Python Ka Chilla With Baba Ammar

Learning Jupyter Notebook Basics

01- Chapter: My First Progam

In [1]:
```
print(2+3)
print("hello world")
print("we are learning python with Fawad")
print("mery rashky kamar tuny pehli nazar jab nazar sy milai maza aa gya")
```

```
5
hello world
we are learning python with Fawad
mery rashky kamar tuny pehli nazar jab nazar sy milai maza aa gya
```

02- Chapter: Operators

In [2]:
```
print(2+3)
print(2+1)
print(7/2)
print(7//2)
print(2*3)
print(13%2)
print(2**3)
print(1/2*2/3*5/3+2)
```

```
5
3
3.5
3
6
1
8
2.5555555555555554
```

PEMDAS i,e Parenthesis, Exponents, Multiplication, Division, and Addition Substraction

03- Chapter: Strings

In [3]:
```
print("hello world")
print("we are learning python with fawad")
print('Test for single codes')
print("Tests for double codes")
print(''' tests for triple codes ''')
print("What's up?")
```

```
hello world
we are learning python with fawad
Test for single codes
Tests for double codes
 tests for triple codes
What's up?
```

For comment out use CTRL+/ function key

04- Chapter: Comments

In [4]:
```
print("How are you?")
print('we are learning python with Fawad') #Print is strings
print(8+5)
```

```
How are you?
we are learning python with Fawad
13
```

Commenting out for CTRL+/ functions

05- Chapter: Variables

Numeric Variable or Algabriac Variable

In [5]:
```
X=5
Y=10
print(X)
print(Y)
X=10+X
print(X)

type(X)
print(type(X))
print(type(Y))

fruit_basket=(8)
del fruit_basket
fruit_basket="mangoes"

print(type(fruit_basket))
print(fruit_basket)
```

```
5
10
15
<class 'int'>
<class 'int'>
<class 'str'>
mangoes
```

String Variable

In [6]:
```
Y=("We are learning python with Ammar")
```

Rules to Assign a Variable

1- The variables should contain letters, numbers or underscore 2- Don't start a variable with number 3- Spaces aren't aloud 4- Don't use keywords in functions i.e mean,mod,median,break,as,if etc 5- Short and descriptive variables name 6- Case sensitivity lower, upper case letters, lower case letters suggestions

Types of Variables

1- Integer(int) 2- String(str)

06- Chapter: Input Variables

Input Functions

fruit_basket=" Apple" print(fruit_basket) print('What is your favourite fruit ? ')

Input function of second stage

In [7]:
```
name=input("what's your name? ")
greetings="Hello!"
print("Hello!", name)
```

```
what's your name? Fawad
Hello! Fawad
```

Another Way of Stage 2 Functions

In [8]:
```
name=input("what's your name? ")
greetings="Hello!"
print("Hello!", name)
```

```
what's your name? Fawad
Hello! Fawad
```

Third Stage Input Functions

In [9]:
```
name= input("What's your name? ")
age=input("How old are you? ")
greetings="Hello!"

print(greetings, name, ", You are still young")
```

```
What's your name? Fawad
How old are you? 22
Hello! Fawad , You are still young
```

07- Chapter: Logical Operators

Defintion: Logical operators are true or false, yes or no, 0 or 1

Symbols & Their Meanings

Equal to == Not equal to != greater than > Less than < Less than and equal to <= Greater than and equal to >=

In [10]:
```
print(4==4)
print(4!=4)
print(4>3)
print(3<6)
print(3>6)
print(3<=5)
print(5>=6)
```

```
True
False
True
True
False
```

```
True
False
```

Applications of logical operators

In [11]:
```
hammad_age=4
min_age_at_school=5
print(hammad_age==min_age_at_school)
```

```
False
```

Input Functions and logical operators

In [12]:
```
min_age_at_school=5
hammad_age=input("How old is Hammad? ")
print(type(hammad_age))
hammad_age=int(hammad_age)
print(min_age_at_school==hammad_age)
```

```
How old is Hammad? 5
<class 'str'>
True
```

Another Fawadmade Sasti Example

In [13]:
```
fawad_parrot_peak=6
bulandi=input("How high is his peak? ")
bulandi=int(bulandi)
print(fawad_parrot_peak==bulandi)
```

```
How high is his peak? 6
True
```

08- Chapter: Conversions

Why we need to?

