In [3]:
```
import pandas as pd
```

In [14]:
```
signs = pd.read_csv("data/asl_proj_signs.csv")
```

In [15]:
```
signs
```

Out[15]:

	Sign	Start Hand Type	End Hand Type	Start Position	End Position	Movement Axis	Movement Type	Two Hand Relation
0	Nice	hb	hb	chest	chest	x	stay	one move
1	Meet	vone	vone	chest	chest	y	close	one move
2	learn	hbb	hbb	chest	head	z	up	one move
3	Teach	hbb	hbb	chest	chest	z	stay	one move
4	Sister	va	vl	cheek	chest	z	down	one move
5	man	vb	vb	head	chest	z	down	single
6	woman	vb	vb	cheek	chest	z	down	single
7	boy	hb	hb	head	head	r	stay	single
8	girl	va	va	cheak	cheak	z	stay	single
9	father	vb	vb	head	head	r	stay	single
10	mother	vb	vb	chin	chin	r	stay	single
11	Brother	va	vl	head	chest	z	down	single
12	california	vy	hy	head	away	x	out	single
13	New-york	s	hy	chest	away	x	out	one move
14	Deaf	vone	vone	chin	cheek	z	out	single
15	Hearing	hone	hone	chin	chin	ro	stay	single
16	Live	va	va	chest	chest	z	up	both
17	From	hone	s	chest	chest	x	away	one move
18	Class	va	va	chest	chest	ar	stay	both
19	Course	vb	vb	chest	chest	x	stay	one move
20	College	hb	hb	chest	chin	z	up	one move
21	mainstream	vfive	hfive	chest	chest	z	down	both
22	sign	hone	hone	chest	chest	ro	stay	both
23	paper	hfive	hfive	chest	chest	r	stay	one move
24	explain	hf	hf	chest	chest	r	stay	both
25	have	vb	vb	chest	chest	ro	stay	both
26	more	hbb	hbb	chest	chest	r	stay	both
27	sure	vone	hone	cheak	chest	ro	down	single
28	libarary	vl	vl	chest	chest	ro	stay	single
29	Desk	hb	hb	chest	chest	r	stay	one move
30	Chair	hone	hone	chest	chest	r	stay	one move
31	help	va	va	chest	chest	y	close	both
32	Show	hone	hone	chest	chest	y	away	both

	Sign	Start Hand Type	End Hand Type	Start Position	End Position	Movement Axis	Movement Type	Two Hand Relation
33	pay	vone	vone	chest	chest	y	away	one move
34	give	vbb	hbb	chest	chest	y	close	single
35	can	s	s	chest	chest	r	stay	both
36	need	hl	hl	chest	chest	r	stay	both
37	box	vb	vb	chest	chest	ro	stay	both
38	hurry	vone	hone	chest	chest	ro	stay	both
39	now	hy	hy	chest	chest	r	stay	both
40	red	vone	vone	cheek	cheek	r	stay	single
41	yellow	hy	hy	chest	chest	r	stay	single
42	blue	vb	vb	chest	chest	r	stay	single
43	green	hg	hg	chest	chest	r	stay	single
44	black	hone	hone	head	head	x	out	single
45	white	hfive	s	chest	chest	y	away	single
46	pink	vone	vone	cheek	cheek	r	stay	single
47	purple	p	p	chest	chest	r	stay	single
48	gray	vfive	vfive	chest	chest	r	stay	both
49	dress	vfive	vfive	chest	chest	r	stay	both
50	shirt	f	f	chest	chest	r	stay	single
51	hair	f	f	head	head	r	stay	single
52	thin	f	f	chin	chest	z	down	single
53	pretty	vfive	hbb	head	chest	z	down	single
54	ugly	hone	s	chin	chin	x	away	single
55	friendly	vfive	vfive	chin	chin	r	away	both
56	good	vb	hb	chin	chest	z	down	single
57	bad	vb	hb	chin	chest	z	down	single
58	fine	vfive	vfive	chest	chest	r	stay	single
59	water	w	w	chin	chin	r	stay	single

In [17]:
```
signs["Start Hand Type"].value_counts()
```

Out[17]:
```
vb       10
vone      7
hone      7
va        6
vfive     6
hb        4
f         3
hbb       3
s         2
hy        2
hfive     2
hl        1
p         1
vl        1
hf        1
hg        1
vy        1
vbb       1
w         1
Name: Start Hand Type, dtype: int64
```

In [18]:
```
signs["End Hand Type"].value_counts()
```

Out[18]:
```
vb       8
hone     7
vone     5
hbb      5
s        4
hy       4
va       4
vfive    4
hb       3
f        3
hb       3
vl       3
hfive    2
hg       1
p        1
hl       1
hf       1
w        1
Name: End Hand Type, dtype: int64
```

In [24]:
```
shape_dct = {'vb': 'vertical b shape', 'hb': 'horizental b shape', 'vfive':
             'vertical five shape', 'hfive': 'horizental five shape',
             'hone': 'horizental one shape', 'vone': 'vertical one shape',
             'p': 'p shape', 'f': 'f shape', 's': 's shape', 'hl': 'horizental l
             'w': 'w shape', 'va': 'vertical a shape', 'hbb': 'horizental bent b
             'hg': 'horizental g shape', 'hy': 'horizental y shape'
             }
pd.Series(shape_dct).to_frame()
```

Out[24]:

	0
vb	vertical b shape
hb	horizental b shape
vfive	vertical five shape
hfive	horizental five shape
hone	horizental one shape
vone	vertical one shape
p	p shape
f	f shape
s	s shape
hl	horizental l shape
w	w shape
va	vertical a shape
hbb	horizental bent b shape
hg	horizental g shape
hy	horizental y shape

In [30]:
```
signs.loc[39, 'Movement Axis'] = 'r'
```

In [31]:
```
signs['Movement Axis'].value_counts()
# r means repeat, z means move along z axis, ro means rotation, ar means around
```

Out[31]:
```
r     24
z     15
ro     7
x      7
y      6
ar     1
Name: Movement Axis, dtype: int64
```