In [ ]:

In [7]:
```
import pandas as pd
response = pd.read_excel("Demographic Information.xlsx", sheet_name="Form Responses 2")
demographic = pd.read_excel("Demographic Information.xlsx", sheet_name="Form Responses 1")

response.head()
```

Out[7]:

	Timestamp	User ID#	Method used for Test	Round 1	Round 2	Round 3	Round 4	Round 5
0	2021-11-18 16:28:13.837	4973	Mouse	0.325000	0.267000	0.301000	0.229	0.267000
1	2021-11-18 16:28:51.866	4973	Spacebar	0.331990	0.232999	0.267000	0.231	0.300000
2	2021-11-18 16:29:36.305	4973	Touchscreen	0.298999	0.265990	0.290000	0.266	0.298999
3	2021-11-19 00:04:49.433	3007	Mouse	0.362000	0.322000	0.362000	0.329	0.329000
4	2021-11-19 00:06:10.527	3007	Spacebar	0.328999	0.331000	0.296999	0.331	0.269990

In [8]:
```
demographic.head()
```

Out[8]:

	Timestamp	What is your biological sex	What gender do you identify as?	Ethnicity	How old are you?	How familiar are you with technology?	Please enter a 4 digit, User ID between 1000 and 9999
0	2021-11-18 16:27:23.791	Male	Male	Black or African American	15-24	10	4973
1	2021-11-19 00:09:51.197	Male	Male	Asian	25-44	10	3007
2	2021-11-21 16:59:09.298	Male	Male	Hispanic or Latino	25-44	10	5678
3	2021-11-21 17:07:57.382	Female	Female	Hispanic or Latino	25-44	10	6948
4	2021-11-23 14:36:28.392	Female	Female	White	25-44	10	4660

In [9]:
```
response = response.drop("Timestamp", axis = 1)
demographic = demographic.drop("Timestamp", axis = 1)

response.head()
```

Out[9]:

	User ID#	Method used for Test	Round 1	Round 2	Round 3	Round 4	Round 5
0	4973	Mouse	0.325000	0.267000	0.301000	0.229	0.267000
1	4973	Spacebar	0.331990	0.232999	0.267000	0.231	0.300000
2	4973	Touchscreen	0.298999	0.265990	0.290000	0.266	0.298999
3	3007	Mouse	0.362000	0.322000	0.362000	0.329	0.329000
4	3007	Spacebar	0.328999	0.331000	0.296999	0.331	0.269990

In [10]:
```
response.shape
```

Out[10]:
```
(58, 7)
```

In [11]:
```
demographic.shape
```

Out[11]:
```
(19, 6)
```

In [12]:
```
df = pd.merge(left=demographic, right=response,
              left_on='Please enter a 4 digit, User ID between 1000 and 9999',
              right_on='User ID#')
df.head()
```

Out[12]:

	What is your biological sex	What gender do you identify as?	Ethnicity	How old are you?	How familiar are you with technology?	Please enter a 4 digit, User ID between 1000 and 9999	User ID#	Method used for Test	Round 1	Round 2	Round 3	Round 4	Round 5
0	Male	Male	Black or African American	15-24	10	4973	4973	Mouse	0.325000	0.267000	0.301000	0.229	0.267000

	What is your biological sex	What gender do you identify as?	Ethnicity	How old are you?	How familiar are you with technology?	Please enter a 4 digit, User ID between 1000 and 9999	User ID#	Method used for Test	Round 1	Round 2	Round 3	Round 4	Round 5
1	Male	Male	Black or African American	15-24	10	4973	4973	Spacebar	0.331990	0.232999	0.267000	0.231	0.300000
2	Male	Male	Black or African American	15-24	10	4973	4973	Touchscreen	0.298999	0.265990	0.290000	0.266	0.298999
3	Male	Male	Asian	25-44	10	3007	3007	Mouse	0.362000	0.322000	0.362000	0.329	0.329000
4	Male	Male	Asian	25-44	10	3007	3007	Spacebar	0.328999	0.331000	0.296999	0.331	0.269990