1- Integers 2-Decimals 3- Strings We need sometimes numerical value so we need to convert our variable in to it

Types of Conversion

Implicit Type Conversion

In [14]:
```
x=10.2
y=15
z="Hello"
print(type(z))
x=x+y
print(x, "type of x is:" , type(x))
```

```
<class 'str'>
25.2 type of x is: <class 'float'>
```

Explicit Type conversion

In [15]:
```
age=input('What is your age? ')
age=int(age)
```

```
print(age, type(str(age)))
```

```
What is your age? 22
22 <class 'str'>
```

In [16]:

```
age=input("what is your name? ")
print(age, type(str(age)))
```

```
what is your name? Fawad
Fawad <class 'str'>
```

09- Chapter: If,else,elif Functions

Application 1- A mother wants his child to get admission at school

In [17]:

```
req_age_at_school=4
hammad_age=2
if hammad_age==req_age_at_school:
    print("hammad can join the school")
elif hammad_age > req_age_at_school:
    print("Congratulations")
elif hammad_age>=2:
    print("take good care of baby Hammad")
else:
    print("Hammad can't join the shcool")
```

```
take good care of baby Hammad
```

10- Chapter: Functions

Defining a Function

In [18]:

```
def print_pakrob():
    print("we are learning with fawad")
    print("we are learning with fawad")
    print("we are learning with fawad")
print_pakrob()
```

```
we are learning with fawad
we are learning with fawad
we are learning with fawad
```

Another Method

In [19]:

```
text="we are learning programming with fawad"
def print_pakrob():
    print("we are learnin with fawad")
    print("we are learnin with fawad")
    print("we are learnin with fawad")
    print(text)
    print(text)
    print(text)
print_pakrob()
```

```
we are learnin with fawad
we are learnin with fawad
we are learnin with fawad
we are learning programming with fawad
```

```
we are learning programming with fawad
we are learning programming with fawad
```

Practice Problem

In [20]:
```
text="Array bhayya khuwar ho rahy hein"
def print_fawad():
    print(text)
    print(text)
    print(text)
    print(text)
print_fawad()
```

```
Array bhayya khuwar ho rahy hein
Array bhayya khuwar ho rahy hein
Array bhayya khuwar ho rahy hein
Array bhayya khuwar ho rahy hein
```

Third Method

In [21]:
```
def print_khan(text):
    print(text)
    print(text)
    print(text)
print_khan("Teri judai jeeye")
```

```
Teri judai jeeye
Teri judai jeeye
Teri judai jeeye
```

Defining a Function with Statements if, else, elif etc

In [22]:
```
def school_calc(age):
    if age==5:
        print("Hammad can go to school")
    elif age>5:
        print("Hammad should join high school")
    else:
        print("Hammad is a kiddo")
school_calc(5)
```

```
Hammad can go to school
```

Defining a Function of Future

In [23]:
```
def future_age(age):
    new_age=age+20
    return new_age
future_predicted_age=print(future_age(5))
```

```
25
```

11- Chapter: Loops

While Loops

In [24]:
```
x=0
while (x<=5):
```

```
    print(x)
    x=x+1
```

```
0
1
2
3
4
5
```

For Loops

In [25]:
```
for x in range(4,11):
    print(x)
```

```
4
5
6
7
8
9
10
```

Array Example of Loops

In [26]:
```
days=["Mon", "Tues","Wed","Thu","Fri","Sat","Sun"]
for d in days:
    if(d=="Fri"):break
    if(d=="Fri"):continue
    print(d)
```

```
Mon
Tues
Wed
Thu
```

12- Chapter: Import Libraries

Import the Value of Pi prom math.pi library

In [27]:
```
import math
print("the value of pi is: ", math.pi)
```

```
the value of pi is:  3.141592653589793
```

Statistical Library

In [28]:
```
import statistics
x=[150,250,350,450]
print(statistics.mean(x))
```

```
300
```

Important Libraries numpy, pandas etc.

13- Chapter: Troubleshooting

Types of Errors

1- Syntax Error

Easy to Resolve. e.g print(We are champions) In this we can see quotation " is missing

2- Run Time Error

Also called as maths error or sometimes zero error. e.g 25/0

3- Semantic Error

In [29]:
```
name="Fawad"
print("Hello! name")
```

```
Hello! name
```

Correction

In [30]:
```
name="Fawad"
print("Hello!",name)
```

```
Hello! Fawad
```

Good Bye For Now

Learning Head Command

In [1]:
```
import seaborn as sns
import numpy as np
import pandas as pd
boat=sns.load_dataset("titanic")
print(boat)
```

```
     survived  pclass     sex   age  sibsp  parch     fare embarked   class  \
0           0       3    male  22.0      1      0   7.2500        S   Third
1           1       1  female  38.0      1      0  71.2833        C   First
2           1       3  female  26.0      0      0   7.9250        S   Third
3           1       1  female  35.0      1      0  53.1000        S   First
4           0       3    male  35.0      0      0   8.0500        S   Third
..        ...     ...     ...   ...    ...    ...      ...      ...     ...
886         0       2    male  27.0      0      0  13.0000        S  Second
887         1       1  female  19.0      0      0  30.0000        S   First
888         0       3  female   NaN      1      2  23.4500        S   Third
889         1       1    male  26.0      0      0  30.0000        C   First
890         0       3    male  32.0      0      0   7.7500        Q   Third

       who  adult_male deck  embark_town alive  alone
0      man        True  NaN  Southampton    no  False
1    woman       False    C    Cherbourg   yes  False
2    woman       False  NaN  Southampton   yes   True
3    woman       False    C  Southampton   yes  False
4      man        True  NaN  Southampton    no   True
..     ...         ...  ...          ...   ...    ...
886    man        True  NaN  Southampton    no   True
887  woman       False    B  Southampton   yes   True
888  woman       False  NaN  Southampton    no  False
889    man        True    C    Cherbourg   yes   True
890    man        True  NaN   Queenstown    no   True

[891 rows x 15 columns]
```

Considering just some rows for data to see the data variables

In [2]:
```
import seaborn as sns
import numpy as np
import pandas as pd
boat=sns.load_dataset("titanic")
```

Instead of print(boat) we can write boat.head() for 5 rows only

In [3]:
```
boat.head()
```

Out[3]:

	survived	pclass	sex	age	sibsp	parch	fare	embarked	class	who	adult_male	deck	e
0	0	3	male	22.0	1	0	7.2500	S	Third	man	True	NaN	S
1	1	1	female	38.0	1	0	71.2833	C	First	woman	False	C	
2	1	3	female	26.0	0	0	7.9250	S	Third	woman	False	NaN	S
3	1	1	female	35.0	1	0	53.1000	S	First	woman	False	C	S

	survived	pclass	sex	age	sibsp	parch	fare	embarked	class	who	adult_male	deck	e
4	0	3	male	35.0	0	0	8.0500	S	Third	man	True	NaN	S

CHILLA ASPIRANTS DATA

Install Plotly and Play with it

Make sure you already installed Plotly Library

In [1]:
```
pip install plotly
```

```
Requirement already satisfied: plotly in c:\users\hp\anaconda3\lib\site-packages (5.5.0)
Requirement already satisfied: tenacity>=6.2.0 in c:\users\hp\anaconda3\lib\site-package
s (from plotly) (8.0.1)
Requirement already satisfied: six in c:\users\hp\anaconda3\lib\site-packages (from plot
ly) (1.16.0)
Note: you may need to restart the kernel to use updated packages.
```

Import libraries one by one i.e all 4 of them

In [2]:
```
import seaborn as sns
import numpy as np
import matplotlib.pyplot as plt
import pandas as pd
data_chilla=pd.read_csv("Chilla_data_aspirants.csv")
print(data_chilla)
#Let's make it look smaller
```

```
     Gender  Location    Age Qualification    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       Engineering
3    Female  Pakistan  31-35       Masters             CS/IT
4    Female  Pakistan  26-30       Masters       Engineering
..      ...       ...    ...           ...               ...
370    Male  Pakistan  26-30       Masters       Engineering
371    Male  Pakistan  31-35     Bachelors       Engineering
372    Male  Pakistan  21-25     Bachelors             CS/IT
373    Male  Pakistan  26-30       Masters       Engineering
374  Female  Pakistan  31-35       Masters       Mathematics

           Purpose_for_chilla working_status Blood_group  Network_usage  \
0       to boost my skill set      Unemplyed           B+        U-fone
1       to boost my skill set        Student           B+        U-fone
2    Switch my field of study       Employed           B+          Zong
3       to boost my skill set       Employed           O+        U-fone
4       to boost my skill set        Student           A-      Mobilink
..                        ...            ...          ...           ...
370     to boost my skill set       Employed           O+       Telenor
371     to boost my skill set       Employed           A+          Zong
372     to boost my skill set       Employed           O+      Mobilink
373     to boost my skill set       Employed           B-      Mobilink
374  Switch my field of study      Unemplyed           B+       Telenor

    Prepaid_or_Postpaid  ... Fav_prog_language Marital_Status  \
0              Prepaid  ...            Python            Yes
1              Prepaid  ...            Python             No
2              Prepaid  ...            Python            Yes
3             Postpaid  ...            Python            Yes
```

```
4              Prepaid  ...        Javascript            No
..                 ...  ...               ...           ...
370            Prepaid  ...                 R           Yes
371           Postpaid  ...            Python           Yes
372            Prepaid  ...            Python            No
373            Prepaid  ...            Python            No
374            Prepaid  ...            Python           Yes

    Vaccination_status Area_of_living Work_Experience Age_Years Weight_Kgs  \
0                  Yes          Urbun               5     38.00       77.0
1                  Yes          Urbun               1     25.00       53.6
2                  Yes          Urbun             5.5     31.34       93.0
3                  Yes          Urbun               5     33.00       60.0
4                  Yes          Rural             3.5     27.00       59.9
..                 ...            ...             ...       ...        ...
370                Yes          Rural               7     28.00       70.5
371                Yes          Urbun               5     33.00       83.4
372                Yes          Urbun               0     22.80       60.0
373                 No          Urbun               2     29.00       86.0
374                Yes          Urbun               3     31.00       54.5

    Height_cm  coding_hours_per_day  Loadshedding_hours
0     179.000                   3.0                   2
1     178.000                   2.0                   6
2     173.000                   2.0                   0
3     157.000                   3.0                  24
4     164.544                   6.0                  12
..        ...                   ...                 ...
370   178.500                   4.0                   3
371   172.700                   1.0                   1
372     1.680                   0.0                   0
373   180.000                   2.0                   1
374   161.544                   3.0                   0

[375 rows x 23 columns]
```

Using Head Command i.e chilla_date.head()

In [3]:

```
import seaborn as sns
import numpy as np
import matplotlib.pyplot as plt
import pandas as pd
data_chilla=pd.read_csv("Chilla_data_aspirants.csv")
data_chilla.head()
```

Out[3]:

	Gender	Location	Age	Qualification	Field_of_Study	Purpose_for_chilla	working_status	Blood_group
0	Male	Pakistan	36-40	Masters	Natural Sciences	to boost my skill set	Unemplyed	B+
1	Male	Pakistan	26-30	Bachelors	CS/IT	to boost my skill set	Student	B+
2	Male	Pakistan	31-35	Masters	Engineering	Switch my field of study	Employed	B+
3	Female	Pakistan	31-35	Masters	CS/IT	to boost my skill set	Employed	O+

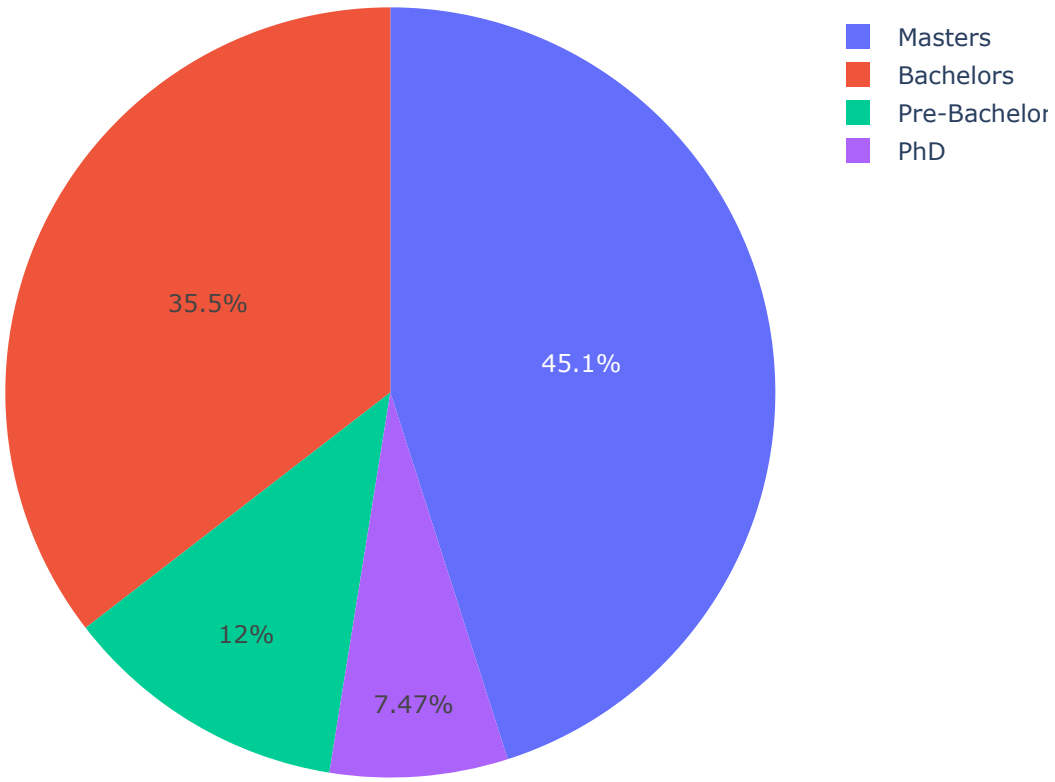
	Gender	Location	Age	Qualification	Field_of_Study	Purpose_for_chilla	working_status	Blood_group
4	Female	Pakistan	26-30	Masters	Engineering	to boost my skill set	Student	A

5 rows × 23 columns

Let's try making hot plots by making use of some beautifully crafted libraries

Making Pie Charts for Qualifications

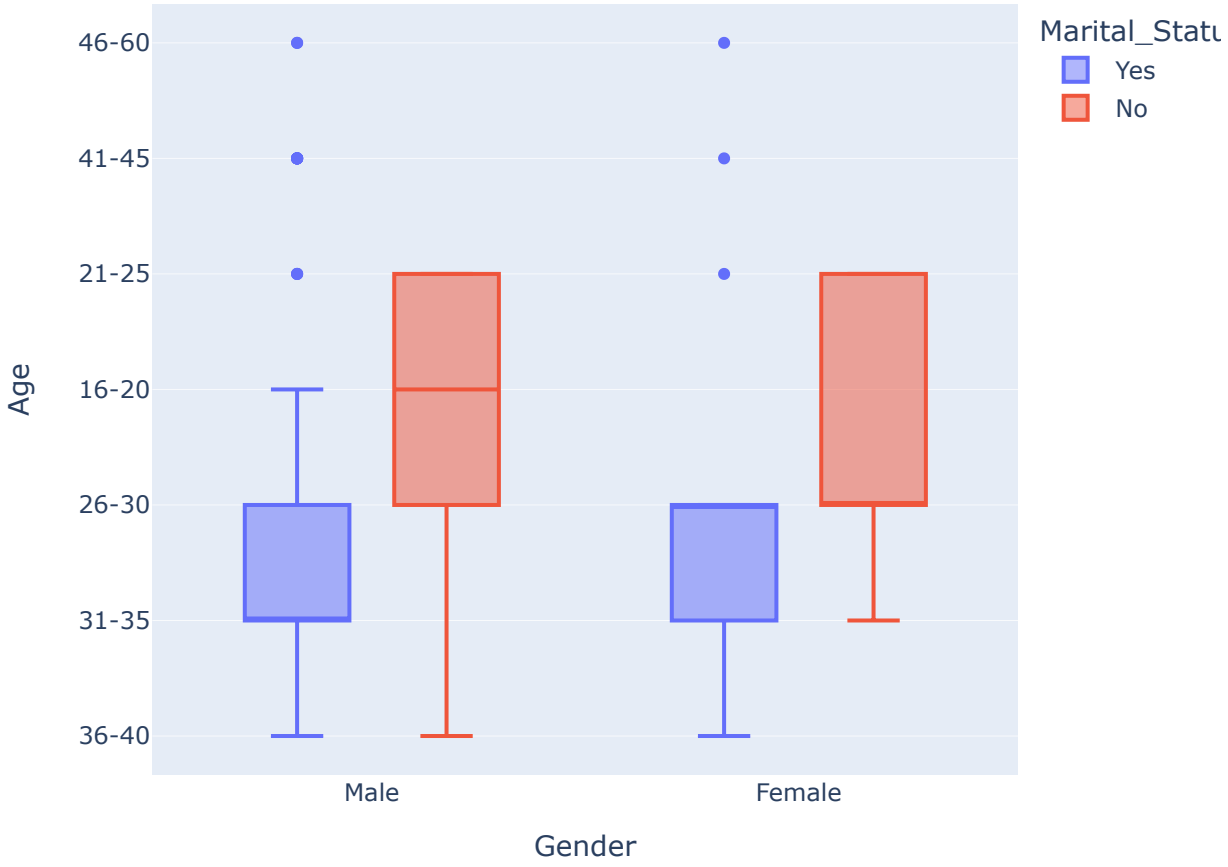
In [4]:
```
import seaborn as sns
import numpy as np
import matplotlib.pyplot as plt
import pandas as pd
data_chilla=pd.read_csv("Chilla_data_aspirants.csv")
import plotly.express as px
plot = px.pie(data_chilla, names='Qualification')
plot.show()
```



Let's make another plot i.e BOXPLOT one for Gender Age

In [5]:

```
import seaborn as sns
import numpy as np
import matplotlib.pyplot as plt
import pandas as pd
data_chilla=pd.read_csv("Chilla_data_aspirants.csv")
import plotly.express as px
plot = px.box(data_chilla, x="Gender", y="Age", color="Marital_Status")
plot.update_traces(quartilemethod="exclusive") # or "inclusive", or "linear" by default
plot.show()
```



let's play more with plotly as it's by far an amazing thing ever happened to me

MAZA AA RAHA HAI BAHEEE

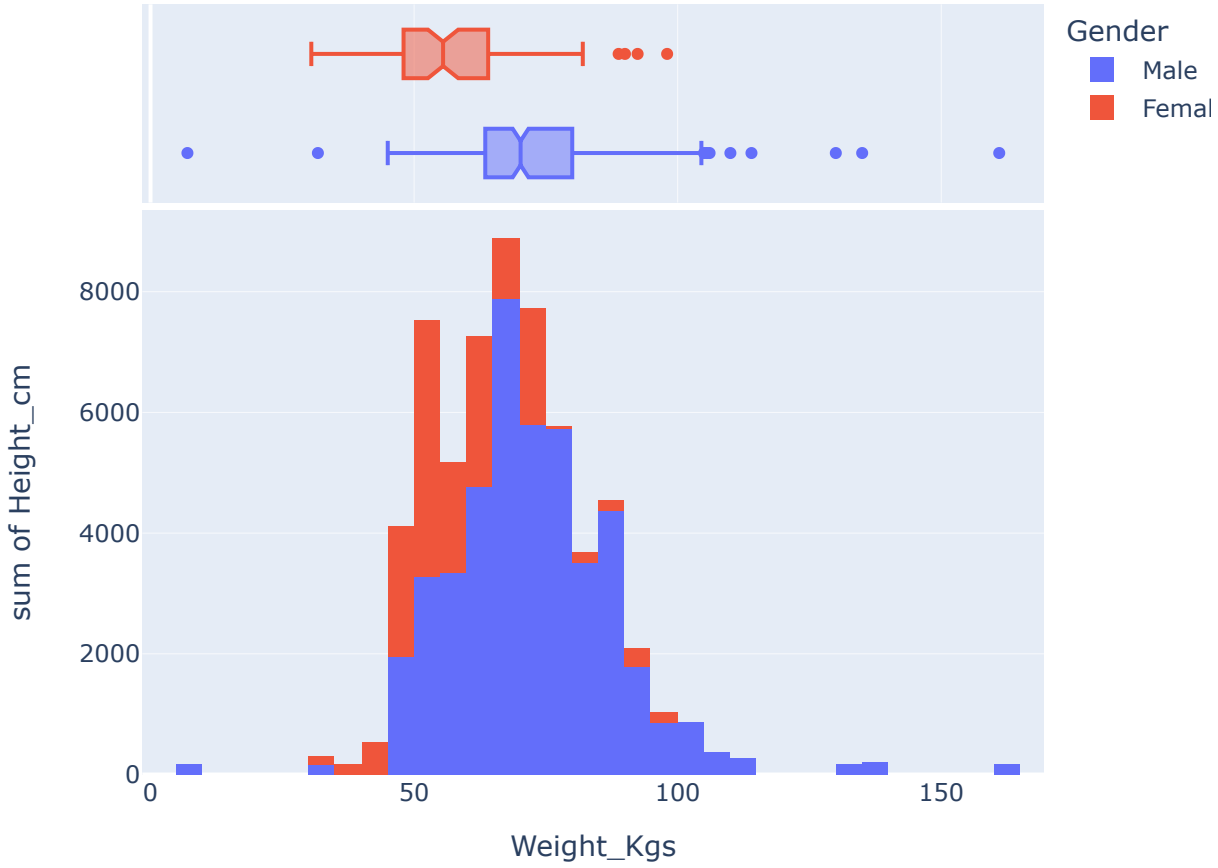
Making Plot for Height, Weights and Gender i.e Histogram

In [6]:

```
import seaborn as sns
import numpy as np
import matplotlib.pyplot as plt
import pandas as pd
data_chilla=pd.read_csv("Chilla_data_aspirants.csv")

import plotly.express as px
plot=px.histogram(data_chilla, x="Weight_Kgs", y="Height_cm",
                  color="Gender",marginal="box",
```

```
                    hover_data=data_chilla.columns)
# plot.update(layout_yaxis_range = [10,200]) --> For setting Limits for axes
#marginal=box can be changed to violin or rug as well
plot.show()
```



let's make Lineplot between Age and Codings hours per day

Steps

Step-1 Import Libraries

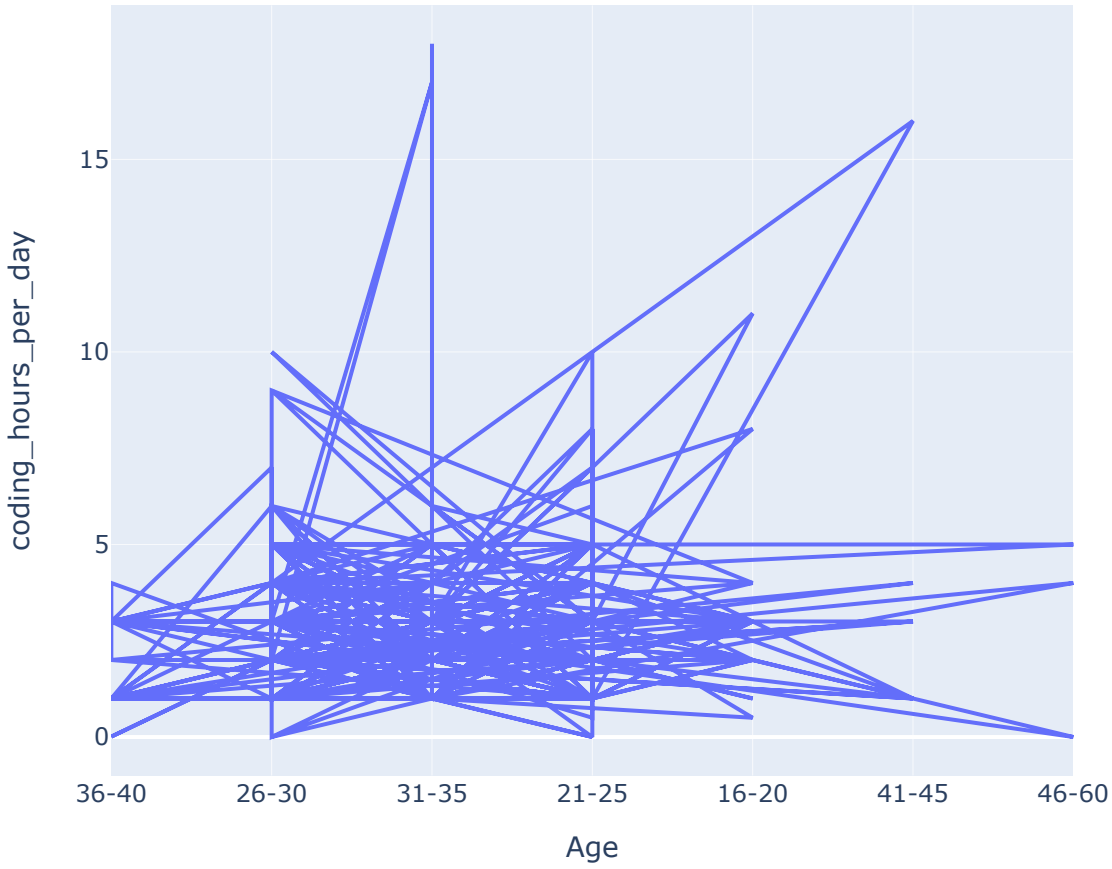
Step-2 Import Data from .csv file

Step-3 define paarameters

Step-4 your graph is ready

In [7]:

```
import seaborn as sns
import numpy as np
import matplotlib.pyplot as plt
import pandas as pd
data_chilla=pd.read_csv("Chilla_data_aspirants.csv")
import plotly.express as px
plot = px.line(data_chilla, x='Age', y='coding_hours_per_day')
plot.show()
```



Interpretation of Data:

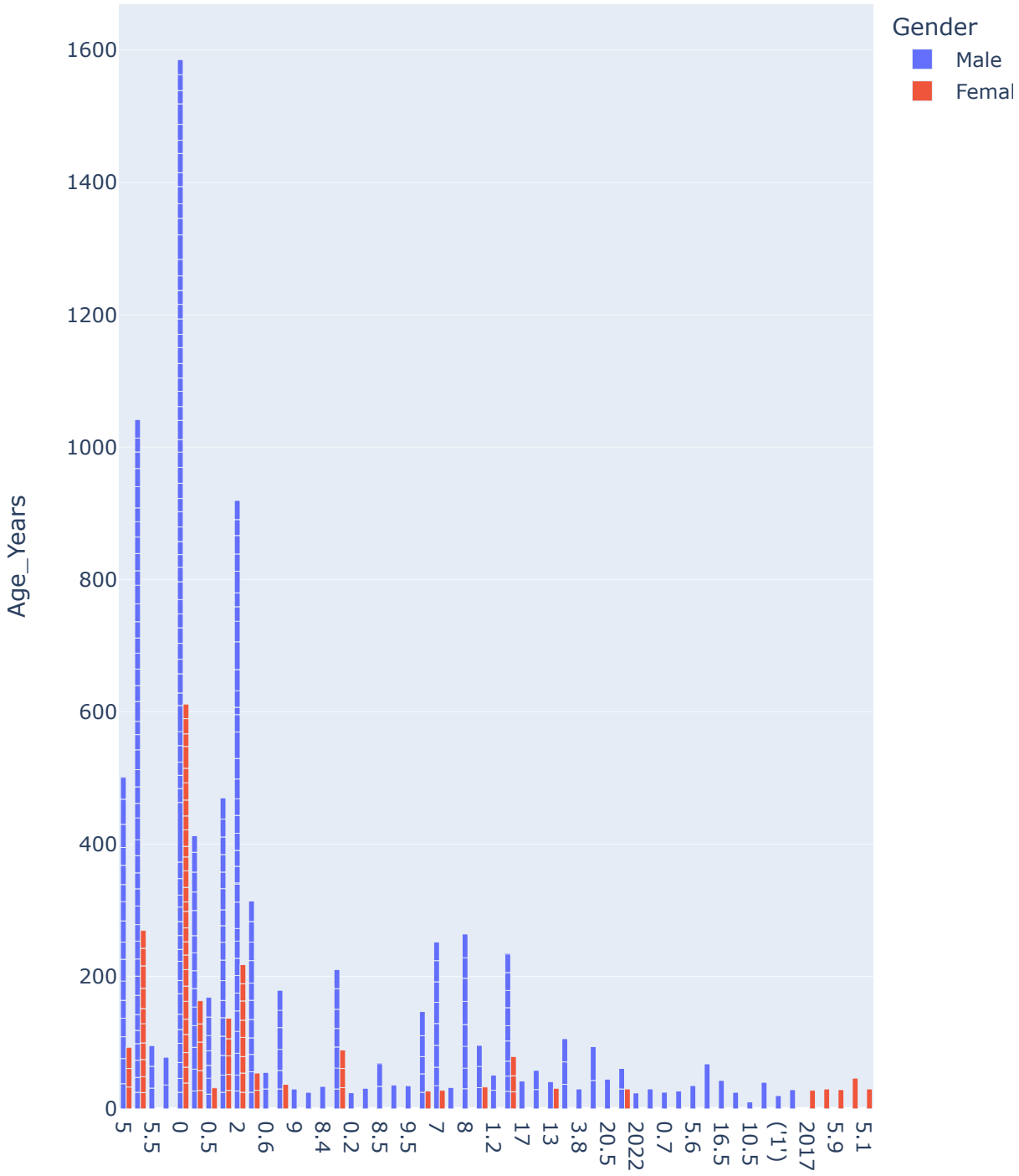
- Anybody can work on coding no matter what his age is ###### Note: **her too** warna feminists galyan deingi
- Age doesn't matter as in case of above plot, people with higher age are working more
- Infact in some cases people with higher age worked more compared to younger ones
- People with age 20-40 are working more an the graph is consistent as well

BAR Charts Let's draw more

In [8]:
```
import seaborn as sns
import numpy as np
import matplotlib.pyplot as plt
import pandas as pd
data_chilla=pd.read_csv("Chilla_data_aspirants.csv")
import plotly.express as px

plot = px.bar(data_chilla, x="Work_Experience", y="Age_Years", color="Gender",
              barmode='group',height=800)

plot.show()
```



GOOD BYE FOR NOW

SEE YOU LATER DEAR PLOTLY AND MATPLOTLIB

ALLAH HAFIZ