

```

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

df = pd.read_csv("Ai_impact_on_jobs_2030.csv")

df.head()

      Job_Title  Average_Salary  Years_Experience
Education_Level \
0       Security Guard           45795                  28
Master's
1       Research Scientist        133355                  20
PhD
2       Construction Worker      146216                  2     High
School
3       Software Engineer         136530                  13
PhD
4       Financial Analyst        70397                   22     High
School

      AI_Exposure_Index  Tech_Growth_Factor  Automation_Probability_2030
\
0             0.18                 1.28                  0.85
1             0.62                 1.11                  0.05
2             0.86                 1.18                  0.81
3             0.39                 0.68                  0.60
4             0.52                 1.46                  0.64

      Risk_Category  Skill_1  Skill_2  Skill_3  Skill_4  Skill_5  Skill_6
\
0          High      0.45    0.10    0.46    0.33    0.14    0.65
1          Low       0.02    0.52    0.40    0.05    0.97    0.23
2          High      0.01    0.94    0.56    0.39    0.02    0.23
3          Medium     0.43    0.21    0.57    0.03    0.84    0.45
4          Medium     0.75    0.54    0.59    0.97    0.61    0.28

      Skill_7  Skill_8  Skill_9  Skill_10
0      0.06     0.72     0.94      0.00
1      0.09     0.62     0.38      0.98

```

2	0.24	0.68	0.61	0.83
3	0.40	0.93	0.73	0.33
4	0.30	0.17	0.02	0.42

Job Risk Distribution

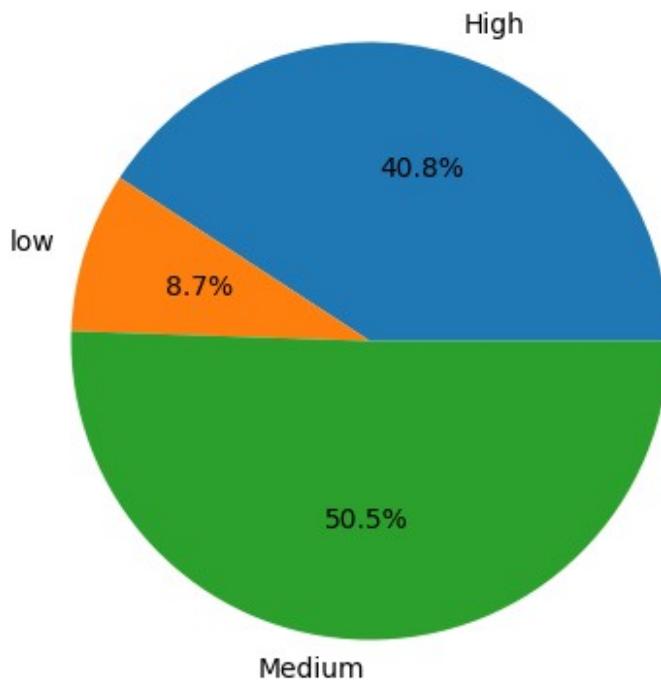
What percentage of jobs fall into Low, Medium, and High automation risk categories?

```
categories_sum = df.groupby('Risk_Category')
['Automation_Probability_2030'].sum()
categories_sum

Risk_Category
High      613.83
Low       130.51
Medium    760.17
Name: Automation_Probability_2030, dtype: float64

percentage_categories = (categories_sum/categories_sum.sum())*100
labels = ["High" , "low" , "Medium"]

fig = plt.figure(figsize=(5, 5))
plt.pie(percentage_categories, labels = labels , autopct = "%1.1f%%")
plt.show()
```



```
# High = 40% , Low = 8% , Medium = 50%
```

Which job titles dominate each risk category?

