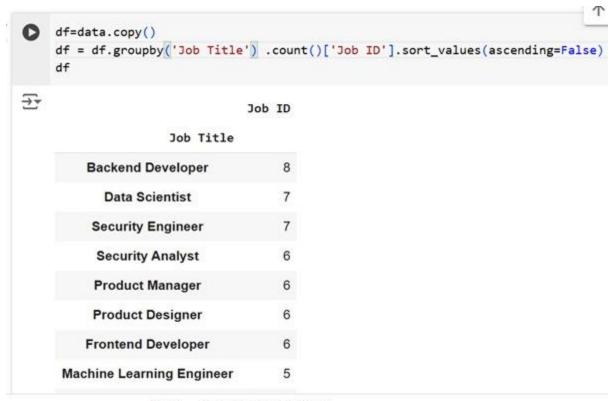
Problem 01. Identify the top 5 most frequently required skills in Amazon job postings



Problem O2. Determine the top 3 locations with the highest number of job postings

Problem 03. Find the job title with the highest number of postings and its count



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Problem 04. Analyze the month with the highest number of job postings

```
df=data.copy()
     df['month'] = pd.DatetimeIndex(df['Posting Date']).month
     df = df.groupby('month') .count()['Job ID'].sort_values(ascending=False)
     df
∓
            Job ID
      month
        1
                31
                31
        3
        2
                27
        4
                 11
     dtype: int64
```

Problem O5. Filter the job postings requiring Python as a skill and count them

```
python_job = df[df['Required Skills'].str.contains('Python', na=False)]
python_job_count = python_job.shape[0]
print(f"\nNumber of Jobs Requiring Python: {python_job_count}")
Number of Jobs Requiring Python: 50
```

Problem 06. Analyze the distribution of job postings by company department

Problem 07. Find the average salary range for each job title in the dataset

```
30] df['Salary Range'] = pd.to_numeric(df['Salary Range'], errors='coerce')
      avg_salary = df.groupby('Job Title')['Salary Range'].mean()
      print("\nAverage Salary Range for Each Job Title:")
      print(avg_salary)
      Average Salary Range for Each Job Title:
      Job Title
     AI Engineer
AI Researcher
                                          NaN
     Backend Developer
Backend Engineer
                                          NaN
      Cloud Architect
                                          NaN
     Cloud Engineer
Cloud Solutions Architect
                                        NaN
      Data Analyst
      Data Engineer
                                          NaN
      Data Scientist
     DevOps Engineer
Frontend Developer
                                          NaN
                                          NaN
      Frontend Engineer
     HR Manager
HR Specialist
                                          NaN
     Machine Learning Engineer
Mobile App Developer
                                          NaN
     Product Designer
Product Manager
                                          NaN
                                          NaN
      Product Marketing Manager
     Security Analyst
Security Engineer
Software Engineer
                                          NaN
                                          NaN
      UI Designer
     UI/UX Designer NaN
Name: Salary Range, dtype: float64
```

Problem 08. Identify job titles that are most commonly associated with remote work

```
[32] remote_job = df[df['Remote'] == 'Yes']
    remote_job_titles = remote_job['Job Title'].value_counts()
    print("\nJob Titles Most Commonly Associated with Remote Work:")
    print(remote_job_titles)

→

Job Titles Most Commonly Associated with Remote Work:
    Series([], Name: count, dtype: int64)
```

Problem 09. Calculate the correlation between job location and required skills

```
[33] location_encoded = pd.get_dummies(df['Location'])
      skill_encoded = pd.get_dummies(df['Required Skills'])
      correlation_df = pd.concat([location_encoded, skill_encoded], axis=1)
      correlation_matrix = correlation_df.corr()
      print("\nCorrelation Matrix:")
      print(correlation_matrix)
      Correlation Matrix:
                                                                  Remote San Francisco, CA \
                                                                1.000000
                                                                                    -0.616953
      San Francisco, CA
                                                               -0.616953
                                                                                      1,000000
      Seattle, WA
                                                               -0.552771
                                                                                     -0.314800
      AWS, Azure, Docker, Kubernetes
                                                                0.051628
                                                                                      0.029402
      AWS, Azure, GCP, Terraform
AWS, Azure, Kubernetes, Terraform
                                                                0.096561
                                                                                     -0.059574
                                                              -0.104608
                                                                                     -0.059574
      ANS, Azure, Terraform, Kubernetes
                                                               -0.104608
      AWS, Docker, Kubernetes, Terraform
AWS, Docker, Terraform, Kubernetes
                                                              -0.212459
                                                                                      0.111687
                                                                                     -0.059574
                                                                0.096561
      AWS, GCP, Azure, Kubernetes
                                                                                     -0.084678
      AWS, Python, Security, Encryption
                                                               -0.184688
                                                                                     -0.059574
      AWS, Security, Python, Encryption
                                                               -0.005719
                                                                                      0.078165
      Agile, Scrum, Data Analysis, Product Management -0.104608
                                                                                     -0.059574
      Agile, Scrum, Data Analytics, Product Management
                                                               0.096561
                                                                                     -0.059574
      Agile, Scrum, Product Management, Data Analysis
                                                                0.051628
                                                                                     -0.104243
      Figma, Adobe XD, UI Design, UX Design
                                                                0.096561
                                                                                     -0.059574
      Figma, Sketch, UI Design, UX Design
HR, Employee Relations, Recruitment
                                                              -0.104608
                                                                                      0.169555
                                                                0.096561
                                                                                     -0.059574
      HR, Leadership, Communication
                                                                0.137253
                                                                                     -0.084678
     HR, Recruitment, Communication
HR, Recruitment, Employee Relations
                                                                                     -0.084678
                                                                0.137253
      Java, Python, AWS, SQL
                                                                0.096561
                                                                                     -0.059574
      Java, Python, Ruby, SQL
Java, Python, SQL, AWS
                                                                0.096561
                                                                                     -0.059574
      JavaScript, React, HTML, CSS
Marketing, Digital Marketing, SEO, SEM
Product Management, Data Analysis, Agile
                                                               -0.065708
                                                                                      0.029402
                                                                0.096561
                                                                                     -0.059574
      Python, AWS, Network Security, Encryption
                                                              -0.104608
                                                                                      0.169555
```

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Problem 10. Predict job posting trends for the upcoming quarter using time-series analysis