In [13]:
```
df.shape
```

Out[13]: (55, 13)

In [14]:
```
df = df.drop(columns = 'Please enter a 4 digit, User ID between 1000 and 9999')
df.head()
```

Out[14]:

	What is your biological sex	What gender do you identify as?	Ethnicity	How old are you?	How familiar are you with technology?	User ID#	Method used for Test	Round 1	Round 2	Round 3	Round 4	Round 5
0	Male	Male	Black or African American	15-24	10	4973	Mouse	0.325000	0.267000	0.301000	0.229	0.267000
1	Male	Male	Black or African American	15-24	10	4973	Spacebar	0.331990	0.232999	0.267000	0.231	0.300000
2	Male	Male	Black or African American	15-24	10	4973	Touchscreen	0.298999	0.265990	0.290000	0.266	0.298999
3	Male	Male	Asian	25-44	10	3007	Mouse	0.362000	0.322000	0.362000	0.329	0.329000

	What is your biological sex	What gender do you identify as?	Ethnicity	How old are you?	How familiar are you with technology?	User ID#	Method used for Test	Round 1	Round 2	Round 3	Round 4	Round 5
4	Male	Male	Asian	25-44	10	3007	Spacebar	0.328999	0.331000	0.296999	0.331	0.269990

In [15]:
```
df.shape
```

Out[15]:
```
(55, 12)
```

In [16]:
```
df.isnull().sum()
```

Out[16]:
```
What is your biological sex              0
What gender do you identify as?          0
Ethnicity                                0
How old are you?                         0
How familiar are you with technology?    0
User ID#                                 0
Method used for Test                     0
Round 1                                  0
Round 2                                  0
Round 3                                  0
Round 4                                  0
Round 5                                  0
dtype: int64
```

In [17]:
```
df.isna().sum()
```

Out[17]:
```
What is your biological sex              0
What gender do you identify as?          0
Ethnicity                                0
How old are you?                         0
How familiar are you with technology?    0
User ID#                                 0
Method used for Test                     0
Round 1                                  0
Round 2                                  0
Round 3                                  0
Round 4                                  0
Round 5                                  0
dtype: int64
```

In [18]:

```
df.columns.values.tolist()
```

Out[18]:
```
['What is your biological sex',
 'What gender do you identify as?',
 'Ethnicity',
 'How old are you? ',
 'How familiar are you with technology? ',
 'User ID#',
 'Method used for Test',
 'Round 1',
 'Round 2',
 'Round 3',
 'Round 4',
 'Round 5']
```

In [27]:
```
set(df_melt['Method used for Test'])
```

Out[27]:
```
{'Mouse', 'Spacebar', 'Touchscreen'}
```

In [26]:
```
len(set(df_melt['Method used for Test']))
```

Out[26]:
```
3
```

In [19]:
```
df_melt = pd.melt(df.reset_index(),
                  id_vars    = df.columns.values.tolist()[0:7],
                  value_vars = df.columns.values.tolist()[7:12],
                  var_name   = 'round',
                  value_name = 'time')

df_melt[df_melt['User ID#'] == 4973]
```

Out[19]:

	What is your biological sex	What gender do you identify as?	Ethnicity	How old are you?	How familiar are you with technology?	User ID#	Method used for Test	round	time
0	Male	Male	Black or African American	15-24	10	4973	Mouse	Round 1	0.325000
1	Male	Male	Black or African American	15-24	10	4973	Spacebar	Round 1	0.331990
2	Male	Male	Black or African American	15-24	10	4973	Touchscreen	Round 1	0.298999

