# Import Libraries

### - sea born

What is sea born used for? Seaborn is an open-source Python library built on top of matplotlib. It is used for data visualization and exploratory data analysis.

### - pandas

pandas is a software library written for the Python programming language for data manipulation and analysis

### - matplot lib

Matplotlib is a cross-platform, data visualization and graphical plotting library for Python and its numerical extension NumPy.

In [1]:
```python
import pandas as pd
```

In [2]:
```python
df = pd.read_csv(r"C:\Users\Asad\Desktop\Data_Assignment\assignment_data.csv"
```

In [3]:
```python
print(df)
```

```
      Gender  Location    Age Qualification_completed    field_of_study  \
0       Male  Pakistan  36-40                  Masters   Natural Sciences
1       Male  Pakistan  26-30                 Bachelors             CS/IT
2       Male  Pakistan  31-35                  Masters        Enginnering
3     Female  Pakistan  31-35                  Masters             CS/IT
4     Female  Pakistan  26-30                  Masters        Enginnering
..       ...       ...    ...                      ...                ...
370     Male  Pakistan  26-30                  Masters        Enginnering
371     Male  Pakistan  31-35                 Bachelors        Enginnering
372     Male  Pakistan  21-25                 Bachelors             CS/IT
373     Male  Pakistan  26-30                  Masters        Enginnering
374   Female  Pakistan  31-35                  Masters        Mathematics

          Purpose_for_chilla What are you? Blood group   \
0        to boost my skill set    Unemplyed          B+
1        to boost my skill set      Student          B+
2     Switch my field of study     Employed          B+
3        to boost my skill set     Employed          O+
4        to boost my skill set      Student          A-
..                       ...          ...         ...
370      to boost my skill set     Employed          O+
371      to boost my skill set     Employed          A+
372      to boost my skill set     Employed          O+
373      to boost my skill set     Employed          B-
374   Switch my field of study    Unemplyed          B+

      Which mobile sim do you use Prepaid or Postpaid  ...  \
0                          U-fone               Prepaid  ...
1                          U-fone               Prepaid  ...
2                            Zong               Prepaid  ...
```

```
3                              U-fone               Postpaid  ...
4                            Mobilink                Prepaid  ...
..                                ...                    ...  ...
370                           Telenor                Prepaid  ...
371                              Zong               Postpaid  ...
372                          Mobilink                Prepaid  ...
373                          Mobilink                Prepaid  ...
374                           Telenor                Prepaid  ...

     Your favorite programming language? Marital Status? Are you Vaccinated?  \
0                                    Python             Yes                 Yes
1                                    Python              No                 Yes
2                                    Python             Yes                 Yes
3                                    Python             Yes                 Yes
4                                Javascript              No                 Yes
..                                      ...             ...                 ...
370                                       R             Yes                 Yes
371                                  Python             Yes                 Yes
372                                  Python              No                 Yes
373                                  Python              No                  No
374                                  Python             Yes                 Yes

     Where do you live? Research/Working experience (Float/Int) years  \
0                Urbun                                              5
1                Urbun                                              1
2                Urbun                                            5.5
3                Urbun                                              5
4                Rural                                            3.5
..                 ...                                            ...
370              Rural                                              7
371              Urbun                                              5
372              Urbun                                              0
373              Urbun                                              2
374              Urbun                                              3

     Age (years)-Float/Int Your Weight in kg? (float)  \
0                    38.00                        77.0
1                    25.00                        53.6
2                    31.34                        93.0
3                    33.00                        60.0
4                    27.00                        59.9
..                     ...                         ...
370                  28.00                        70.5
371                  33.00                        83.4
372                  22.80                        60.0
373                  29.00                        86.0
374                  31.00                        54.5

     Height in cm? Freelancer- (Float)  \
0                           179.000
1                           178.000
2                           173.000
3                           157.000
4                           164.544
..                              ...
370                         178.500
371                         172.700
372                           1.680
373                         180.000
374                         161.544

     How many hours you code a day? (int) e.g: 5,4,3  \
0                                            3.0
1                                            2.0
2                                            2.0
```

```
3                                                          3.0
4                                                          6.0
..                                                         ...
370                                                        4.0
371                                                        1.0
372                                                        0.0
373                                                        2.0
374                                                        3.0

     Light kitni der band hti hy? int
0                                      2.0
1                                      6.0
2                                      0.0
3                                     24.0
4                                     12.0
..                                     ...
370                                    3.0
371                                    1.0
372                                    0.0
373                                    1.0
374                                    0.0
```

In [4]:
```python
import seaborn as sns
```

In [5]:
```python
import matplotlib.pyplot as plt
```

In [6]:
```python
sns.set_theme(style="ticks" , color_codes=True)
```

In [7]:
```python
sns.countplot(x="Gender" , hue="Age" , data=df)
```

Out[7]: <AxesSubplot:xlabel='Gender', ylabel='count'>
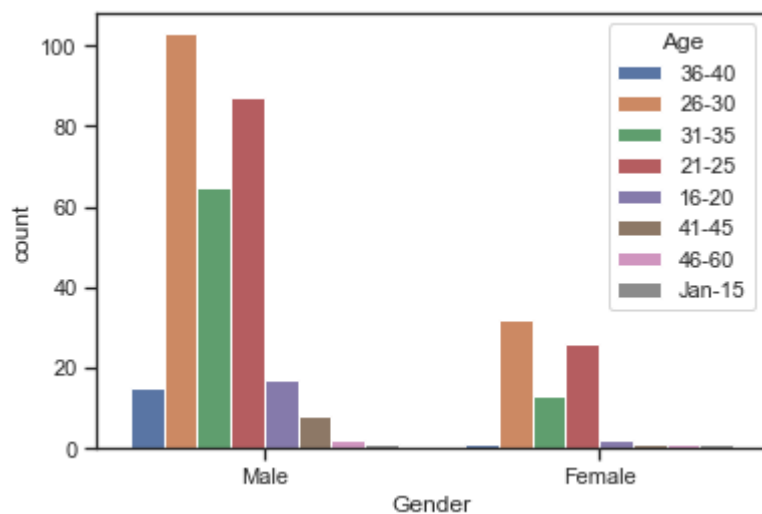


In [8]:
```python
sns.countplot(x="Gender" , hue="Location" , data=df)
```

Out[8]: <AxesSubplot:xlabel='Gender', ylabel='count'>
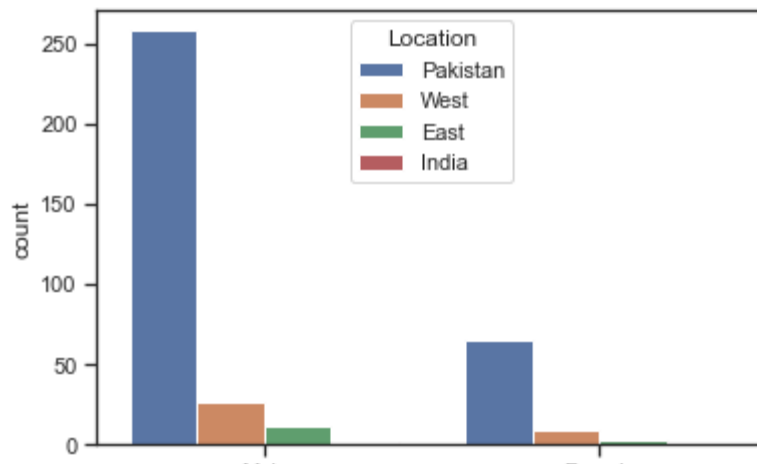
In [9]:
```python
sns.countplot(x="Gender" , hue="Qualification_completed" , data=df)
```

Out[9]: <AxesSubplot:xlabel='Gender', ylabel='count'>



In [10]:
```python
sns.countplot(x="Gender" , hue="field_of_study" , data=df)
```

Out[10]: <AxesSubplot:xlabel='Gender', ylabel='count'>
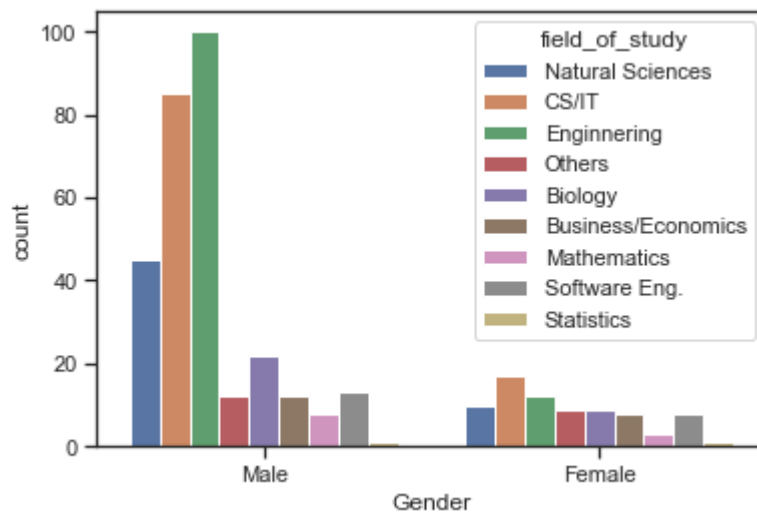
In [11]:
```python
sns.countplot(x="Gender" , hue="Purpose_for_chilla" , data=df)
```

Out[11]: <AxesSubplot:xlabel='Gender', ylabel='count'>
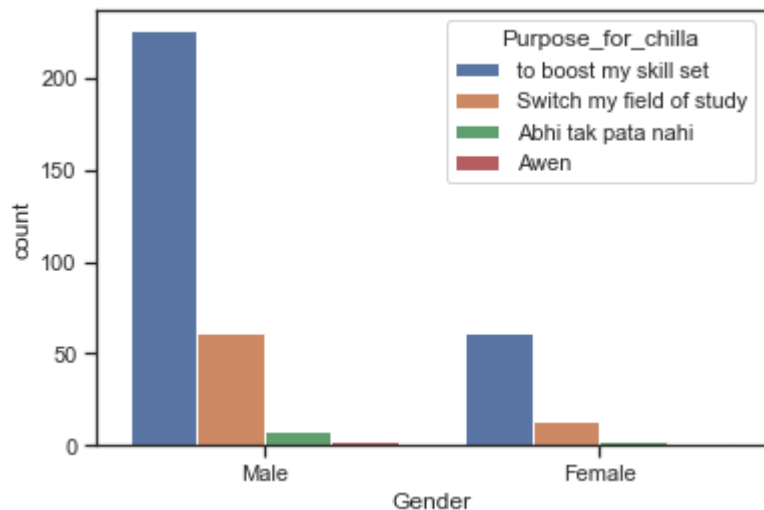


In [12]:
```python
sns.countplot(x="Gender" , hue="What are you?" , data=df)
```

Out[12]: <AxesSubplot:xlabel='Gender', ylabel='count'>
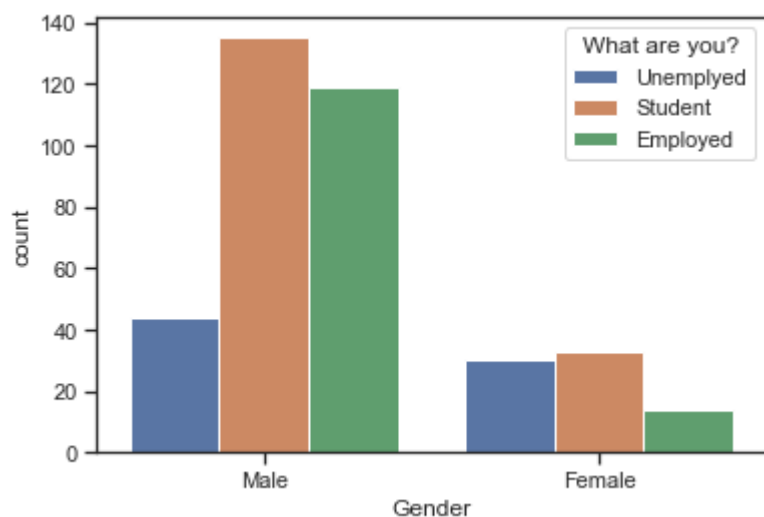


In [13]:
```python
sns.countplot(x="Gender" , hue="Blood group " , data=df)
```

Out[13]: <AxesSubplot:xlabel='Gender', ylabel='count'>
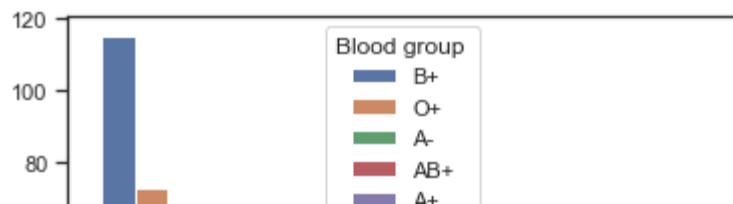
In [14]: 
```python
sns.countplot(x="Gender" , hue="Which mobile sim do you use" , data=df)
```

Out[14]: &lt;AxesSubplot:xlabel='Gender', ylabel='count'&gt;
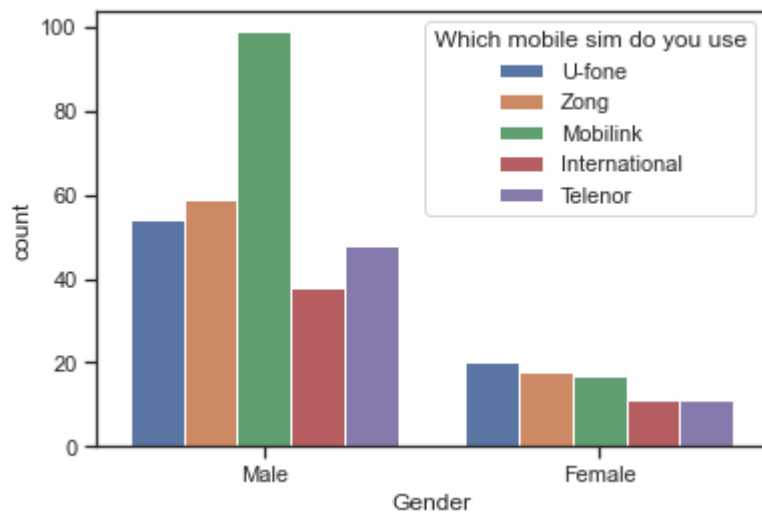


In [15]: 
```python
sns.countplot(x="Gender" , hue="Prepaid or Postpaid"  , data=df)
```

Out[15]: &lt;AxesSubplot:xlabel='Gender', ylabel='count'&gt;
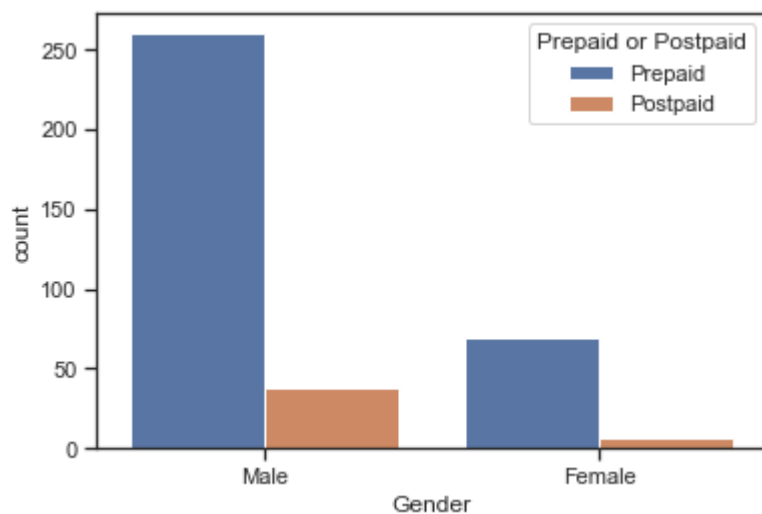


In [16]: 
```python
sns.countplot(x="Gender" , hue="Marital Status?", data=df)
```

Out[16]: &lt;AxesSubplot:xlabel='Gender', ylabel='count'&gt;
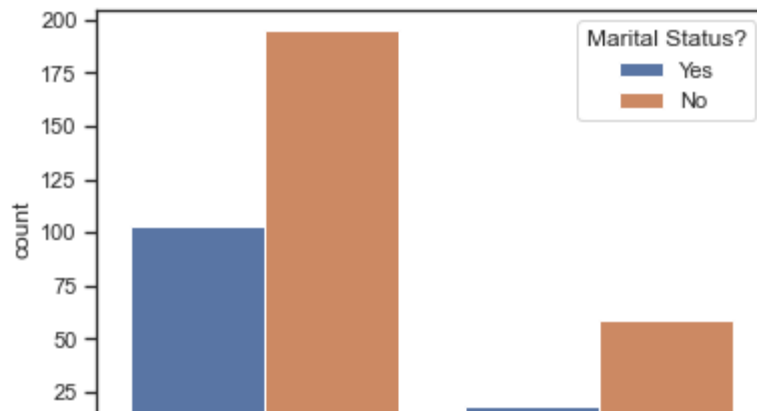
In [17]:
```python
sns.countplot(x="Gender" , hue="Are you Vaccinated?", data=df)
```

Out[17]: <AxesSubplot:xlabel='Gender', ylabel='count'>
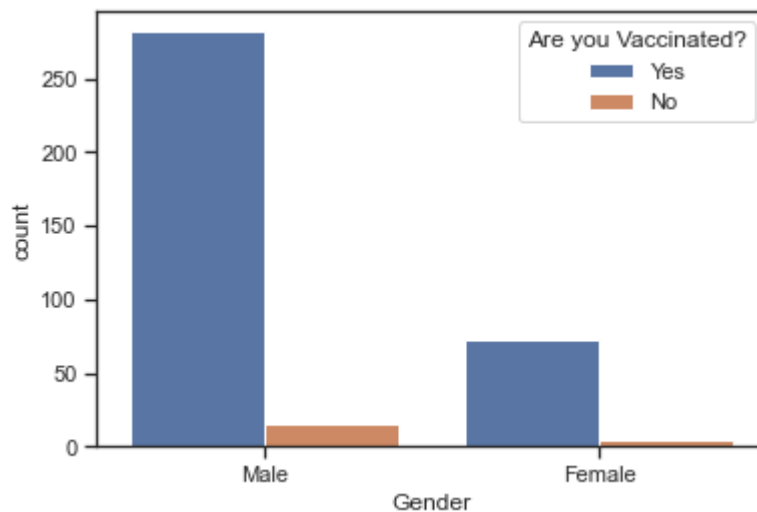


In [18]:
```python
sns.countplot(x="Gender" , hue="Where do you live?", data=df)
```

Out[18]: <AxesSubplot:xlabel='Gender', ylabel='count'>
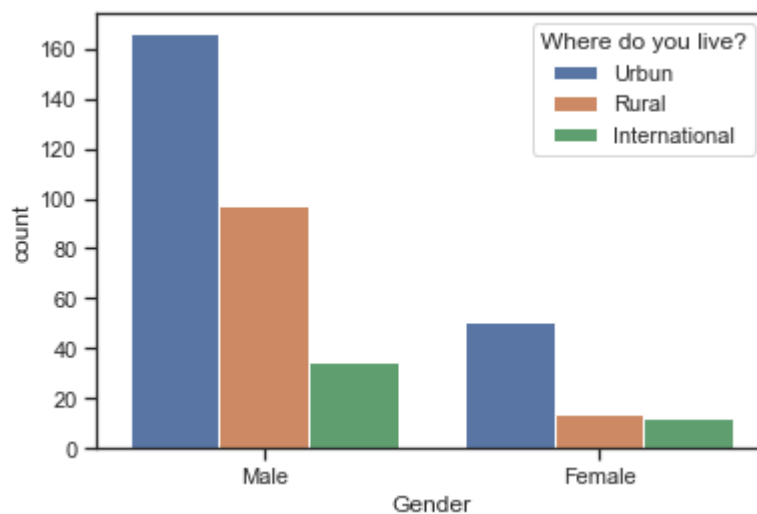
In [19]:
```python
g=sns.FacetGrid(row="Gender" , hue="Your Weight in kg? (float)", data=df)
```
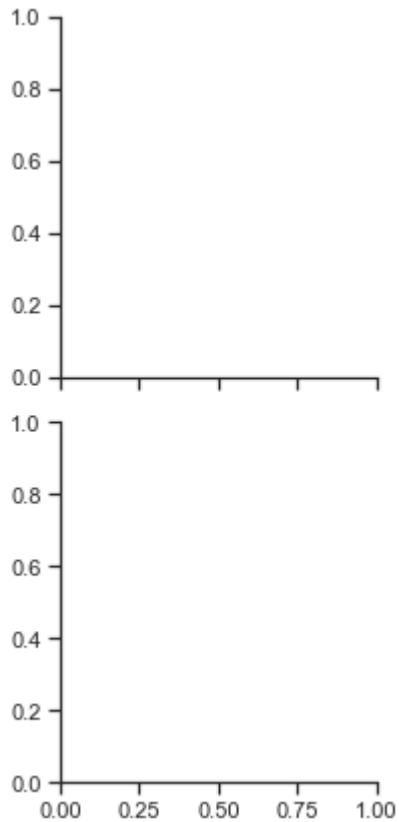


In [20]:
```python
df
#Draw a line plot
plt.title("Age ka weight pe asar")
sns.lineplot(x="Age" , y="Your Weight in kg? (float)" , data=df)
```

Out[20]: <AxesSubplot:title={'center':'Age ka weight pe asar'}, xlabel='Age', ylabel='Your Weight in kg? (float)'>
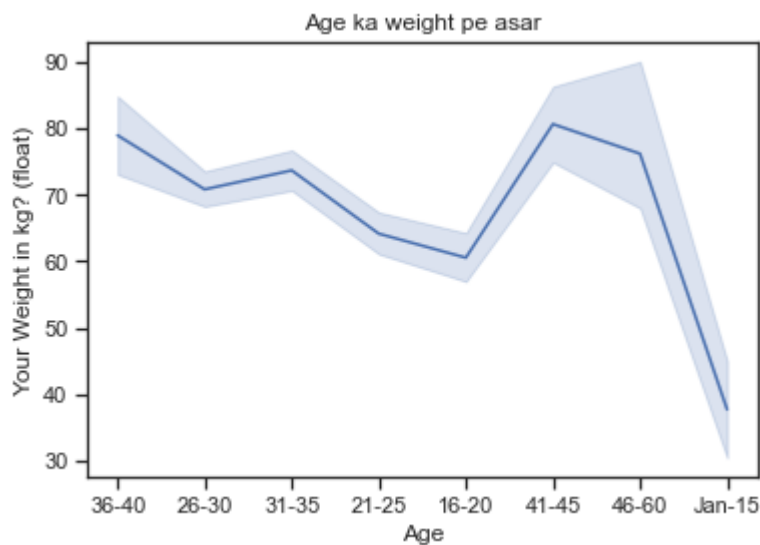
In [21]:
```python
#BAR PLOT
sns.barplot(x="Gender" , y="Age (years)-Float/Int" , data=df)
plt.title("Gender and ")
```

Out[21]: Text(0.5, 1.0, 'Gender and ')
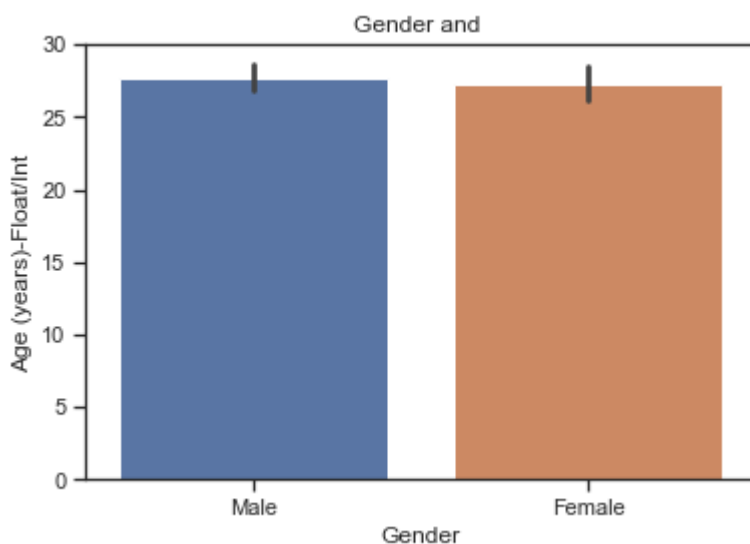


In [22]:
```python
#BAR PLOT
sns.barplot(x="Gender" , y="Age (years)-Float/Int" , hue="Marital Status?" , c
plt.title(" Title ")
plt.show()
```
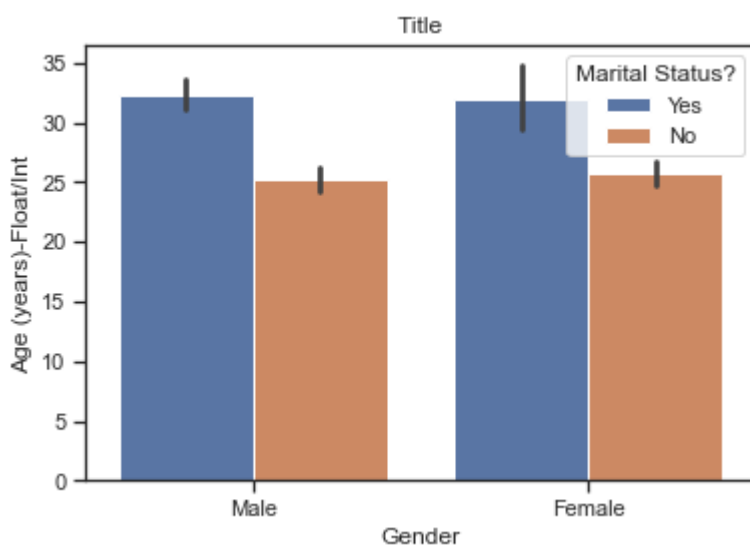


In [23]:
```python
#BAR PLOT
# switch female to left and male to right
sns.barplot(x="Gender" , y="Age (years)-Float/Int" , hue="Marital Status?" , c
plt.title(" Title ")
plt.show()
```
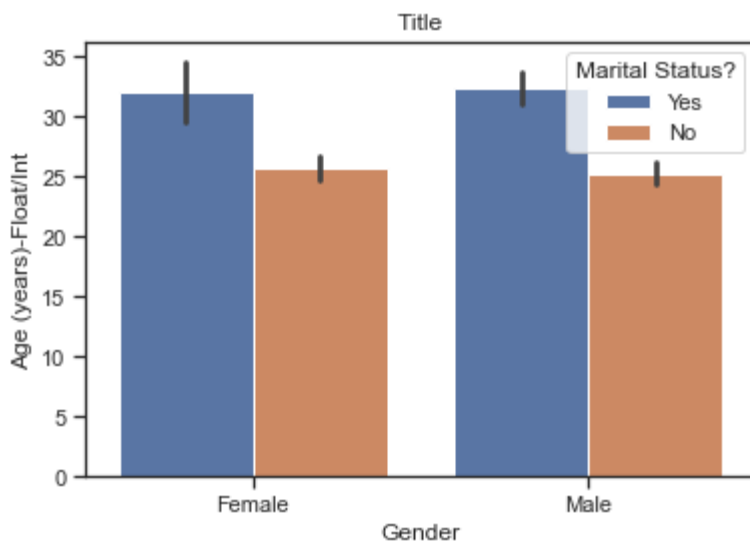
In [24]:
```python
#BAR PLOT
# Color Pelets
sns.barplot(x="Gender" , y="Age (years)-Float/Int" , hue="Marital Status?" , 
plt.title(" Title ")
plt.show()
```



In [25]:
```python
#BAR PLOT
# Color Pelets
# ci = none removes or stick the arrow on top of bar
# and pallete gives the sea born pallet some color we can find different pall
sns.barplot(x="Gender" , y="Age (years)-Float/Int" , hue="Marital Status?" , 
            palette = 'pastel' ,  ci=None)
plt.title(" Title ")
plt.show()
```
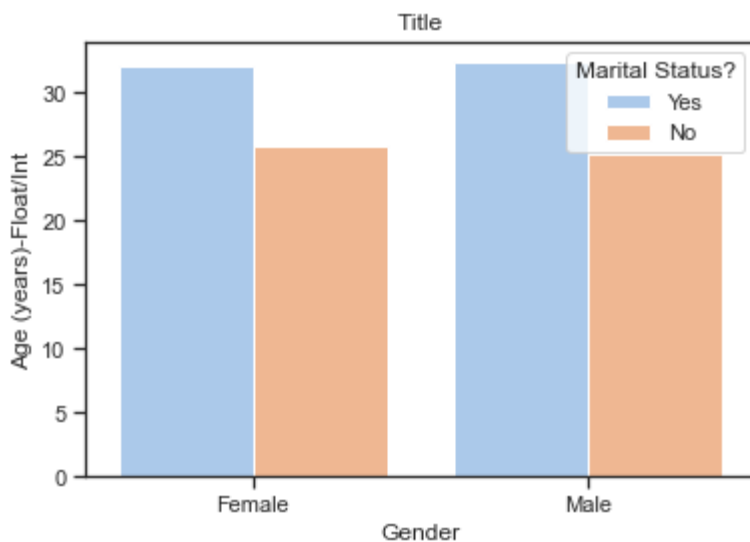
In [26]:
```python
#Horizontal Plot by taking string variable on y axis and numeric variable on
#BAR PLOT

from numpy import mean
sns.barplot(x="Age (years)-Float/Int" , y="Gender" , hue="Marital Status?" ,
            palette = 'pastel',estimator=mean , saturation=0.2)
plt.title(" Title ")
plt.show()
```
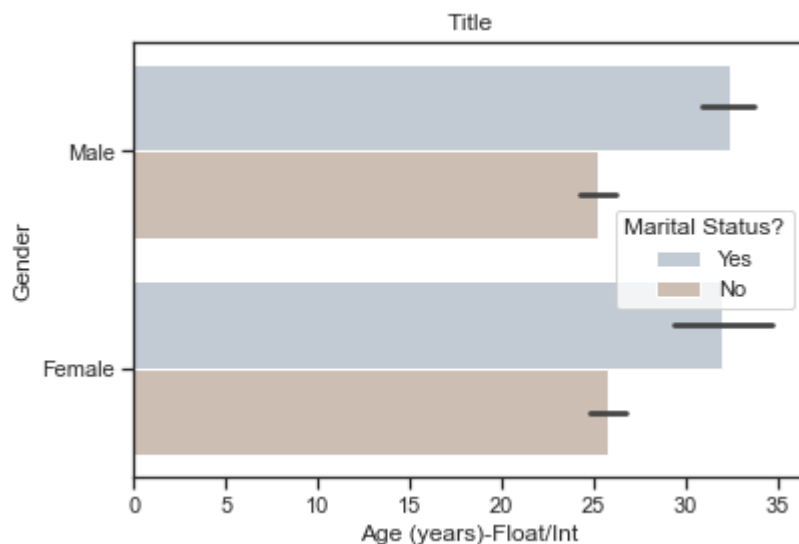


