Unlocking Insights: Exploring Employee Salaries Across Industries

About Dataset

The dataset contains the following fields:

work_year: The year of employment. experience_level: The experience level of the employee (e.g., entry-level, mid-level, senior). employment_type: The type of employment (e.g., full-time, part-time, contract). job_title: The job title or position of the employee within the company. salary: The salary amount in the local currency. salary_currency: The currency in which the salary is denoted. salary_in_usd: The equivalent salary amount in USD (United States Dollars). employee_residence: The location of the employee's residence. remote_ratio: The percentage of remote work allowed for the position. company_location: The location of the company. company_size: The size of the company (e.g., small, medium, large).

```
import pandas as pd
import numpy as np
import seaborn as sns
import matplotlib.pyplot as plt
import plotly.express as px
df=pd.read_csv('ds salaries.csv')
df.head(5)
               work year experience level employment type
   Unnamed: 0
0
            0
                     2020
                                         ΜI
                                                          FT
1
            1
                     2020
                                         SE
                                                          FT
2
            2
                     2020
                                         SE
                                                          FT
3
            3
                     2020
                                         ΜI
                                                          FT
            4
                                         SE
4
                     2020
                                                          FT
                     job title salary salary currency
salary_in_usd
               Data Scientist
                                                                  79833
                                  70000
                                                     EUR
                                                     USD
   Machine Learning Scientist
                                260000
                                                                 260000
2
            Big Data Engineer
                                                     GBP
                                                                 109024
                                  85000
3
         Product Data Analyst
                                  20000
                                                     USD
                                                                  20000
                                                     USD
    Machine Learning Engineer
                                150000
                                                                 150000
  employee residence remote ratio company location company size
```

0	DE	0	DE	L
1	JP	0	JP	S
2	GB	50	GB	M
3	HN	0	HN	S
4	US	50	US	L
df describe()				

Unnamed: 0 work_year salary salary_in_usd remote ratio count 607.000000 607.000000 6.070000e+02 607.000000 607.00000 2021.405272 3.240001e+05 303.000000 112297.869852 mean 70.92257 175.370085 0.692133 1.544357e+06 70957.259411 std 40.70913 2020.000000 min 0.000000 4.000000e+03 2859.000000 0.00000 25% 2021.000000 151.500000 7.000000e+04 62726.000000 50.00000 50% 303.000000 2022.000000 1.150000e+05 101570.000000 100.00000 454.500000 2022.000000 75% 1.650000e+05 150000.000000 100.00000 606.000000 2022,000000 3.040000e+07 600000.000000 max 100.00000

df.info()

<class 'pandas.core.frame.DataFrame'>
RangeIndex: 607 entries, 0 to 606
Data columns (total 12 columns):

	0014		, .				
#	Column	Non	-Null Count	Dtype			
0	Unnamed: 0	607	non-null	int64			
1	work_year	607	non-null	int64			
2	experience_level	607	non-null	object			
3	employment_type	607	non-null	object			
4	job_title	607	non-null	object			
5	salary	607	non-null	int64			
6	salary_currency	607	non-null	object			
7	salary_in_usd	607	non-null	int64			
8	employee_residence	607	non-null	object			
9	remote_ratio	607	non-null	int64			
10	company_location	607	non-null	object			
11	company_size	607	non-null	object			
$\frac{1}{2}$							

dtypes: int64(5), object(7)
memory usage: 57.0+ KB

df.isna()

		work_year ex	xperience_level	employment_type
job_title 0 False	e \ False	False	False	False
1 False	False	False	False	False
2 False	False	False	False	False
3 False	False	False	False	False
4 False	False	False	False	False
		- 1		
602 False	False	False	False	False
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False	arv sal	ary currency	salary in usd	employee_residence
remote_ra		False	False	False
	lse	False	False	False
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	lse	False	False	False
	lse	False	False	False
602 Fa [·] False		F_1	F_1	Ealco
	lse	False	False	False
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[607 rd	ows x 12 co	lumns]		
df.isnu	ıll()			
Un job tit		work_year e	xperience_level	employment_type
0 False	False	False	False	False
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3 False	False	False	False	False
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603 False	False	False	False	False
604 False	False	False	False	False
605 False	False	False	False	False
606 False	False	False	False	False
	alary sala ratio \	ry_currency	salary_in_usd	employee_residence
	alse	False	False	False
	alse	False	False	False
	alse	False	False	False

