vertex.nombre] = len(self.indices_bordes)
         return True
      else:
         return False

   def agregar_borde(self, u, v, weight=1):
      if u in self.vertices and v in self.vertices:
         self.bordes[self.indices_bordes[u]][self.indices_bordes[v]] = weight
         self.bordes[self.indices_bordes[v]][self.indices_bordes[u]] = weight
         return True
      else:
         return False

   def imprimir_grafo(self):
      for v, x in sorted(self.indices_bordes.items()):
         print(v + ' ', end='')
         for j in range(len(self.bordes)):
            print(self.bordes[x][j], end='')
         print(' ')


g = Grafo()

a = Vertice('1')
g.agregar_vertice(a)
```

```
g.agregar_vertice(Vertice('2'))
for i in range(ord('1'), ord('8')):
   g.agregar_vertice(Vertice(chr(i)))

bordes = ['12', '24', '26', '43', '32', '45', '52', '65', '67', '75', '74']

for borde in bordes:
   g.agregar_borde(borde[:1], borde[1:])

g.imprimir_grafo()
```