	What is your biological sex	What gender do you identify as?	Ethnicity	How old are you?	How familiar are you with technology?	User ID#	Method used for Test	round	time
55	Male	Male	Black or African American	15-24	10	4973	Mouse	Round 2	0.267000
56	Male	Male	Black or African American	15-24	10	4973	Spacebar	Round 2	0.232999
57	Male	Male	Black or African American	15-24	10	4973	Touchscreen	Round 2	0.265990
110	Male	Male	Black or African American	15-24	10	4973	Mouse	Round 3	0.301000
111	Male	Male	Black or African American	15-24	10	4973	Spacebar	Round 3	0.267000
112	Male	Male	Black or African American	15-24	10	4973	Touchscreen	Round 3	0.290000
165	Male	Male	Black or African American	15-24	10	4973	Mouse	Round 4	0.229000
166	Male	Male	Black or African American	15-24	10	4973	Spacebar	Round 4	0.231000
167	Male	Male	Black or African American	15-24	10	4973	Touchscreen	Round 4	0.266000
220	Male	Male	Black or African American	15-24	10	4973	Mouse	Round 5	0.267000
221	Male	Male	Black or African American	15-24	10	4973	Spacebar	Round 5	0.300000
222	Male	Male	Black or African American	15-24	10	4973	Touchscreen	Round 5	0.298999

In [21]:
```
df_melt[df_melt['User ID#'] == 4973]['time'].count()
```

Out[21]: 15

In [29]:
```
df_melt.shape
```

Out[29]: (275, 9)

In [30]:
```
df_melt.columns = ['sex', 'gender', 'ethnicity', 'age', 'tech_level', 'user_id', 'method', 'round', 'time']
df_melt[df_melt['user_id'] == 4973]
```

Out[30]:

	sex	gender	ethnicity	age	tech_level	user_id	method	round	time
0	Male	Male	Black or African American	15-24	10	4973	Mouse	Round 1	0.325000
1	Male	Male	Black or African American	15-24	10	4973	Spacebar	Round 1	0.331990
2	Male	Male	Black or African American	15-24	10	4973	Touchscreen	Round 1	0.298999
55	Male	Male	Black or African American	15-24	10	4973	Mouse	Round 2	0.267000
56	Male	Male	Black or African American	15-24	10	4973	Spacebar	Round 2	0.232999
57	Male	Male	Black or African American	15-24	10	4973	Touchscreen	Round 2	0.265990
110	Male	Male	Black or African American	15-24	10	4973	Mouse	Round 3	0.301000
111	Male	Male	Black or African American	15-24	10	4973	Spacebar	Round 3	0.267000
112	Male	Male	Black or African American	15-24	10	4973	Touchscreen	Round 3	0.290000
165	Male	Male	Black or African American	15-24	10	4973	Mouse	Round 4	0.229000
166	Male	Male	Black or African American	15-24	10	4973	Spacebar	Round 4	0.231000
167	Male	Male	Black or African American	15-24	10	4973	Touchscreen	Round 4	0.266000
220	Male	Male	Black or African American	15-24	10	4973	Mouse	Round 5	0.267000
221	Male	Male	Black or African American	15-24	10	4973	Spacebar	Round 5	0.300000
222	Male	Male	Black or African American	15-24	10	4973	Touchscreen	Round 5	0.298999

In [31]:
```
df_melt.shape
```

Out[31]: (275, 9)

In [32]:
```
df_melt.to_excel('reaction_time_cleaned.xls', sheet_name='data', index = False)
```

```
<ipython-input-32-e95e6fb045b3>:1: FutureWarning: As the xlwt package is no longer maintained, the xlwt engine will be re
```

```
moved in a future version of pandas. This is the only engine in pandas that supports writing in the xls format. Install o
penpyxl and write to an xlsx file instead. You can set the option io.excel.xls.writer to 'xlwt' to silence this warning.
While this option is deprecated and will also raise a warning, it can be globally set and the warning suppressed.
  df_melt.to_excel('reaction_time_cleaned.xls', sheet_name='data', index = False)
```

In [ ]: