

```
import numpy as np
import pandas as pd
import matplotlib.pyplot as plt
import seaborn as sns
import re
```

```
# data reading
```

```
df=pd.read_csv("Ifood_new.csv")
df
```

```

              name
ingredients \
0      Adhirasam  Rice flour, jaggery, ghee, vegetable oil,
elachi
1      Aloo gobi  Cauliflower, potato, garam masala, turmeric,
c...
2      Aloo matar  Potato, peas, chillies, ginger, garam masala,
...
3      Aloo methi  Potato, fenugreek leaves, chillies, salt,
oil
4      Aloo shimla mirch  Potato, shimla mirch, garam masala, amchur
pow...
..      ...
...
250     Vada  Urad dal, ginger, curry leaves, green
chillies,...
251     Veg Kolhapuri  Gobi, potato, beans, khus khus,
coconut
252     Vegetable jalfrezi  Baby corn, french beans, garam masala,
ginger,...
253     Vindaloo  Chicken, coconut oil, wine vinegar, ginger,
gr...
254     Zunka  Gram flour, mustard, garlic, turmeric, red
chilli
```

```

              diet  prep_time  cook_time  flavor_profile  course
\
0      vegetarian      10      50      sweet      dessert
1      vegetarian      10      20      spicy  main course
2      vegetarian       5      40      spicy  main course
3      vegetarian      10      40      bitter  main course
4      vegetarian      10      40      spicy  main course
..      ...      ...      ...      ...      ...
250     vegetarian      15      20      spicy      snack
```

251	vegetarian	20	30	spicy	main course
252	vegetarian	10	30	spicy	main course
253	non vegetarian	10	40	spicy	main course
254	vegetarian	10	25	spicy	main course

```

state region
img_url
0 West Bengal East
https://www.crazymasalafood.com/wp-content/ima...
1 Punjab North https://www.vegrecipesofindia.com/wp-
content/u...
2 Punjab North https://www.vegrecipesofindia.com/wp-
content/u...
3 Punjab North https://www.vegrecipesofindia.com/wp-
content/u...
4 Punjab North https://www.vegrecipesofindia.com/wp-
content/u...
.. ... ..
...
250 -1 South
https://www.archanaskitchen.com/images/archana...
251 Maharashtra West https://www.vegrecipesofindia.com/wp-
content/u...
252 Punjab North https://www.vegrecipesofindia.com/wp-
content/u...
253 Goa West
https://upload.wikimedia.org/wikipedia/commons...
254 Maharashtra West
https://www.whiskaffair.com/wp-content/uploads...

```

[255 rows x 10 columns]

df.shape

(255, 10)

*#table column*

df.columns

```

Index(['name', 'ingredients', 'diet', 'prep_time', 'cook_time',
      'flavor_profile', 'course', 'state', 'region', 'img_url'],
      dtype='object')

```

df.head()

```

            name
ingredients \
0      Adhirasam  Rice flour, jaggery, ghee, vegetable oil,
elachi
1      Aloo gobi  Cauliflower, potato, garam masala, turmeric,
c...
2      Aloo matar  Potato, peas, chillies, ginger, garam
masala, ...
3      Aloo methi  Potato, fenugreek leaves, chillies, salt,
oil
4  Aloo shimla mirch  Potato, shimla mirch, garam masala, amchur
pow...

      diet  prep_time  cook_time  flavor_profile      course
state \
0  vegetarian      10       50      sweet      dessert  West
Bengal
1  vegetarian      10       20      spicy  main course
Punjab
2  vegetarian       5       40      spicy  main course
Punjab
3  vegetarian      10       40     bitter  main course
Punjab
4  vegetarian      10       40      spicy  main course
Punjab

      region      img_url
0    East  https://www.crazymasalafood.com/wp-content/ima...
1   North  https://www.vegrecipesofindia.com/wp-content/u...
2   North  https://www.vegrecipesofindia.com/wp-content/u...
3   North  https://www.vegrecipesofindia.com/wp-content/u...
4   North  https://www.vegrecipesofindia.com/wp-content/u...

df.isnull().sum()

name      0
ingredients  0
diet      0
prep_time  0
cook_time  0
flavor_profile  0
course     0
state     0
region    1
img_url   1
dtype: int64

df.dropna(inplace=True)
df.isnull().sum()

```

```

name          0
ingredients    0
diet           0
prep_time      0
cook_time      0
flavor_profile 0
course         0
state          0
region         0
img_url        0
dtype: int64

```

```

df.replace('-1','Not Provided',inplace=True)
df

```

```

              name
ingredients \
0      Adhirasam  Rice flour, jaggery, ghee, vegetable oil,
elachi
1      Aloo gobi  Cauliflower, potato, garam masala, turmeric,
c...
2      Aloo matar  Potato, peas, chillies, ginger, garam masala,
...
3      Aloo methi  Potato, fenugreek leaves, chillies, salt,
oil
4      Aloo shimla mirch  Potato, shimla mirch, garam masala, amchur
pow...
..          ...
...
250     Vada      Urad dal, ginger, curry leaves, green
chilies,...
251  Veg Kolhapuri      Gobi, potato, beans, khus khus,
coconut
252  Vegetable jalfrezi  Baby corn, french beans, garam masala,
ginger,...
253     Vindaloo  Chicken, coconut oil, wine vinegar, ginger,
gr...
254     Zunka     Gram flour, mustard, garlic, turmeric, red
chilli

```

```

              diet  prep_time  cook_time  flavor_profile  course
\
0      vegetarian      10      50      sweet      dessert
1      vegetarian      10      20      spicy  main course
2      vegetarian       5      40      spicy  main course
3      vegetarian      10      40      bitter  main course

```

4	vegetarian	10	40	spicy	main course
..	...	...	...	...	...
250	vegetarian	15	20	spicy	snack
251	vegetarian	20	30	spicy	main course
252	vegetarian	10	30	spicy	main course
253	non vegetarian	10	40	spicy	main course
254	vegetarian	10	25	spicy	main course

	state	region	img_url
0	West Bengal	East	<a href="https://www.crazymasalafood.com/wp-content/ima...">https://www.crazymasalafood.com/wp-content/ima...</a>
1	Punjab	North	<a href="https://www.vegrecipesofindia.com/wp-content/u...">https://www.vegrecipesofindia.com/wp-content/u...</a>
2	Punjab	North	<a href="https://www.vegrecipesofindia.com/wp-content/u...">https://www.vegrecipesofindia.com/wp-content/u...</a>
3	Punjab	North	<a href="https://www.vegrecipesofindia.com/wp-content/u...">https://www.vegrecipesofindia.com/wp-content/u...</a>
4	Punjab	North	<a href="https://www.vegrecipesofindia.com/wp-content/u...">https://www.vegrecipesofindia.com/wp-content/u...</a>
..	...	...	
...			
250	Not Provided	South	<a href="https://www.archanaskitchen.com/images/archana...">https://www.archanaskitchen.com/images/archana...</a>
251	Maharashtra	West	<a href="https://www.vegrecipesofindia.com/wp-content/u...">https://www.vegrecipesofindia.com/wp-content/u...</a>
252	Punjab	North	<a href="https://www.vegrecipesofindia.com/wp-content/u...">https://www.vegrecipesofindia.com/wp-content/u...</a>
253	Goa	West	<a href="https://upload.wikimedia.org/wikipedia/commons...">https://upload.wikimedia.org/wikipedia/commons...</a>
254	Maharashtra	West	<a href="https://www.whiskaffair.com/wp-content/uploads...">https://www.whiskaffair.com/wp-content/uploads...</a>

[255 rows x 10 columns]

df.shape

(255, 10)

df.nunique()

```
name          253
ingredients    250
diet           2
prep_time     22
cook_time     19
flavor_profile 5
course        4
state         25
region        7
img_url       248
dtype: int64
```

```
df.info()
```

```
<class 'pandas.core.frame.DataFrame'>
```

```
Index: 253 entries, 0 to 254
```

```
Data columns (total 10 columns):
```

#	Column	Non-Null Count	Dtype
0	name	253 non-null	object
1	ingredients	253 non-null	object
2	diet	253 non-null	object
3	prep_time	253 non-null	int64
4	cook_time	253 non-null	int64
5	flavor_profile	253 non-null	object
6	course	253 non-null	object
7	state	253 non-null	object
8	region	253 non-null	object
9	img_url	253 non-null	object

```
dtypes: int64(2), object(8)
```

```
memory usage: 21.7+ KB
```

```
df.describe()
```

	prep_time	cook_time
count	253.000000	253.000000
mean	31.154150	34.644269
std	72.827448	48.437326
min	-1.000000	-1.000000
25%	10.000000	20.000000
50%	10.000000	30.000000
75%	20.000000	40.000000
max	500.000000	720.000000

```
df.diet.unique()
```

```
array(['vegetarian', 'non vegetarian'], dtype=object)
```

```
df.flavor_profile.unique()
```

```

array(['sweet', 'spicy', 'bitter', 'Not Provided', 'sour'],
dtype=object)

df.course.unique()

array(['dessert', 'main course', 'snack', 'starter'], dtype=object)

df.region.unique()

array(['East', 'North', 'North East', 'West', 'South', 'Not Provided',
       'Central'], dtype=object)

k='state'
df.sort_values(by=k)

```

	name	ingredients
9	Ariselu	Rice flour, jaggery, ghee
197	Poornalu	Chana dal, jaggery
95	Kajjikaya	Rice flour, jaggery, coconut
198	Pootharekulu	Rice flour, powdered sugar, ghee
15	Bandar laddu	Besan, jaggery, cardamom powder, ghee, cashews...
..	...	...
218	Sandesh	Milk, sugar, saffron, cardamom
46	Chingri Bhape	Coconut, prawns, curd, mustard seed, green chili
41	Chicken razala	Chicken, dahi, sesame seeds, garam masala powd...
138	Ledikeni	Chhena, sugar, ghee
0	Adhirasam	Rice flour, jaggery, ghee, vegetable oil, elachi

	diet	prep_time	cook_time	flavor_profile	course
9	vegetarian	15	75	sweet	dessert
197	vegetarian	240	60	sweet	dessert
95	vegetarian	40	15	sweet	dessert
198	vegetarian	10	60	sweet	dessert
15	vegetarian	5	35	sweet	dessert

..	...	...	...	...	...
218	vegetarian	30	20	sweet	dessert
46	non vegetarian	15	30	Not Provided	main course
41	non vegetarian	10	35	spicy	main course
138	vegetarian	45	45	sweet	dessert
0	vegetarian	10	50	sweet	dessert

	state	region	
img_url			
9	Andhra Pradesh	South	<a href="https://www.crazymasalafood.com/wp-content/ima...">https://www.crazymasalafood.com/wp-content/ima...</a>
197	Andhra Pradesh	South	<a href="https://www.crazymasalafood.com/wp-content/ima...">https://www.crazymasalafood.com/wp-content/ima...</a>
95	Andhra Pradesh	South	
NaN			
198	Andhra Pradesh	South	<a href="https://crazymasalafood.com/wp-content/images/...">https://crazymasalafood.com/wp-content/images/...</a>
15	Andhra Pradesh	South	<a href="https://www.crazymasalafood.com/wp-content/ima...">https://www.crazymasalafood.com/wp-content/ima...</a>
..	...	...	
...			
218	West Bengal	East	<a href="https://www.crazymasalafood.com/wp-content/ima...">https://www.crazymasalafood.com/wp-content/ima...</a>
46	West Bengal	East	<a href="https://c.ndtvimg.com/2019-04/lad4i5qo_chingri...">https://c.ndtvimg.com/2019-04/lad4i5qo_chingri...</a>
41	West Bengal	East	<a href="https://c.ndtvimg.com/2018-11/kecu2hpg_bhatti-...">https://c.ndtvimg.com/2018-11/kecu2hpg_bhatti-...</a>
138	West Bengal	East	<a href="https://www.crazymasalafood.com/wp-content/ima...">https://www.crazymasalafood.com/wp-content/ima...</a>
0	West Bengal	East	<a href="https://www.crazymasalafood.com/wp-content/ima...">https://www.crazymasalafood.com/wp-content/ima...</a>

[255 rows x 10 columns]

```
pd.DataFrame(df.ingredients.str.split(',').sum()).value_counts()[:30]
```

sugar	44
ginger	29
garam masala	27
ghee	25
curry leaves	25
jaggery	17
urad dal	17
milk	15

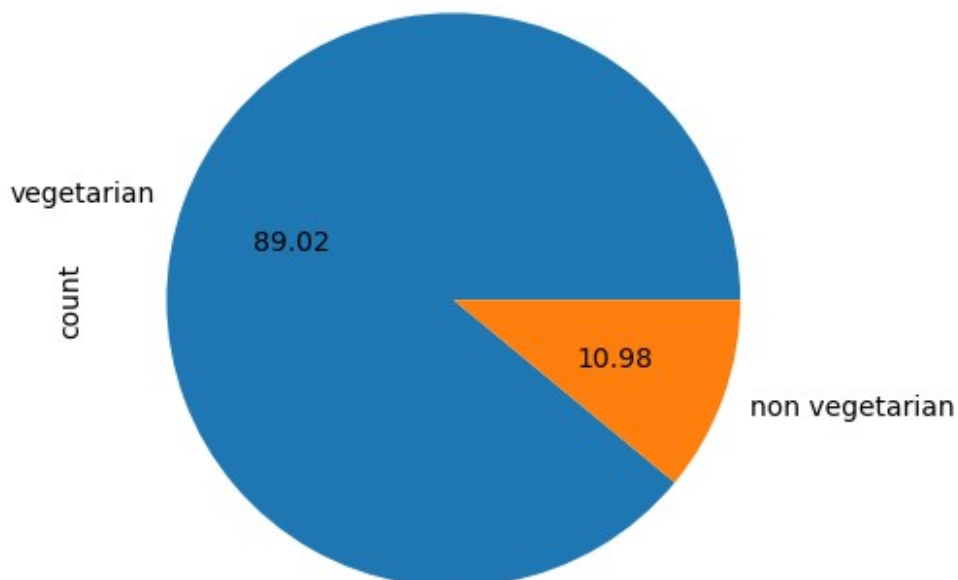


```

Rice flour      15
tomato          15
mustard oil     12
garam masala powder 12
Chana dal       11
sesame seeds    11
turmeric        10
saffron         10
Whole wheat flour 9
coconut         9
clarified butter 9
cardamom        9
mustard seeds   9
gram flour      9
Urad dal        8
potato          8
garlic          8
lemon juice     8
tomatoes        7
Moong dal       7
Wheat flour     7
butter          7
Name: count, dtype: int64

df.diet.value_counts().plot(kind='pie',autopct='%.2f')
<Axes: ylabel='count'>

```



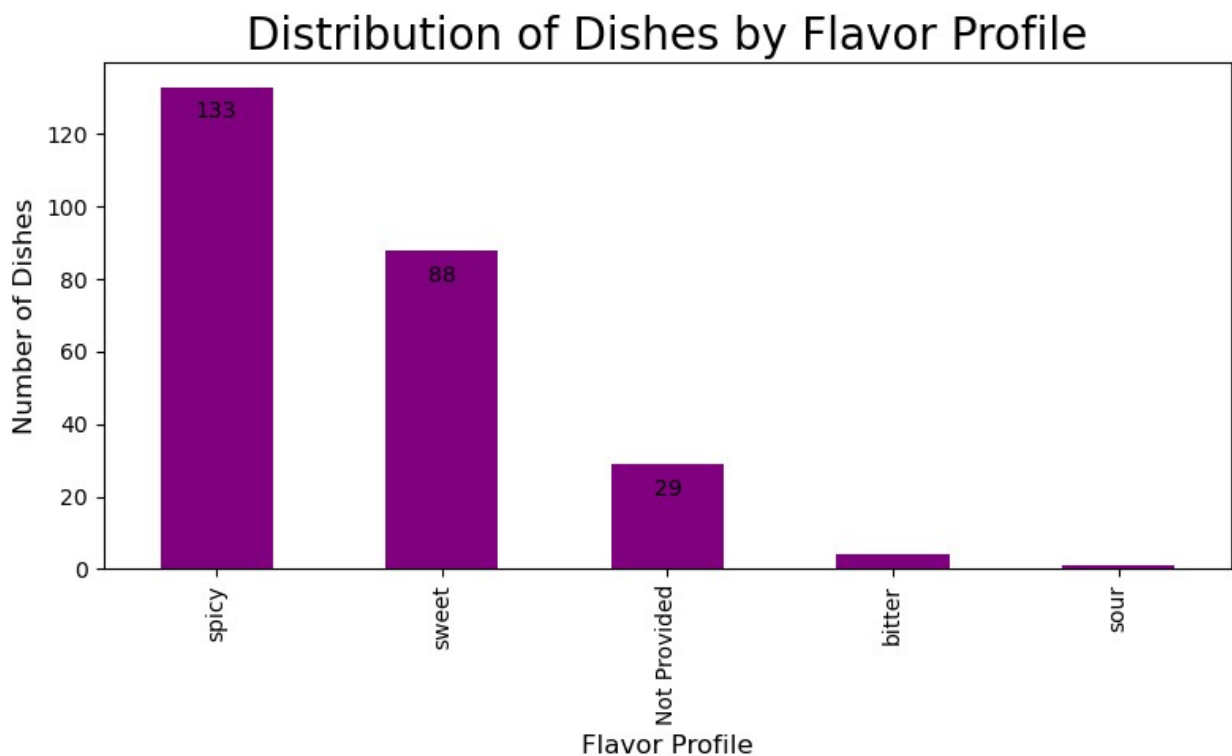
```

# Counting the number of dishes by flavor profile
flavor_counts = df['flavor_profile'].value_counts()

# Plotting the distribution by flavor profile
#sns.set_context("poster",font_scale = .4)
plt.figure(figsize=(8, 5))
flavor_counts.plot(kind='bar', color='purple')
plt.title('Distribution of Dishes by Flavor Profile', fontsize=20)
plt.xlabel('Flavor Profile',fontsize=12)
plt.ylabel('Number of Dishes',fontsize=12)
plt.xticks(rotation=90,fontsize=10)
#plt.grid(axis='y')
#plt.ylabel(fontsize=10)
#plt.grid(axis='y')
#plt.ylabel("Y-axis Label", fontsize=10)
#plt.ylabel("Y-axis Label", fontsize=10)

for p in plt.gca().patches:
    plt.annotate(int(p.get_height()), (p.get_x() + 0.25,
p.get_height() - 10), ha="center", va="bottom", color="black")
plt.tight_layout()
plt.show()

```



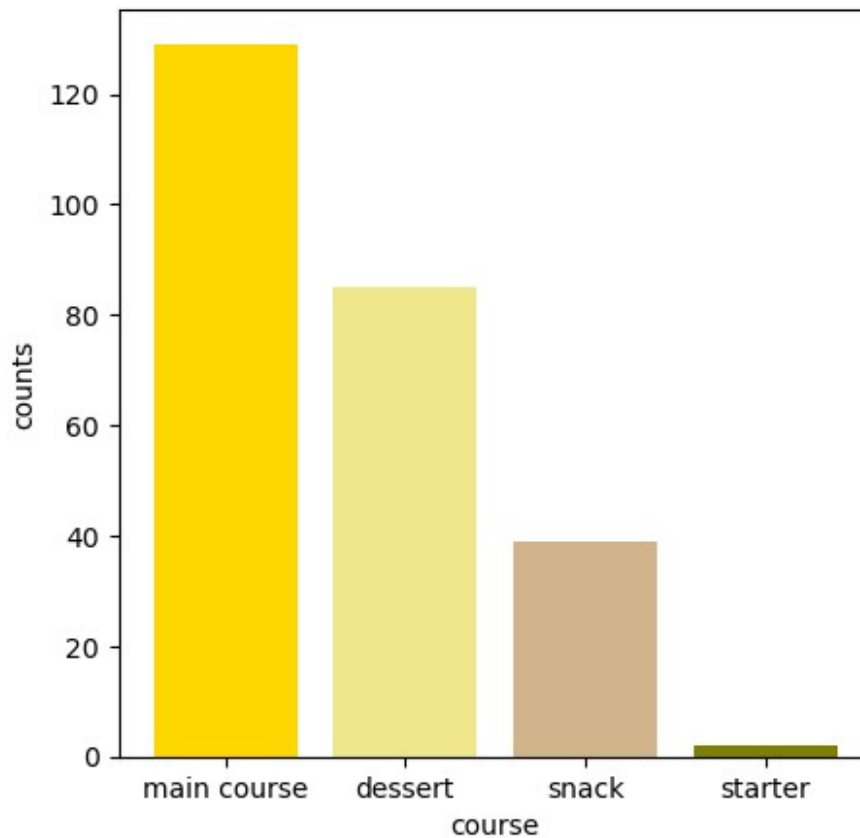
```

plt.figure(figsize=(5,5))
plt.xlabel("course")

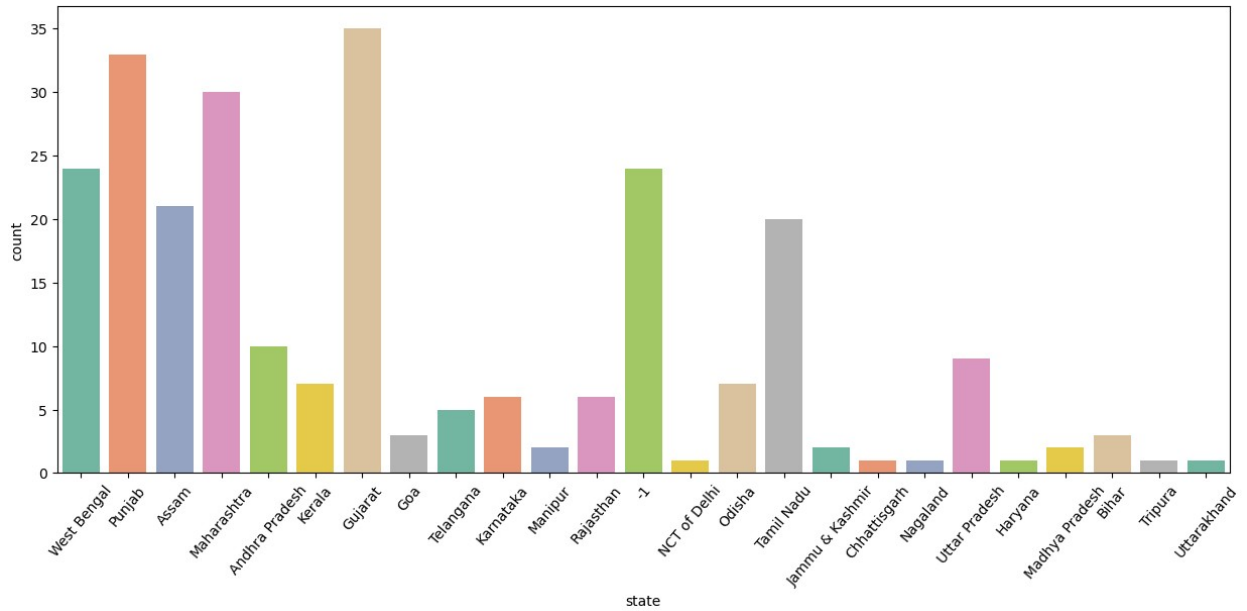
```

```
plt.ylabel('counts')
plt.bar(df.course.value_counts().index, df.course.value_counts(), color=
['gold', 'khaki', 'tan', 'olive'])
```

<BarContainer object of 4 artists>



```
plt.figure(figsize=(15, 6))
sns.countplot(df, x='state', palette='Set2')
plt.xticks(rotation=50)
plt.show()
```



```
import plotly.express as px

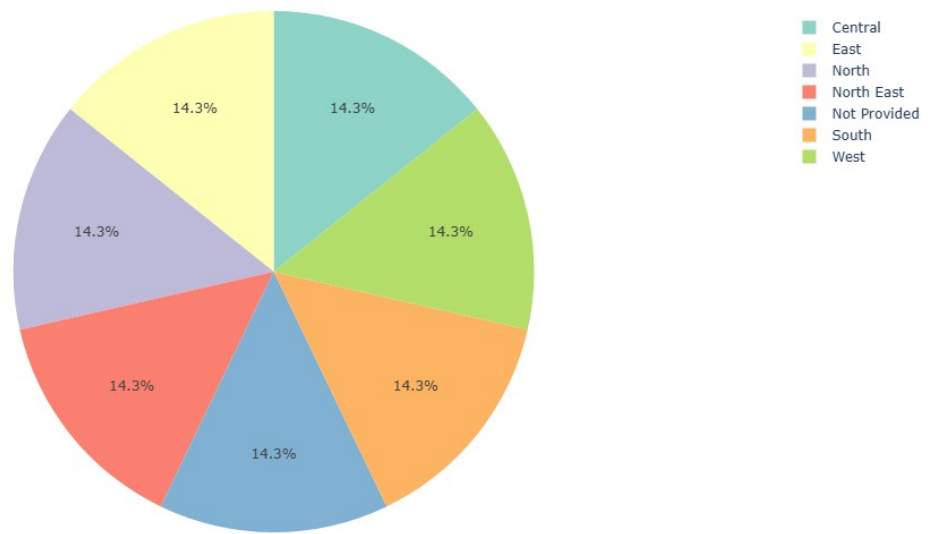
#plt.figure(figsize=(20,20))
df = df.groupby('region', as_index=False)['name'].count()
print(df)

#fig = px.pie(df, values='name', names='region')
fig = px.pie(df, values='name', names='region',
color_discrete_sequence=px.colors.qualitative.Set3)

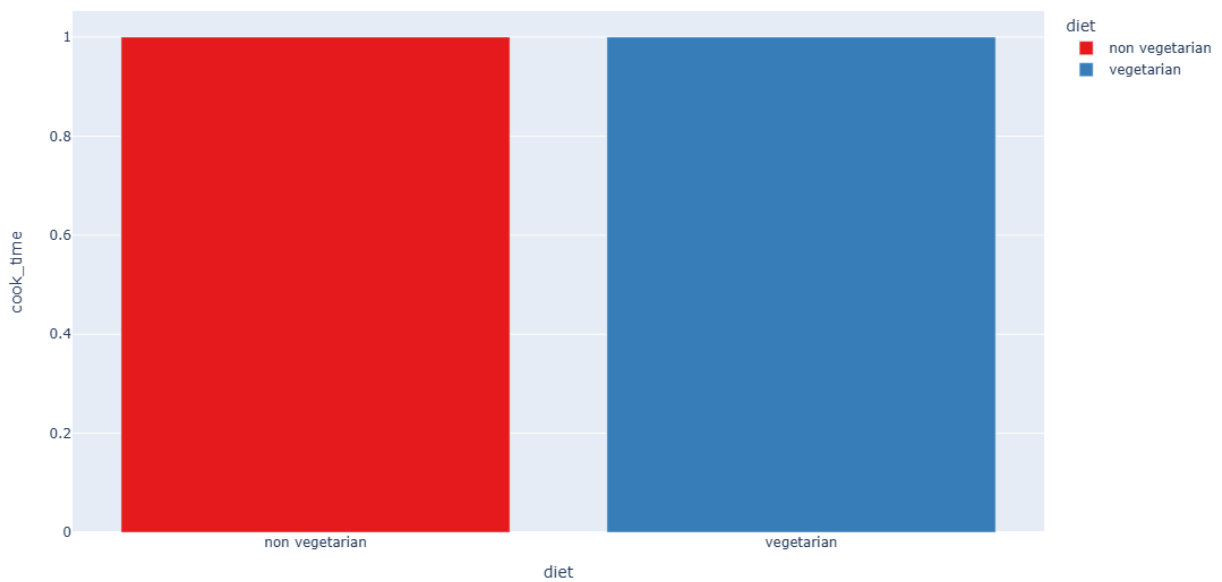
fig.update_layout(
    width=800, # Width of the figure
    height=600 # Height of the figure
)

fig.show()
```

	region	name
0	Central	1
1	East	1
2	North	1
3	North East	1
4	Not Provided	1
5	South	1
6	West	1



```
# If 'flavor_profile' exists, you can use it in the bar chart
fig = px.bar(df, x='diet', y='cook_time', color='diet',
color_discrete_sequence=px.colors.qualitative.Set1)
fig.update_layout(
    width=800,
    height=600 )
fig.show()
```

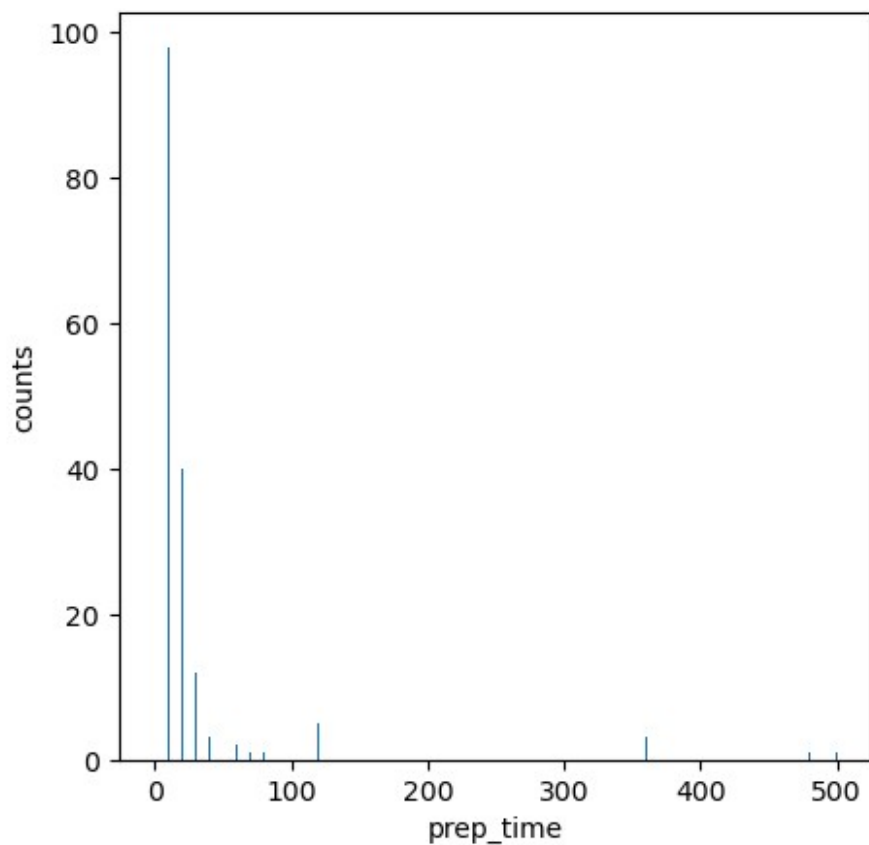


```
print(df.cook_time)
0    1
1    1
Name: cook_time, dtype: int64

print(df.diet)
0    non vegetarian
1     vegetarian
Name: diet, dtype: object

plt.figure(figsize=(5,5))
plt.xlabel("prep_time")
plt.ylabel('counts')
plt.bar(df.prep_time.value_counts().index,df.prep_time.value_counts())

<BarContainer object of 22 artists>
```



```
df.cook_time.value_counts()
```

```
cook_time
```

30	59
20	42
-1	28
40	27
60	22
45	15
25	13
50	10
35	9
10	7
90	7
15	5
120	3
5	3
75	1
6	1
2	1
720	1
55	1

```
Name: count, dtype: int64
```

```
plt.figure(figsize=(5,4))
plt.xlabel("cook_time")
plt.ylabel('counts')
plt.bar(df.cook_time.value_counts().index,df.cook_time.value_counts())
<BarContainer object of 19 artists>
```