In [27]:
```python
# now instead of palette entering our own values
# line width changes the motai of line
# errcolor err is actually this arrow in graph in centre of bar %
# err & edge color value ranges from 0.0 to 0.9
# here in facecolor 4 values are RGB is red green blue values in an image and
# first RGB 3 values combine to give a color and then in last Alpha give value
sns.barplot(x="Gender" , y="Age (years)-Float/Int", data=df ,
            linewidth=3, facecolor=(0.5,0.1,0.3,0.9),
            errcolor="0.2", edgecolor="0.5")
plt.title(" Title ")
plt.show()
```
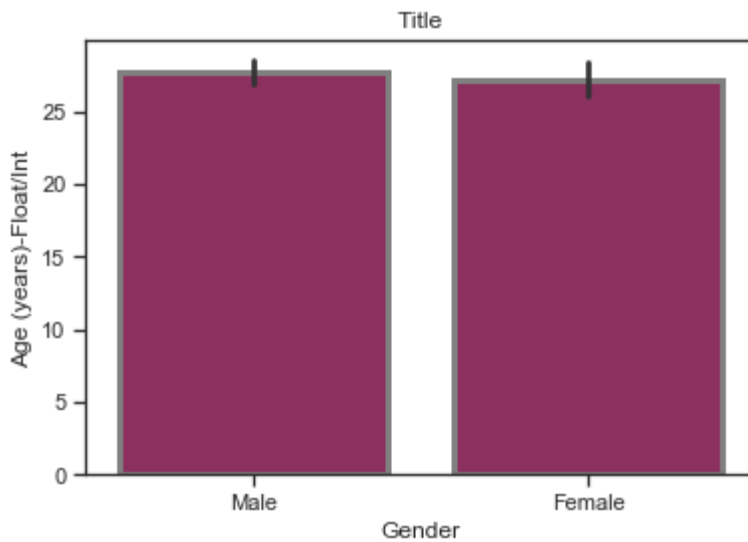
In [34]:
```python
sns.set(style='whitegrid')

sns.boxplot(x="Gender",y="Your Weight in kg? (float)" , data=df)
```

Out[34]:  <AxesSubplot:xlabel='Gender', ylabel='Your Weight in kg? (float)'>
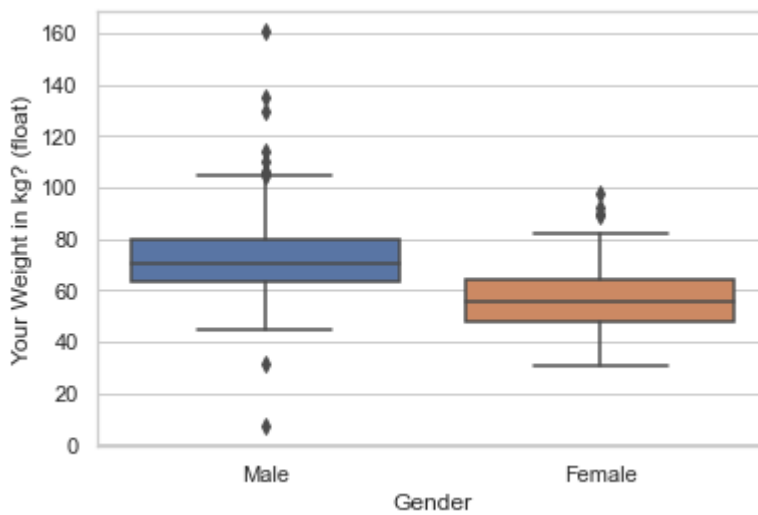


In [33]:
```python
sns.set(style='whitegrid')

sns.boxplot(x="Gender",y="Your Weight in kg? (float)" ,saturation=0.9, data=d
```

Out[33]:  <AxesSubplot:xlabel='Gender', ylabel='Your Weight in kg? (float)'>

In [32]:
```
#this will describe the data for understanding
df.describe()
```

Out[32]:

| | Age (years)- Float/Int | Your Weight in kg? (float) | Height in cm? Freelancer- (Float) | How many hours you code a day? (int) e.g: 5,4,3 | Light kitni der band hti hy? int |
|---|---|---|---|---|---|
| count | 375.000000 | 375.000000 | 375.000000 | 375.000000 | 375.000000 |
| mean | 27.576933 | 69.321147 | 162.679282 | 2.976027 | 3.618667 |
| std | 7.224460 | 16.264434 | 172.246844 | 2.088115 | 7.407986 |
| min | 0.000000 | 7.000000 | 0.000000 | 0.000000 | 0.000000 |
| 25% | 24.000000 | 58.050000 | 158.000000 | 2.000000 | 0.000000 |
| 50% | 27.000000 | 68.300000 | 169.000000 | 3.000000 | 2.000000 |
| 75% | 31.000000 | 78.500000 | 175.225000 | 4.000000 | 4.000000 |
| max | 90.000000 | 161.000000 | 1661.160000 | 18.000000 | 72.000000 |