False	False					
## False False False False False	3	False	False		False	False
	4	False	False		False	False
False Company_location False						
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False 604 False False False False 605 False False False False 606 False False 606 False False False False 607 False False False 608 False False 609 False False 609 False False 600 False Fals	False					
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605 False False False False False 606 False False False False 607 False Company_location company_size 0 False False 1 False False 1 False False 2 False False 3 False False 4 False False 602 False False 603 False False 604 False False 605 False False 606 False False 607 rows x 12 columns] df.isnull().sum() Unnamed: 0 0 work_year 0 experience_level 0 employment_type 0 job_title 0 salary 0 salary_currency 0 salary_in_usd 0 employee_residence 0 remote_ratio 0 company_location 0 company_size 0 dtype: int64	604	False	False		False	False
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False company_location company_size false Fals		False	False		False	False
False		. 4.55	. 4.50			rates
1 False False 2 False False 3 False False 4 False False 4 False False 5						
4 False	0 1					
4 False	2	False		False		
602 False False 603 False False 604 False False 605 False False 606 False False [607 rows x 12 columns] df.isnull().sum() Unnamed: 0 0 0 work_year 0 experience_level 0 employment_type 0 job_title 0 salary 0 salary_currency 0 salary_in_usd 0 employee_residence 0 remote_ratio 0 company_location 0 company_size 0 dtype: int64	3 4					
603 False False 604 False False 605 False False 606 False False [607 rows x 12 columns] df.isnull().sum() Unnamed: 0 0 work_year 0 experience_level 0 employment_type 0 job_title 0 salary 0 salary_currency 0 salary_in_usd 0 employee_residence 0 remote_ratio 0 company_location 0 company_size 0 dtype: int64						
604 False False 605 False False 606 False False [607 rows x 12 columns] df.isnull().sum() Unnamed: 0						
[607 rows x 12 columns] df.isnull().sum() Unnamed: 0						
<pre>[607 rows x 12 columns] df.isnull().sum() Unnamed: 0</pre>						
<pre>df.isnull().sum() Unnamed: 0</pre>	606	False		False		
Unnamed: 0 0 0 work_year 0 experience_level 0 employment_type 0 job_title 0 salary 0 salary_currency 0 salary_in_usd 0 employee_residence 0 remote_ratio 0 company_location 0 company_size 0 dtype: int64	[607]	rows x 12 columns]			
work_year 0 experience_level 0 employment_type 0 job_title 0 salary 0 salary_currency 0 salary_in_usd 0 employee_residence 0 remote_ratio 0 company_location 0 company_size 0 dtype: int64	df.is	null(). <mark>sum(</mark>)				
experience_level 0 employment_type 0 job_title 0 salary 0 salary_currency 0 salary_in_usd 0 employee_residence 0 remote_ratio 0 company_location 0 company_size 0 dtype: int64	Unname	ed: 0	0			
employment_type 0 job_title 0 salary 0 salary_currency 0 salary_in_usd 0 employee_residence 0 remote_ratio 0 company_location 0 company_size 0 dtype: int64						
job_title 0 salary 0 salary_currency 0 salary_in_usd 0 employee_residence 0 remote_ratio 0 company_location 0 company_size 0 dtype: int64						
<pre>salary salary_currency 0 salary_in_usd 0 employee_residence 0 remote_ratio 0 company_location 0 company_size 0 dtype: int64</pre>	iob t	itle				
salary_in_usd 0 employee_residence 0 remote_ratio 0 company_location 0 company_size 0 dtype: int64	salary	У	0			
employee_residence 0 remote_ratio 0 company_location 0 company_size 0 dtype: int64						
remote_ratio 0 company_location 0 company_size 0 dtype: int64						
company_size 0 dtype: int64						
dtype: int64	compar	ny_location				
	compar	Ny_S1ZE : in+64	U			
df.clip()						
	dt.cl:	1p()				

0 1 2 3 4 602 603 604 605	0 2 1 2 2 2 3 4 2 602 2 603 2 604 2	year exper 2020 2020 2020 2020 2020 2022 2022	ience_le	evel employ MI SE SE MI SE SE SE SE SE SE SE SE	ment_t	ype \ FT FT FT FT FT FT FT FT FT
606	606 2	2022		MI		FT
\	j	job_title	salary	salary_cur	rency	salary_in_usd
ò	Data S	Scientist	70000		EUR	79833
1	Machine Learning S	Scientist	260000		USD	260000
2	Big Data	Engineer	85000		GBP	109024
3	Product Data	a Analyst	20000		USD	20000
4	Machine Learning	Engineer	150000		USD	150000
602	Data	Engineer	154000		USD	154000
603	Data	Engineer	126000		USD	126000
604	Data	a Analyst	129000		USD	129000
605	Data	a Analyst	150000		USD	150000
606	AI S	Scientist	200000		USD	200000
	employee_residence			npany_locat		
0 1	DE JP	_	0 0	. ,_	DE JP	L S
2 3 4	GB		50		GB	M
4	HN US		0 50		HN US	S L
602 603 604	US US US		100 100 0		US US US	 M M M
605 606	US IN		100 100		US US	M L

```
[607 rows x 12 columns]
df.shape
(607, 12)
df.columns
Index(['Unnamed: 0', 'work_year', 'experience_level',
'employment type'
       'job_title', 'salary', 'salary_currency', 'salary_in_usd',
       'employee_residence', 'remote_ratio', 'company_location',
       'company_size'],
      dtype='object')
df.isna().any()
Unnamed: 0
                       False
                       False
work year
experience level
                       False
employment type
                       False
job title
                       False
salary
                       False
salary_currency
                       False
salary in usd
                       False
employee_residence
                       False
remote ratio
                       False
company location
                       False
company size
                       False
dtype: bool
df.duplicated()
0
       False
       False
1
2
       False
3
       False
4
       False
       . . .
602
       False
603
       False
       False
604
605
       False
       False
606
Length: 607, dtype: bool
# Set 'Unnamed: 0' as the index column
df.set index('Unnamed: 0', inplace=True)
# Rename the index column to 'ID'
```

```
df.index.name = 'number'
# Display the DataFrame with the renamed index column
print(df)
        work year experience level employment type \
number
                                  ΜI
                                                  FT
             2020
1
             2020
                                  SE
                                                  FT
2
                                  SE
             2020
                                                  FT
3
             2020
                                  ΜI
                                                  FT
4
             2020
                                  SE
                                                  FT
                                 . . .
                                                  . . .
602
             2022
                                  SE
                                                  FT
603
             2022
                                  SE
                                                  FT
                                  SE
604
             2022
                                                  FT
                                  SE
                                                  FT
605
             2022
             2022
                                  ΜI
                                                  FT
606
                          job_title salary_salary_currency
salary in usd \
number
0
                     Data Scientist
                                       70000
                                                          EUR
79833
                                                          USD
        Machine Learning Scientist
                                      260000
260000
                  Big Data Engineer
                                       85000
                                                          GBP
109024
              Product Data Analyst
                                                          USD
3
                                       20000
20000
         Machine Learning Engineer 150000
                                                          USD
150000
. . .
602
                      Data Engineer 154000
                                                          USD
154000
                      Data Engineer 126000
                                                          USD
603
126000
604
                       Data Analyst 129000
                                                          USD
129000
                       Data Analyst 150000
                                                          USD
605
150000
                                                          USD
606
                       AI Scientist 200000
200000
       employee residence remote ratio company location company size
number
```

0	DE	0	DE	L		
1	JP	0	JP	S		
2	GB	50	GB	М		
3	HN	0	HN	S		
4	US	50	US	L		
602	US	100	US	М		
603	US	100	US	М		
604	US	0	US	М		
605	US	100	US	М		
606	IN	100	US	L		
[607 rows x 11 columns]						
df.head(5)						
<pre>work_year experience_level employment_type \ number</pre>						

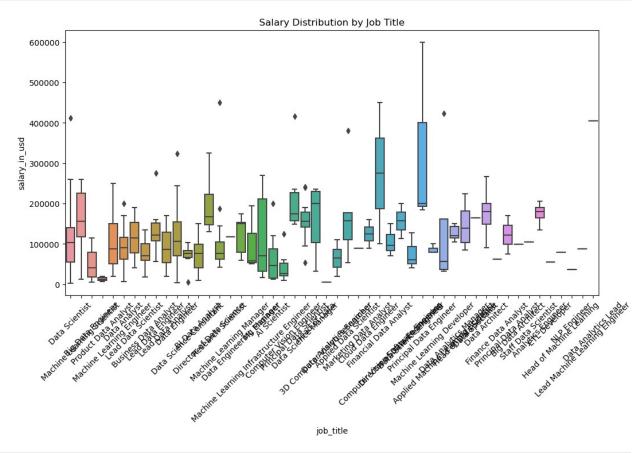
	work_year experi	ence_tevet	employme	ent_type	1
number					
0	2020	MI		FT	
1	2020	SE		FT	
2	2020	SE		FT	
2	2020	MI		FT	
4	2020	SE		FT	
•	2020	32			
		<pre>job_title</pre>	salarv	salarv c	urrencv
salarv	in usd \	,	· · ·		,
number					
Tramber					
0	Data	Scientist	70000		EUR
79833	2 0. 00.	0000	, , , ,		
1	Machine Learning	Scientist	260000		USD
260000					
2	Big Dat	a Engineer	85000		GBP
109024	219 241	a Liighiicei	05000		02.
3	Product Da	ta Analyst	20000		USD
20000	Troduct bu	ca macyse	20000		035
4	Machine Learnin	a Engineer	150000		USD
150000	riaciiiie Leariiiii	g Liigineei	130000		030
130000					

employee_residence remote_ratio company_location company_size

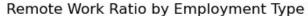
```
number
                        DE
                                                         DE
                                                                        L
                        JP
                                                         JP
                                                                        S
1
2
                        GB
                                       50
                                                         GB
                                                                        M
                        HN
                                        0
                                                         HN
                                                                        S
                        US
                                       50
                                                         US
                                                                        L
currency_counts = df['salary_currency'].value_counts()
print(currency counts)
salary_currency
USD
       398
EUR
        95
GBP
        44
INR
        27
CAD
        18
JPY
         3
         3
PLN
TRY
         3
CNY
         2
         2
MXN
         2
HUF
         2
DKK
         2
SGD
         2
BRL
         2
AUD
CLP
         1
CHF
         1
Name: count, dtype: int64
job_title = df['job_title'].value_counts()
print(job_title)
job_title
Data Scientist
                                              143
                                              132
Data Engineer
Data Analyst
                                               97
Machine Learning Engineer
                                               41
Research Scientist
                                               16
Data Science Manager
                                               12
Data Architect
                                               11
Big Data Engineer
                                                8
Machine Learning Scientist
                                                8
Principal Data Scientist
                                                7
```

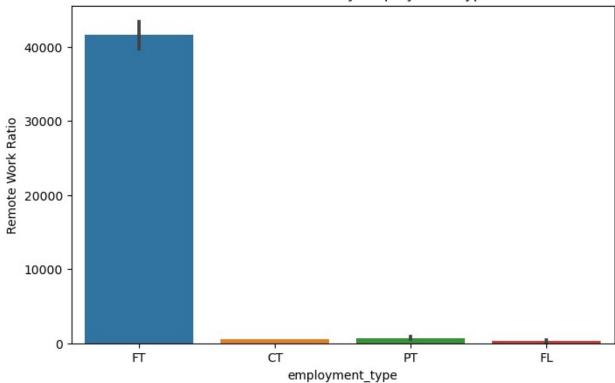
```
AI Scientist
                                                7
Data Science Consultant
                                                7
Director of Data Science
                                                7
Data Analytics Manager
                                                7
ML Engineer
                                                6
Computer Vision Engineer
                                                6
                                                6
BI Data Analyst
Lead Data Engineer
                                                5
Data Engineering Manager
                                                5
Business Data Analyst
                                                5
Head of Data
Applied Data Scientist
Applied Machine Learning Scientist
                                                4
Head of Data Science
Analytics Engineer
                                                4
                                                4
Data Analytics Engineer
                                                3
Machine Learning Developer
                                                3
Machine Learning Infrastructure Engineer
                                                3
Lead Data Scientist
Computer Vision Software Engineer
                                                3
                                                3
Lead Data Analyst
                                                3
Data Science Engineer
                                                3
Principal Data Engineer
                                               2
Principal Data Analyst
                                                2
ETL Developer
                                               2
Product Data Analyst
Director of Data Engineering
                                                2
                                                2
Financial Data Analyst
                                                2
Cloud Data Engineer
Lead Machine Learning Engineer
                                                1
                                                1
NLP Engineer
Head of Machine Learning
                                                1
                                                1
3D Computer Vision Researcher
Data Specialist
                                                1
Staff Data Scientist
                                                1
Big Data Architect
                                                1
Finance Data Analyst
                                                1
                                                1
Marketing Data Analyst
Machine Learning Manager
                                                1
Data Analytics Lead
Name: count, dtype: int64
avg sal=df['salary in usd'].mean()
print("Average salary in USD: ",avg sal)
Average salary in USD: 112297.86985172982
# Salary distribution by job title
plt.figure(figsize=(12, 6))
sns.boxplot(x='job_title', y='salary_in_usd', data=df)
```

```
plt.xticks(rotation=45)
plt.title('Salary Distribution by Job Title')
plt.show()
```

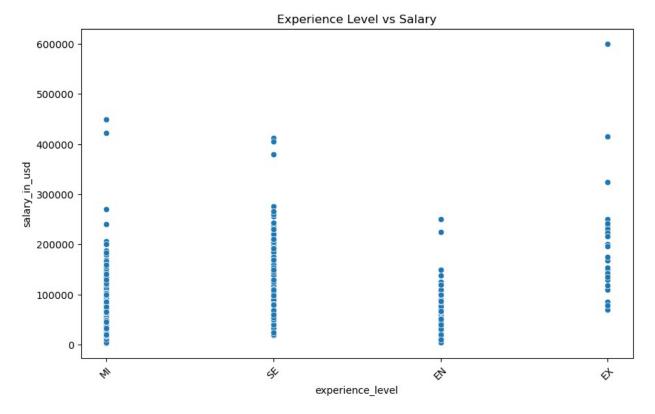


```
# Remote work ratio by employment type
plt.figure(figsize=(8, 5))
sns.barplot(x='employment_type', y='remote_ratio', data=df,
estimator=sum)
plt.title('Remote Work Ratio by Employment Type')
plt.ylabel('Remote Work Ratio')
plt.show()
```



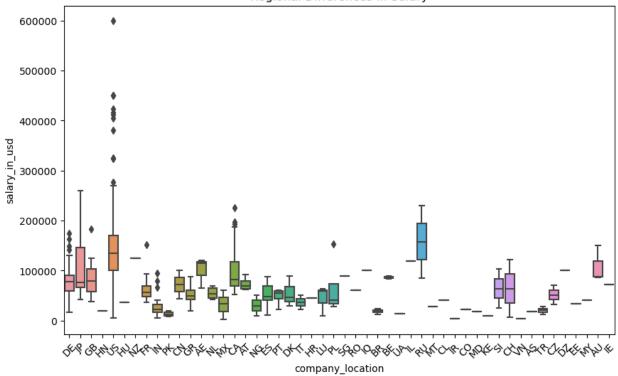


```
# Scatter plot of experience level vs salary
plt.figure(figsize=(10, 6))
sns.scatterplot(x='experience_level', y='salary_in_usd', data=df)
plt.title('Experience Level vs Salary')
plt.xticks(rotation=45)
plt.show()
```

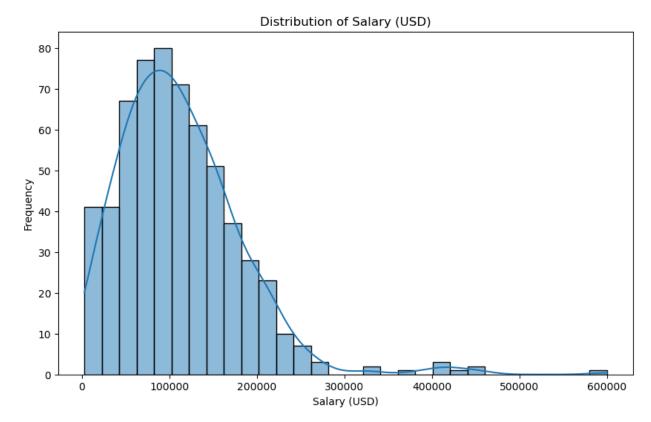


```
# Regional differences in salary
plt.figure(figsize=(10, 6))
sns.boxplot(x='company_location', y='salary_in_usd', data=df)
plt.title('Regional Differences in Salary')
plt.xticks(rotation=45)
plt.show()
```

Regional Differences in Salary

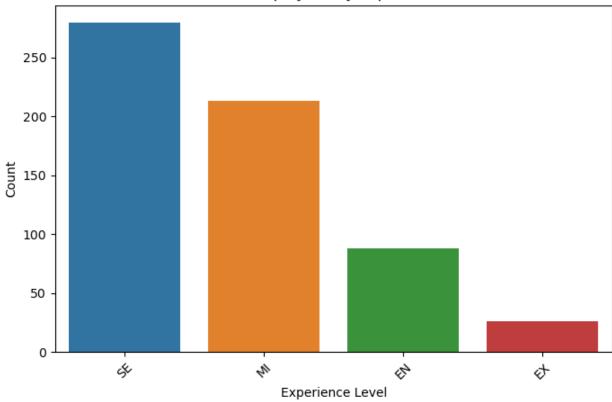


```
# Histogram of salary distribution
plt.figure(figsize=(10, 6))
sns.histplot(df['salary_in_usd'], bins=30, kde=True)
plt.title('Distribution of Salary (USD)')
plt.xlabel('Salary (USD)')
plt.ylabel('Frequency')
plt.show()
```



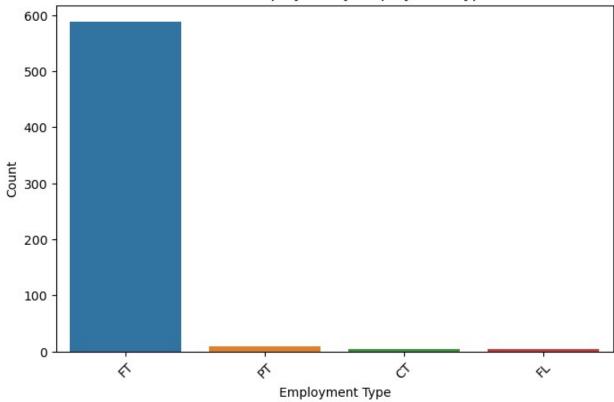
```
# Bar plot of experience levels
plt.figure(figsize=(8, 5))
sns.countplot(x='experience_level', data=df,
order=df['experience_level'].value_counts().index)
plt.title('Count of Employees by Experience Level')
plt.xlabel('Experience Level')
plt.ylabel('Count')
plt.xticks(rotation=45)
plt.show()
```

Count of Employees by Experience Level



```
# Bar plot of employment types
plt.figure(figsize=(8, 5))
sns.countplot(x='employment_type', data=df,
order=df['employment_type'].value_counts().index)
plt.title('Count of Employees by Employment Type')
plt.xlabel('Employment Type')
plt.ylabel('Count')
plt.xticks(rotation=45)
plt.show()
```

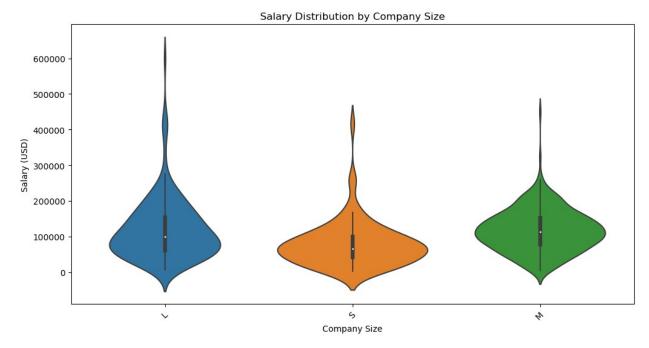
Count of Employees by Employment Type



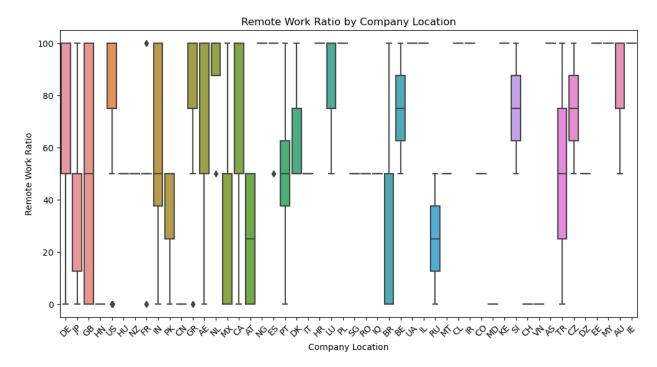
```
# Scatter plot of salary vs work experience
plt.figure(figsize=(10, 6))
sns.scatterplot(x='work_year', y='salary_in_usd', data=df)
plt.title('Salary vs Work Experience')
plt.xlabel('Work Experience (years)')
plt.ylabel('Salary (USD)')
plt.show()
```



```
# Violin plot of salary distribution by company size
plt.figure(figsize=(12, 6))
sns.violinplot(x='company_size', y='salary_in_usd', data=df)
plt.title('Salary Distribution by Company Size')
plt.xlabel('Company Size')
plt.ylabel('Salary (USD)')
plt.xticks(rotation=45)
plt.show()
```



```
# Box plot of remote work ratio by company location
plt.figure(figsize=(12, 6))
sns.boxplot(x='company_location', y='remote_ratio', data=df)
plt.title('Remote Work Ratio by Company Location')
plt.xlabel('Company Location')
plt.ylabel('Remote Work Ratio')
plt.xticks(rotation=45)
plt.show()
```



```
# Line plot of average salary over work years
avg_salary_by_year = df.groupby('work_year')['salary_in_usd'].mean()
plt.figure(figsize=(10, 6))
avg_salary_by_year.plot(kind='line', marker='o', linestyle='-',
color='b')
plt.title('Average Salary Trend Over Work Years')
plt.xlabel('Work Years')
plt.ylabel('Average Salary (USD)')
plt.xticks(rotation=45)
plt.grid(True)
plt.show()
```



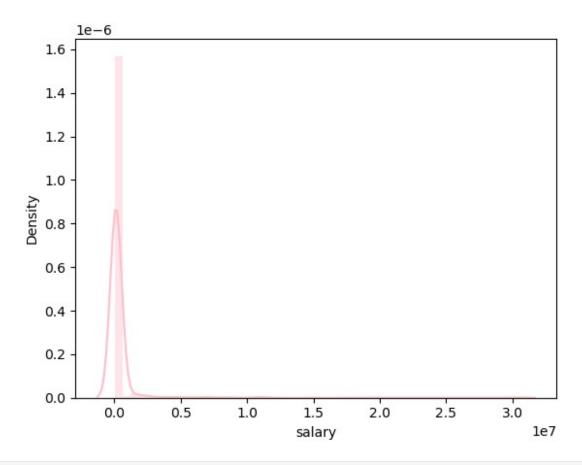
Applied Machine Learning Scientist BI Data Analyst Big Data Engineer Business Data Analyst Cloud Data Engineer Computer Vision Engineer Computer Vision Software Engineer Data Analyst Data Analytics Engineer Data Analytics Lead Data Analytics Manager Data Engineer Data Engineer Data Engineer Data Engineer Data Science Consultant Data Science Engineer Data Science Manager Data Science Manager Data Scientist Data Specialist Director of Data Engineering Director of Data Engineering Director of Data Science ETL Developer Finance Data Analyst Financial Data Analyst Head of Data Head of Data Head of Data Science	423000 150000 99703 114047 135000 160000 125000 150000 200000 110000 405000 150260 266400 324000 174000 103000 127221 241000 412000 165000 200000 325000 54957 61896 450000 235000 224000 79039
Head of Machine Learning Lead Data Analyst Lead Data Engineer Lead Data Scientist Lead Machine Learning Engineer ML Engineer Machine Learning Developer Machine Learning Engineer	79039 170000 276000 190000 87932 270000 100000 250000
Machine Learning Infrastructure Engineer Machine Learning Manager Machine Learning Scientist Marketing Data Analyst NLP Engineer Principal Data Analyst Principal Data Engineer Principal Data Scientist Product Data Analyst	195000 117104 260000 88654 37236 170000 600000 416000 20000
Research Scientist Staff Data Scientist Name: salary_in_usd, dtype: int64	450000 105000

Group by job title and find the maximum salary within each group
max_salary = df['salary_in_usd'].max()

```
# Display the highest salary for each job title
print(max salary)
600000
# Group by job title and find the maximum salary within each group
max_salary_by_job_title = df.groupby('job title')
['salary in usd'].max()
# Determine the highest paying job title and corresponding maximum
salarv
highest paying job title = max salary by job title.idxmax()
highest salary = max salary by job title.max()
# Display the highest paying job title and maximum salary
print(f"The highest paying job title is '{highest paying job title}'
with a maximum salary of ${highest salary}")
The highest paying job title is 'Principal Data Engineer' with a
maximum salary of $600000
# Group by job title and calculate the mean salary within each group
mean salary by job title = df.groupby('job title')
['salary in usd'].mean()
mean_salary_integers = mean_salary_by_job_title.astype(int)
print(mean salary integers)
iob title
3D Computer Vision Researcher
                                               5409
AI Scientist
                                             66135
Analytics Engineer
                                             175000
Applied Data Scientist
                                             175655
Applied Machine Learning Scientist
                                             142068
BI Data Analyst
                                             74755
Big Data Architect
                                             99703
Big Data Engineer
                                             51974
Business Data Analyst
                                             76691
Cloud Data Engineer
                                            124647
Computer Vision Engineer
                                             44419
Computer Vision Software Engineer
                                            105248
Data Analyst
                                             92893
Data Analytics Engineer
                                             64799
Data Analytics Lead
                                            405000
Data Analytics Manager
                                             127134
Data Architect
                                             177873
Data Engineer
                                             112725
Data Engineering Manager
                                             123227
Data Science Consultant
                                             69420
Data Science Engineer
                                             75803
Data Science Manager
                                             158328
```

```
Data Scientist
                                             108187
Data Specialist
                                             165000
Director of Data Engineering
                                             156738
Director of Data Science
                                             195074
ETL Developer
                                             54957
Finance Data Analyst
                                             61896
Financial Data Analyst
                                            275000
Head of Data
                                            160162
Head of Data Science
                                            146718
Head of Machine Learning
                                             79039
Lead Data Analyst
                                             92203
Lead Data Engineer
                                            139724
Lead Data Scientist
                                            115190
Lead Machine Learning Engineer
                                             87932
ML Engineer
                                             117504
Machine Learning Developer
                                             85860
Machine Learning Engineer
                                             104880
Machine Learning Infrastructure Engineer
                                             101145
Machine Learning Manager
                                             117104
Machine Learning Scientist
                                            158412
Marketing Data Analyst
                                             88654
NLP Engineer
                                             37236
Principal Data Analyst
                                            122500
Principal Data Engineer
                                            328333
Principal Data Scientist
                                            215242
Product Data Analyst
                                             13036
Research Scientist
                                            109019
Staff Data Scientist
                                            105000
Name: salary in usd, dtype: int32
sns.distplot(df['salary'],color='pink')
C:\Users\1006y\AppData\Local\Temp\ipykernel 12748\1896827555.py:1:
UserWarning:
`distplot` is a deprecated function and will be removed in seaborn
v0.14.0.
Please adapt your code to use either `displot` (a figure-level
function with
similar flexibility) or `histplot` (an axes-level function for
histograms).
For a quide to updating your code to use the new functions, please see
https://gist.github.com/mwaskom/de44147ed2974457ad6372750bbe5751
  sns.distplot(df['salary'],color='pink')
```

<Axes: xlabel='salary', ylabel='Density'>



```
# Calculate mean salary by job title
mean salary by job title = df.groupby('job title')
['salary_in_usd'].mean().reset index()
# Create an interactive bar chart using Plotly Express
fig = px.bar(mean salary by job title, x='job title',
y='salary_in_usd', title='Mean Salary by Job Title',
              labels={'job_title': 'Job Title', 'salary in usd': 'Mean
Salary (USD)'})
# Show the interactive plot
fig.show()
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Data Engineer", "Computer Vision Engineer", "Computer Vision Software
Engineer", "Data Analyst", "Data Analytics Engineer", "Data Analytics
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Engineering Manager", "Data Science Consultant", "Data Science
Engineer","Data Science Manager","Data Scientist","Data
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Analyst", "Head of Data", "Head of Data Science", "Head of Machine
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# Grouping by company size, job title, and calculating mean salary
company size analysis = df.groupby(['company size', 'job title'])
['salary_in_usd'].mean().reset_index()
# Displaying the company size-wise analysis
print(company size analysis)
                                             job_title
   company_size
                                                        salary in usd
0
                                         AI Scientist
                                                             127500.00
1
               L
                               Applied Data Scientist
                                                             175655.00
2
                  Applied Machine Learning Scientist
                                                             249000.00
               L
3
                                      BI Data Analyst
                                                              93129.50
4
                                    Big Data Engineer
                                                              28680.25
               L
93
              S
                          Machine Learning Scientist
                                                             190000.00
94
              S
                               Principal Data Analyst
                                                              75000.00
               S
95
                             Principal Data Scientist
                                                             416000.00
               S
                                 Product Data Analyst
96
                                                              20000.00
97
               S
                                   Research Scientist
                                                              53369.00
[98 rows x 3 columns]
# Grouping by company size and finding maximum and minimum salary
company size salary stats = df.groupby('company size')
['salary_in_usd'].agg(['max', 'min']).reset_index()
# Displaying the maximum and minimum salary for each company size
print(company size salary stats)
  company size
                          min
                    max
0
                 600000
                         5882
             L
1
             M 450000
                         4000
2
             S
                 416000
                         2859
# Grouping by company size and job title, and finding minimum and
maximum salary
company size job salary stats = df.groupby(['company size',
'job title'])['salary in usd'].agg(['min', 'max']).reset index()
# Finding the job titles with minimum salary for each company size
min salary jobs =
company_size_job_salary_stats.loc[company_size_job_salary_stats.groupb
y('company size')['min'].idxmin()]
```

```
# Finding the job titles with maximum salary for each company size
max salary jobs =
company_size_job_salary_stats.loc[company_size job salary stats.groupb
y('company size')['max'].idxmax()]
# Displaying the job titles with minimum and maximum salary for each
company size
print("Job Titles with Minimum Salary for Each Company Size:")
print(min_salary_jobs)
print("\n")
print("\nJob Titles with Maximum Salary for Each Company Size:")
print(max salary jobs)
Job Titles with Minimum Salary for Each Company Size:
                                                                                                  job title
            company size
                                                                                                                                                 min
                                                                                                                                                                                 max
4
                                                       L
                                                                   Big Data Engineer
                                                                                                                                             5882
                                                                                                                                                                          70000
53
                                                       М
                                                                                  Data Engineer
                                                                                                                                             4000
                                                                                                                                                                     324000
                                                       S
                                                                               Data Scientist
84
                                                                                                                                             2859
                                                                                                                                                                    105000
Job Titles with Maximum Salary for Each Company Size:
                                                                                                                              iob title
            company size
                                                                                                                                                                                    min
                                                                                                                                                                                                                    max
35
                                                       L
                                                                       Principal Data Engineer
                                                                                                                                                                         185000
                                                                                                                                                                                                         600000
72
                                                       М
                                                                                           Research Scientist
                                                                                                                                                                             62649
                                                                                                                                                                                                         450000
95
                                                       S
                                                                   Principal Data Scientist 416000
                                                                                                                                                                                                        416000
import plotly.express as px
fig = px.pie(df, names='salary currency', title='Distribution of
Salary Currency')
fig.show()
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Meaningfull insights from the project

Insights:

- 1. Salary Distribution by Job Title:
 - Data Scientist, Data Engineer, and Data Analyst are the most common job titles.
 - There are specialized roles like AI Scientist, Research Scientist, and Machine Learning Engineer with fewer occurrences but potentially higher salaries.

2. Remote Work Ratio by Employment Type:

 Full-time positions have higher remote work ratios compared to part-time or contract positions.

3. Salary Trends:

- The average salary is approximately \$112,298 USD.
- The salary varies significantly based on job title, experience level, and company size.

4. Regional Differences in Salary:

There are differences in salaries based on the location of the company.

5. Company Size Impact on Salary:

- Larger companies tend to offer higher maximum salaries compared to smaller companies.
- Job titles like Principal Data Engineer, Principal Data Scientist, and Research Scientist have high salary ranges.

6. **Insights from Pie Charts:**

- Most salaries are denoted in USD, indicating that the dataset is likely dominated by companies or employees in countries where USD is a common currency.
- Mid-level experience is the most prevalent among employees in the dataset.
- Medium-sized companies have the highest representation in the dataset, followed by small and large companies.

These insights provide a comprehensive understanding of the salary landscape across industries, experience levels, and company sizes based on the provided dataset.