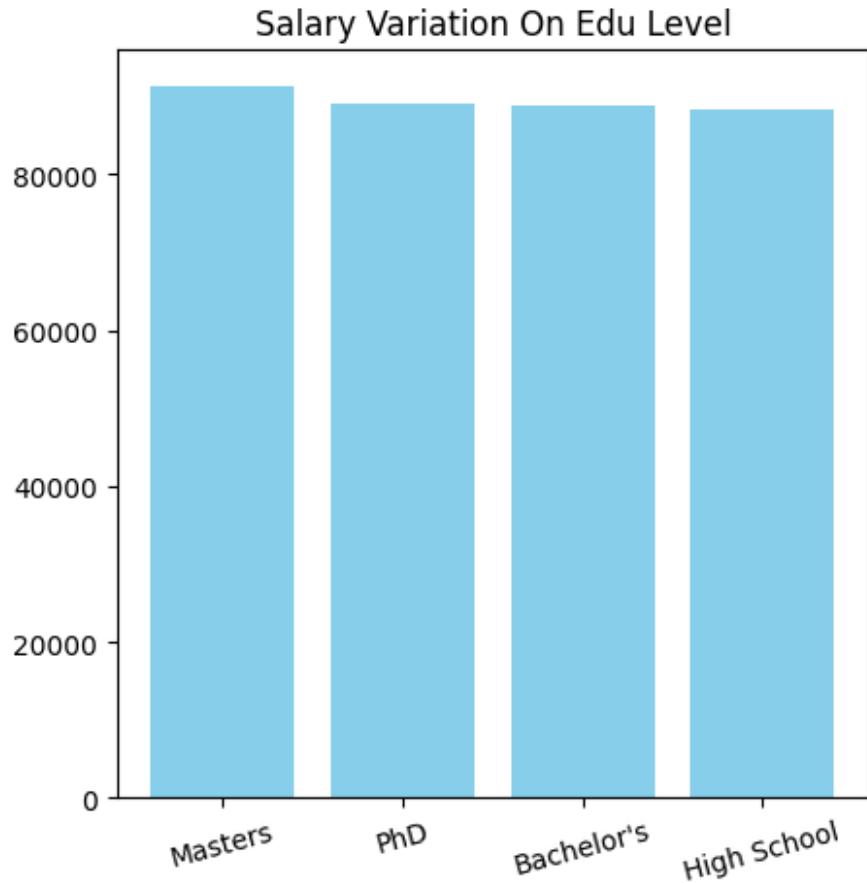
```
dominate_category = df.groupby('Job_Title')[  
    'Risk_Category'].count().sort_values( ascending=False)
```

#Software Engineer, Data Scientist, and UX Researcher are the top job titles across risk categories, showing they dominate in frequency.

Salary Landscape Analysis

How does average salary vary across different education levels?

```
df.groupby('Education_Level')[  
    'Average_Salary'].mean().sort_values(ascending=False)  
  
Education_Level  
Master's      91318.564626  
PhD          89045.575419  
Bachelor's    88815.495425  
High School   88389.293367  
Name: Average_Salary, dtype: float64  
  
salary_variation = {  
    "Masters" : 91318.564626 ,  
    "PhD" : 89045.575419 ,  
    "Bachelor's" : 88815.495425 ,  
    "High School" : 88389.293367  
  
}  
  
labels = list(salary_variation.keys())  
values = list(salary_variation.values())  
  
plt.figure(figsize = (5,5))  
plt.bar(labels , values , color = "skyblue")  
plt.title("Salary Variation On Edu Level")  
plt.ylabel = ("Average_salary")  
plt.xlabel = ("Education_Level")  
plt.xticks(rotation=15)  
plt.show()
```



#Individuals with higher education levels tend to earn more, with Master's degree holders having the highest average salary.

Are higher-paying jobs always less exposed to automation?

```
df['higher_paying_jobs'] = df['Average_Salary'].sort_values(ascending = False)
result = df[['higher_paying_jobs' , 'Automation_Probability_2030']]
```

#Higher-paying jobs are not always less exposed to automation some well-paid roles still face high automation risk.

Experience vs Salary

Is there a relationship between years of experience and average salary?

```
vk = df[['Average_Salary' , 'Years_Experience']]
```

```

realtionship = vk.corr()
sns.heatmap(realtionship, annot=True, cmap='coolwarm', fmt=".2f")
<Axes: >

```



#There is no meaningful relationship between years of experience and average salary in this dataset—correlation is nearly zero.

Identify roles where experience does not significantly increase salary.

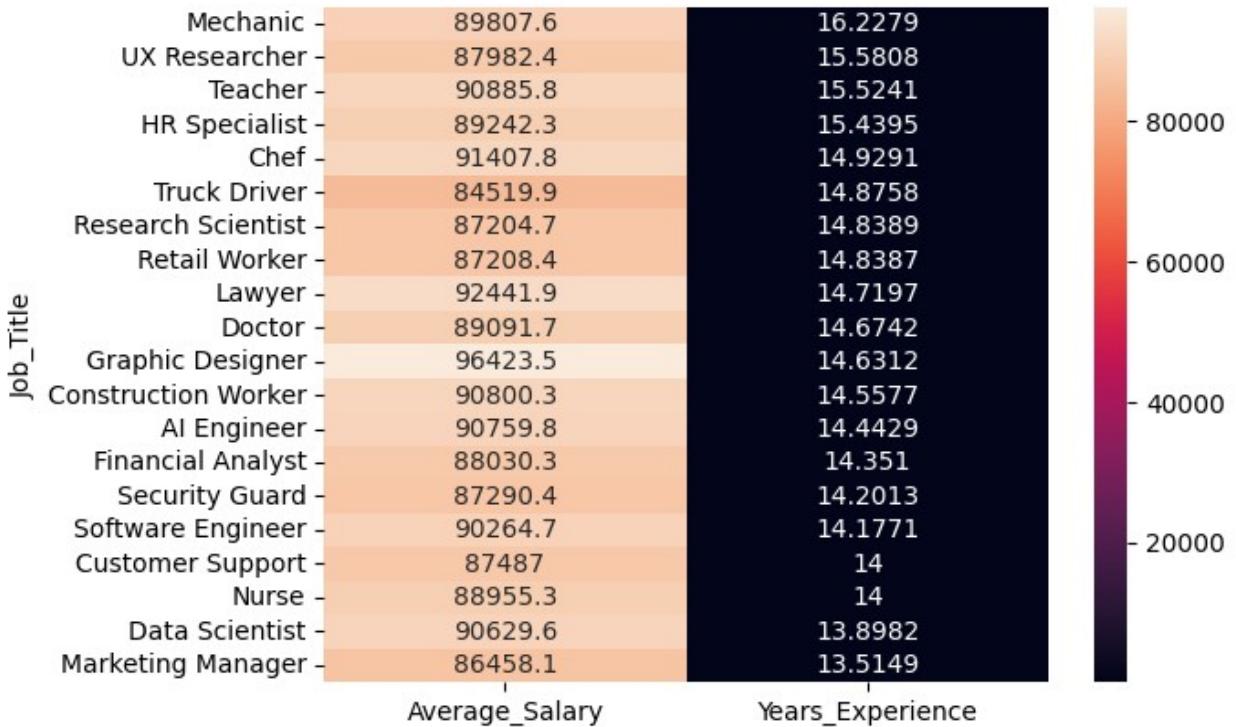
```

gp = df.groupby("Job_Title").agg({"Average_Salary" : 'mean' ,
"Years_Experience" : 'mean'})

gp2 = gp.sort_values(by=['Years_Experience', 'Average_Salary'],
                     ascending=[False, True])

sns.heatmap(gp2 , annot = True , fmt = 'g')
<Axes: ylabel='Job_Title'>

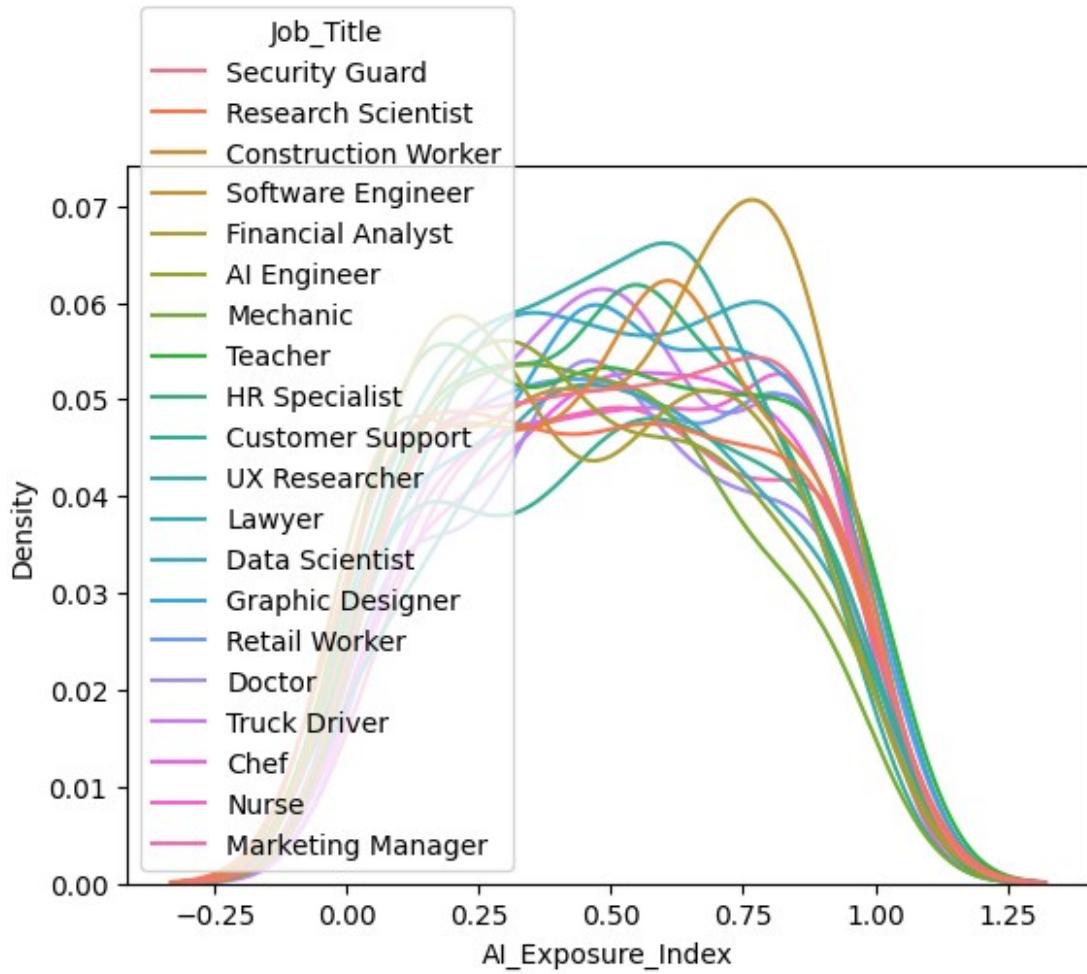
```



AI Exposure Overview

What is the distribution of the AI Exposure Index across all jobs?

```
sns.kdeplot(data=df, x='AI_Exposure_Index', hue='Job_Title')
plt.show()
```



```
f = df.sort_values(by = ['AI_Exposure_Index' , 'Job_Title'] , ascending = [False , True])

f.loc [ f ['AI_Exposure_Index'] == 1 ].head(18)

   Job_Title  Average_Salary  Years_Experience
Education_Level \
393          Chef           45994                  15
Master's
435          Chef           82066                  10
Bachelor's
1504         Chef           140839                 16    High
School
2415  Construction Worker        127891                 23
PhD
1372  Data Scientist           147511                  0    High
School
1185  Graphic Designer          35136                  17
Master's
2583  Graphic Designer          147342                 14    High
```

School	Job Title	Salary	Experience_Yrs	Risk_Level
2000	HR Specialist	62256	25	
PhD				
832	Lawyer	38699	3	High
School				
921	Lawyer	139875	5	
Bachelor's				
778	Marketing Manager	104638	10	
Master's				
2212	Mechanic	39413	1	
Master's				
1239	Security Guard	115062	6	
Bachelor's				
1381	UX Researcher	35922	23	
Bachelor's				
AI_Exposure_Index	Tech_Growth_Factor			
Automation_Probability_2030	\			
393	1.0	0.72		
0.34				
435	1.0	1.30		
0.61				
1504	1.0	0.53		
0.33				
2415	1.0	0.51		
0.74				
1372	1.0	0.76		
0.59				
1185	1.0	1.25		
0.55				
2583	1.0	1.27		
0.63				
2000	1.0	1.25		
0.40				
832	1.0	0.88		
0.54				
921	1.0	0.50		
0.31				
778	1.0	0.67		
0.61				
2212	1.0	1.20		
0.61				
1239	1.0	1.10		
0.71				
1381	1.0	1.45		
0.54				
Risk_Category	Skill_1	Skill_2	Skill_3	Skill_4
Skill_5	\			

393 0.91	Medium	0.59	0.49	0.52	0.67	0.27
435 0.76	Medium	0.51	0.30	0.15	0.28	0.38
1504 0.46	Medium	0.08	0.74	0.14	0.62	0.32
2415 0.99	High	0.84	0.10	0.03	0.12	0.69
1372 0.82	Medium	0.55	0.31	0.16	0.90	0.60
1185 0.93	Medium	0.42	0.62	0.34	0.03	0.40
2583 0.18	Medium	0.03	0.06	0.71	0.19	0.43
2000 0.76	Medium	0.95	0.21	0.73	0.12	0.65
832 0.40	Medium	0.86	0.12	0.69	0.41	0.21
921 0.73	Medium	0.82	0.20	0.06	0.24	0.43
778 0.70	Medium	0.22	0.08	0.87	0.86	0.40
2212 0.63	Medium	0.40	0.91	0.55	0.68	0.09
1239 0.93	High	0.08	0.48	0.41	0.61	0.44
1381 0.22	Medium	0.14	0.26	0.36	0.87	0.17

	Skill_7	Skill_8	Skill_9	Skill_10	higher_paying_jobs
393	0.44	0.13	0.74	0.64	45994
435	0.54	0.08	0.02	0.10	82066
1504	0.22	0.87	0.59	0.94	140839
2415	0.59	0.12	0.18	0.54	127891
1372	0.55	0.22	0.34	0.38	147511
1185	0.63	0.08	0.88	0.27	35136
2583	0.18	0.11	0.59	0.74	147342
2000	0.86	0.73	0.92	0.52	62256
832	0.08	0.70	0.25	0.31	38699
921	0.62	0.24	0.50	0.93	139875
778	0.56	0.85	0.32	0.52	104638
2212	0.88	0.18	0.74	0.03	39413
1239	0.53	0.69	0.90	0.15	115062
1381	0.35	0.93	0.50	0.65	35922

#Jobs like chef , Construction Worker , Data Scientist , Graphic Designer ,HR Specialist , Lawyer , Marketing Manager , Mechanic ,Security Guard, UX Researcher have the highest AI exposure.

np.float64(1.0)

Which jobs are most and least exposed to AI?

```
gf = df.sort_values(by = ['AI_Exposure_Index' , 'Job_Title'] ,  
ascending = [True , True])
```

```
f.loc [ f ['AI_Exposure_Index'] == 0.0 ].head(14)
```

	Job_Title	Average_Salary	Years_Experience	
Education_Level \				
930	Construction Worker	109023		28
Bachelor's				
2417	Construction Worker	130621		21
School				High
818	Data Scientist	93766		10
PhD				
1915	Data Scientist	132567		4
Bachelor's				
2438	Data Scientist	145632		18
PhD				
1473	Graphic Designer	80281		6
Bachelor's				
1828	Lawyer	101160		3
School				High
185	Nurse	119678		24
School				High
1329	Research Scientist	57774		12
Bachelor's				
1389	Research Scientist	83565		2
School				High
303	Software Engineer	143880		18
Master's				
1349	Teacher	144621		5
School				High

	AI_Exposure_Index	Tech_Growth_Factor
Automation_Probability_2030 \		
930	0.0	0.84
0.94		
2417	0.0	1.31
0.74		
818	0.0	1.43
0.44		
1915	0.0	1.20
0.52		
2438	0.0	1.21
0.59		
1473	0.0	1.10
0.48		
1828	0.0	0.74
0.32		

185	0.0	1.01				
0.06						
1329	0.0	1.05				
0.11						
1389	0.0	0.61				
0.14						
303	0.0	1.11				
0.55						
1349	0.0	1.37				
0.26						
Risk_Category						
Skill_6 \	Skill_1	Skill_2	Skill_3	Skill_4	Skill_5	
930	High	0.69	0.40	0.19	0.36	0.17
0.11						
2417	High	0.77	0.15	0.42	0.73	0.27
0.31						
818	Medium	0.40	0.17	0.38	0.80	0.80
0.94						
1915	Medium	0.21	0.23	0.81	0.50	0.70
0.45						
2438	Medium	0.44	0.34	0.84	0.78	0.98
0.37						
1473	Medium	0.53	0.54	0.18	0.77	0.56
0.27						
1828	Medium	0.11	0.53	0.04	0.18	0.23
0.66						
185	Low	0.28	0.71	0.06	0.84	0.00
0.25						
1329	Low	0.75	0.45	0.68	0.85	0.54
0.34						
1389	Low	0.05	0.13	0.23	0.43	0.71
0.13						
303	Medium	0.46	0.40	0.46	0.41	0.73
0.14						
1349	Low	0.12	0.37	0.66	0.65	0.86
0.14						
Skill_7			Skill_10	higher_paying_jobs		
930	0.91	1.00	0.16	0.05	109023	
2417	0.67	0.19	0.95	0.19	130621	
818	0.40	0.71	0.51	0.80	93766	
1915	0.24	0.97	0.57	0.13	132567	
2438	0.91	0.09	0.41	0.47	145632	
1473	0.94	0.01	0.73	0.38	80281	
1828	0.47	0.46	0.77	0.46	101160	
185	0.74	0.32	0.10	0.36	119678	
1329	0.77	0.27	0.89	0.07	57774	
1389	0.74	0.86	0.65	0.04	83565	

303	0.20	0.18	0.26	0.53	143880
1349	0.43	0.10	0.39	0.02	144621

#Jobs like chef , Construction Worker, Data Scientis , Graphic Designer , Lawyer , Teacher , Nurse , Research Scientist, Software Engineer have the least AI exposure.