Catagorical variable mostly on x axis or on hue

numeric variable mostly on y axis , we dont take this on hue

In [31]:
```
#we can draw box plot of one thing as well, we will take on of value shown in
sns.set(style='whitegrid')

sns.boxplot(x=df['Age (years)-Float/Int'])
```
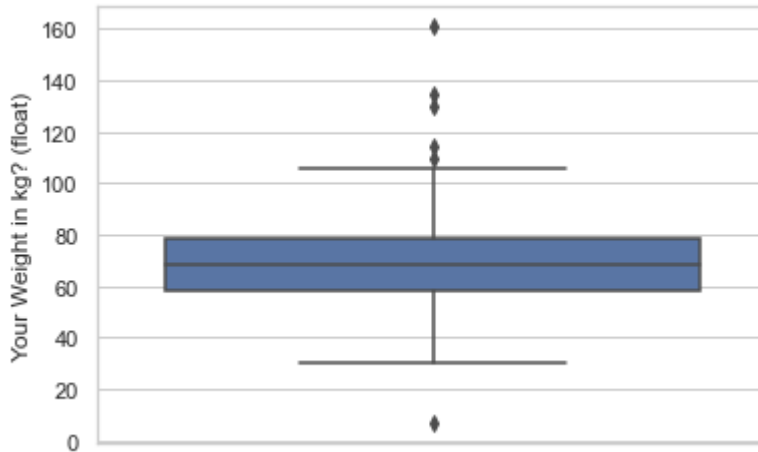
Out[31]: <AxesSubplot:xlabel='Age (years)-Float/Int'>
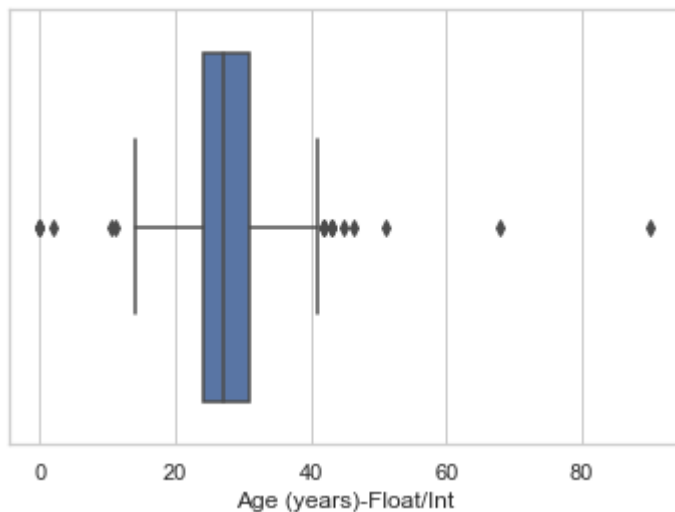
In [35]:
```python
# or hama yaha par y axis par be bana skty hain , specially ek ek chez ka bana
sns.set(style='whitegrid')

sns.boxplot(y=df['Your Weight in kg? (float)'])
```
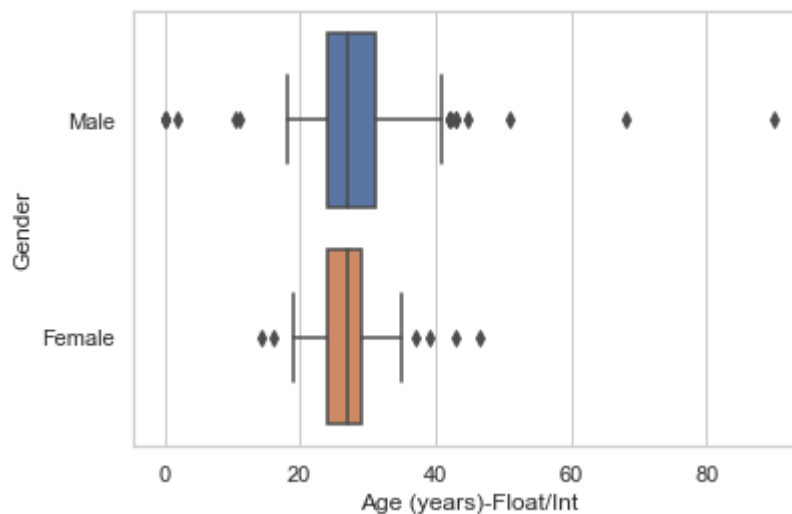
Out[35]: `<AxesSubplot:ylabel='Your Weight in kg? (float)'>`



In [44]:
```python
#hama yaha par ek string variable dal dain gy gender
sns.set(style='whitegrid')

sns.boxplot(x="Age (years)-Float/Int" ,
            y="Gender" , data=df)
```
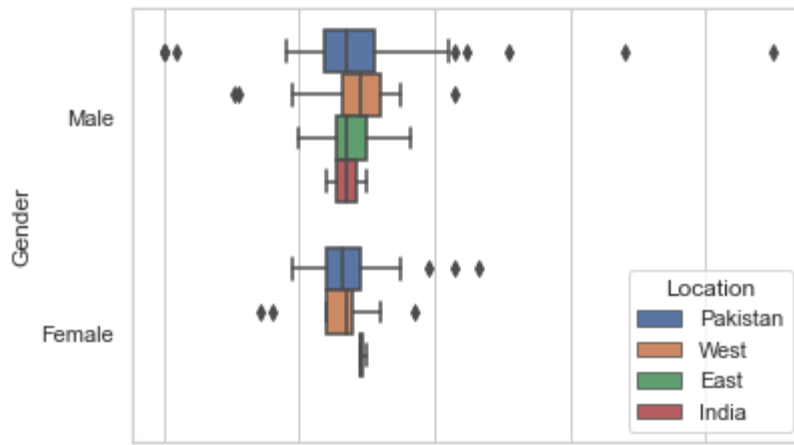
Out[44]: `<AxesSubplot:xlabel='Age (years)-Float/Int', ylabel='Gender'>`



In [45]:
```python
# aba yaha par hue introduce kardety hain
sns.set(style='whitegrid')

sns.boxplot(x="Age (years)-Float/Int" , hue="Location" ,y="Gender" , data=df)
```
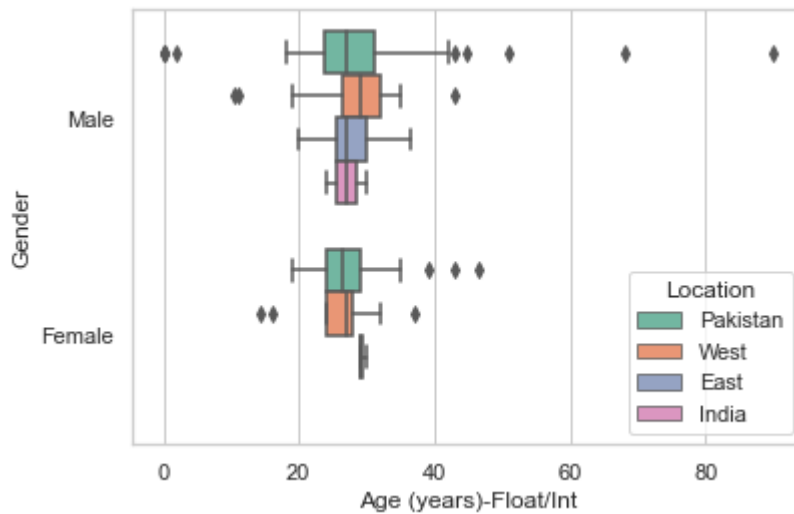
Out[45]: `<AxesSubplot:xlabel='Age (years)-Float/Int', ylabel='Gender'>`

In [49]:
```python
# Palette and dodge
sns.set(style='whitegrid')

sns.boxplot(x="Age (years)-Float/Int" , hue="Location" ,y="Gender" , data=df
        , palette="Set2" , dodge=True)
```

Out[49]: <AxesSubplot:xlabel='Age (years)-Float/Int', ylabel='Gender'>



In [53]:
```python
sns.set(style='whitegrid')

sns.boxplot(x="Gender" ,y="Age (years)-Float/Int" , data=df
        , saturation=1)
```

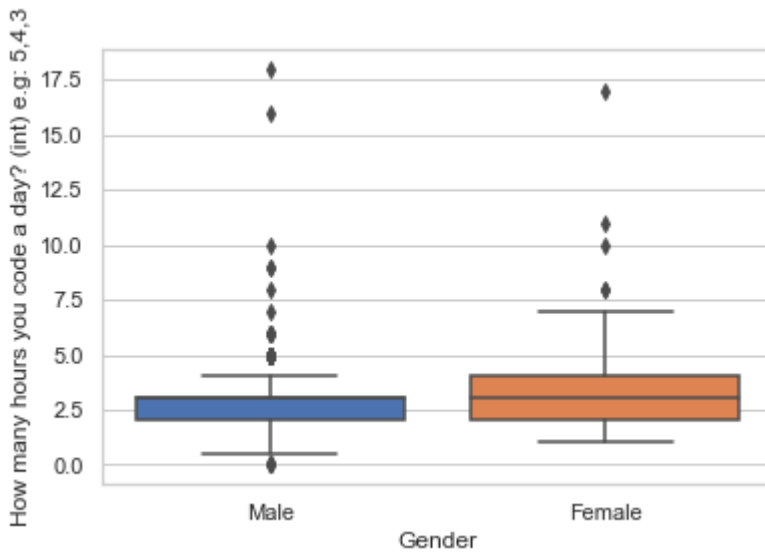Out[53]: <AxesSubplot:xlabel='Gender', ylabel='Age (years)-Float/Int'>

In [59]:
```python
# ORIENT
# here argument orient='v' is working but orient ='h' is not
sns.set(style='whitegrid')

sns.boxplot(x="Gender" ,y="How many hours you code a day? (int) e.g: 5,4,3" ,
        , saturation=1 , orient='v')
#
```

Out[59]: <AxesSubplot:xlabel='Gender', ylabel='How many hours you code a day? (int) e.
g: 5,4,3'>



In [61]:
```python
# COLOR
sns.set(style='whitegrid')

sns.boxplot(x="Gender" ,y="How many hours you code a day? (int) e.g: 5,4,3" ,
        , saturation=1 , color="red")
#
```

Out[61]: <AxesSubplot:xlabel='Gender', ylabel='How many hours you code a day? (int) e.
g: 5,4,3'>

In [63]:
```python
# google hex color picker
# chose any color from google hax code and write in color argument
# COLOR
#a81358
sns.set(style='whitegrid')

sns.boxplot(x="Gender" ,y="How many hours you code a day? (int) e.g: 5,4,3" ,
        , saturation=1 , color="#a81358")
# so we can take any color by googling hax color picker
```

Out[63]: <AxesSubplot:xlabel='Gender', ylabel='How many hours you code a day? (int) e.
g: 5,4,3'>
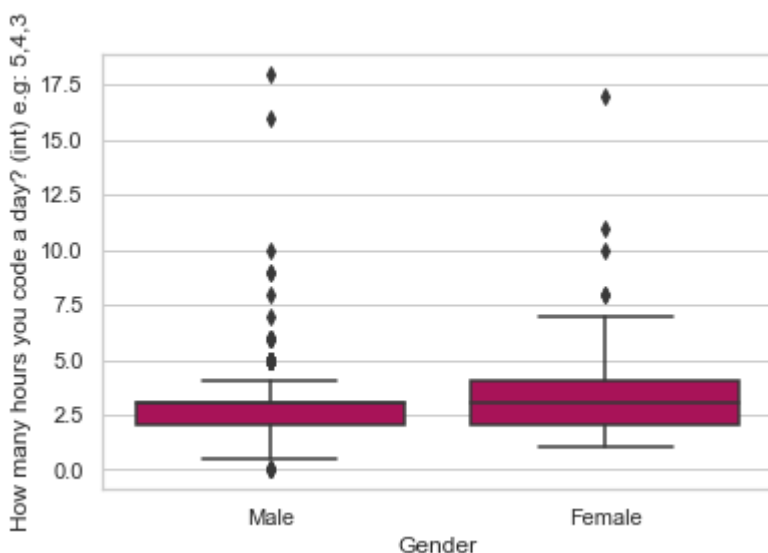


## how to manage individual color for each hue color?

use this sns.boxplot(x=" ", y=" ", saturation= 1, data= df , orient=" ", hue=" " , palette ={"Yes": "0.4", "No":"0.8"})
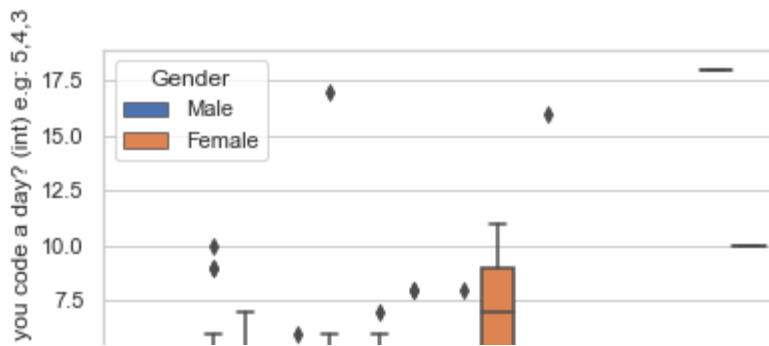
In [80]:
```python
# here palette ={"Yes": "0.4", "No":"0.8"} , its not working for me for my pl

sns.set(style='whitegrid')


sns.boxplot(x="Age", y="How many hours you code a day? (int) e.g: 5,4,3", satu
            hue="Gender" ,)
```

Out[80]: <AxesSubplot:xlabel='Age', ylabel='How many hours you code a day? (int) e.g:
5,4,3'>

In [78]: `df`

Out[78]:

|  | Gender | Location | Age | Qualification_completed | field_of_study | Purpose_for_chilla | What are you? |
|---|---|---|---|---|---|---|---|
| 0 | Male | Pakistan | 36-40 | Masters | Natural Sciences | to boost my skill set | Unemplyed |
| 1 | Male | Pakistan | 26-30 | Bachelors | CS/IT | to boost my skill set | Student |
| 2 | Male | Pakistan | 31-35 | Masters | Enginnering | Switch my field of study | Employed |
| 3 | Female | Pakistan | 31-35 | Masters | CS/IT | to boost my skill set | Employed |
| 4 | Female | Pakistan | 26-30 | Masters | Enginnering | to boost my skill set | Student |
| ... | ... | ... | ... | ... | ... | ... | ... |
| 370 | Male | Pakistan | 26-30 | Masters | Enginnering | to boost my skill set | Employed |
| 371 | Male | Pakistan | 31-35 | Bachelors | Enginnering | to boost my skill set | Employed |
| 372 | Male | Pakistan | 21-25 | Bachelors | CS/IT | to boost my skill set | Employed |
| 373 | Male | Pakistan | 26-30 | Masters | Enginnering | to boost my skill set | Employed |
| 374 | Female | Pakistan | 31-35 | Masters | Mathematics | Switch my field of study | Unemplyed |

375 rows × 23 columns

In [ ]: