

In [1]:

```
import pandas as pd
```

In [2]:

```
df = pd.read_csv('deadliest_earthquakes.csv')
```

In [3]:

```
df.head()
```

Out[3]:

	Magnitude	Location	Depth	MMI	Notes	Event	Date
0	7.3	Soviet Union, Turkmen Soviet Socialist Republic	15.0	X	Between 10,000 and 110,000 people were killed ...	1948 Ashgabat earthquake	05-10-1948
1	7.5	Soviet Union, Tajik Soviet Socialist Republic	18.0	IX	12,000 people were killed, mostly due to landslides...	1949 Khait earthquake	10-07-1949
2	8.6	India, Assam	15.0	XI	It is the largest earthquake on land and the largest in the Indian subcontinent.	1950 Assam-Tibet earthquake	15-08-1950
3	6.5	El Salvador offshore	85.0	NaN	1,100 people were killed.	1951 El Salvador earthquake	06-05-1951
4	9.0	Soviet Union, Russian Soviet Socialist Republic	21.6	XI	Between 2,336 and 20,000 people were killed and an estimated 10 million were displaced.	1952 Severo-Kurilsk earthquake	04-11-1952

In [4]:

```
df.tail()
```

Out[4]:

	Magnitude	Location	Depth	MMI	Notes	E
71	6.4	Albania, Durrës	10.0	VIII	At least 51 people killed, 3,000 people injure...	Alb earthq
72	7.0	Greece TurkeyAegean Sea	21.0	VIII	At least 119 people killed, 1,096 people were ...	Aegean earthq
73	7.2	Haiti, Nippes	10.0	IX	At least 2,248 people killed, 12,763 people we...	2021 earthq
74	6.0	Afghanistan, Khost	10.0	VIII	At least 1,163 people were killed and 6,027 ot...	June : Afghan earthq
75	7.8	Turkey, Southeastern Anatolia Syria, Aleppo an...	17.9	IX	More than 9,500 people killed in both Turkey a...	Tur : earthqu



In [5]:

```
df.shape
```

Out[5]:

```
(76, 7)
```

In [6]:

```
df.columns
```

Out[6]:

```
Index(['Magnitude', 'Location', 'Depth', 'MMI', 'Notes', 'Event', 'Date'], dtype='object')
```

In [7]:

```
df.duplicated().sum()
```

Out[7]:

```
0
```

In [8]:

```
df.isnull().sum()
```

Out[8]:

```
Magnitude    0
Location      0
Depth         0
MMI           1
Notes         0
Event         0
Date          2
dtype: int64
```

In [9]:

```
df.info()
```

```
<class 'pandas.core.frame.DataFrame'>
RangeIndex: 76 entries, 0 to 75
Data columns (total 7 columns):
 #   Column      Non-Null Count  Dtype
---  -
 0   Magnitude  76 non-null    float64
 1   Location    76 non-null    object
 2   Depth       76 non-null    float64
 3   MMI         75 non-null    object
 4   Notes       76 non-null    object
 5   Event       76 non-null    object
 6   Date        74 non-null    object
dtypes: float64(2), object(5)
memory usage: 4.3+ KB
```

In [10]:

```
df.describe()
```

Out[10]:

	Magnitude	Depth
count	76.000000	76.000000
mean	7.146053	20.823684
std	0.787475	17.312445
min	5.300000	2.000000
25%	6.600000	10.000000
50%	7.100000	15.000000
75%	7.600000	22.675000
max	9.200000	90.000000

In [11]:

```
df.nunique()
```

Out[11]:

```
Magnitude    28
Location      72
Depth         38
MMI           9
Notes         76
Event         76
Date          74
dtype: int64
```

In [12]:

```
import matplotlib.pyplot as plt
import seaborn as sns
```

In [13]:

```
import warnings
warnings.filterwarnings('ignore')
```

In [14]:

```
df['MMI'].unique()
```

Out[14]:

```
array(['X', 'IX', 'XI', nan, 'VIII', 'VII', 'VIII &
IX', 'VI[4]',
      'VII[6]', 'VIII[7]'], dtype=object)
```

In [15]:

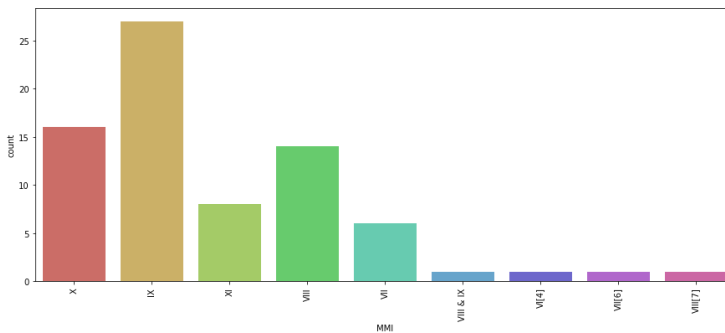
```
df['MMI'].value_counts()
```

Out[15]:

```
IX          27
X           16
VIII        14
XI           8
VII          6
VIII & IX   1
VI[4]        1
VII[6]        1
VIII[7]       1
Name: MMI, dtype: int64
```

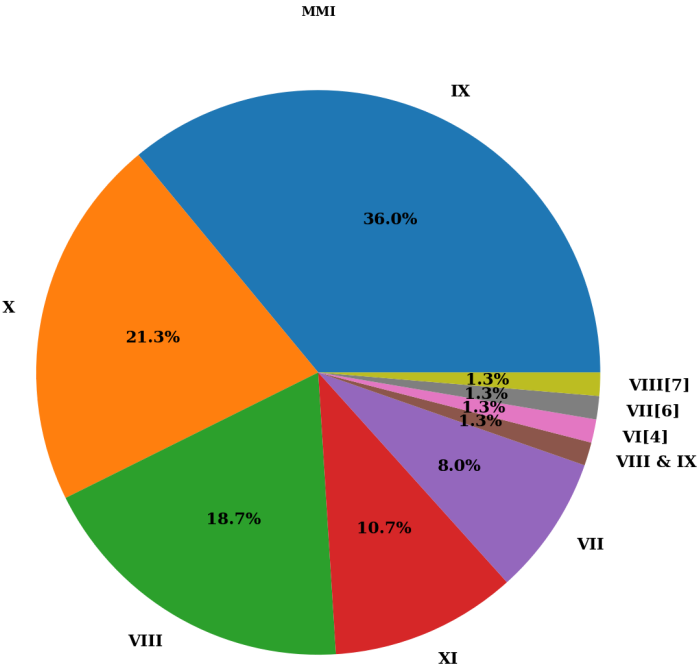
In [16]:

```
plt.figure(figsize=(15,6))
sns.countplot(df['MMI'], data = df, palette = 'hls')
plt.xticks(rotation = 90)
plt.show()
```



In [17]:

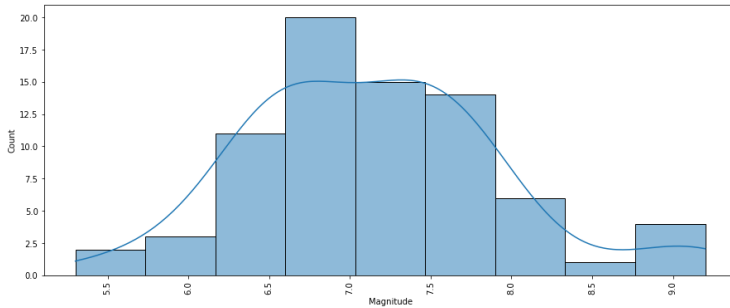
```
plt.figure(figsize=(30,20))
plt.pie(df['MMI'].value_counts(), labels=df['MMI'].value_counts().index,
        'color': 'black',
        'weight': 'bold',
        'family': 'serif' })
hfont = {'fontname':'serif', 'weight': 'bold'}
plt.title('MMI', size=20, **hfont)
plt.show()
```





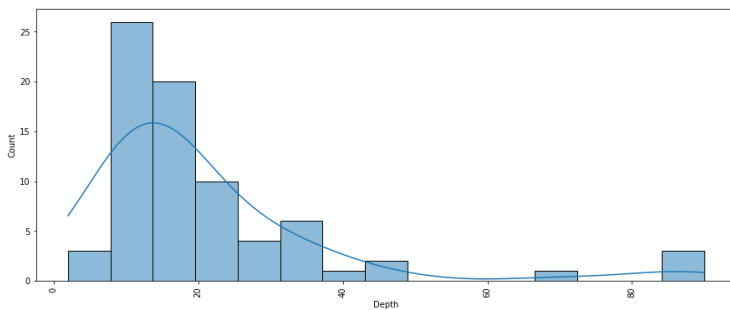
In [18]:

```
plt.figure(figsize=(15,6))
sns.histplot(df['Magnitude'], kde = True, palette = 'hls')
plt.xticks(rotation = 90)
plt.show()
```



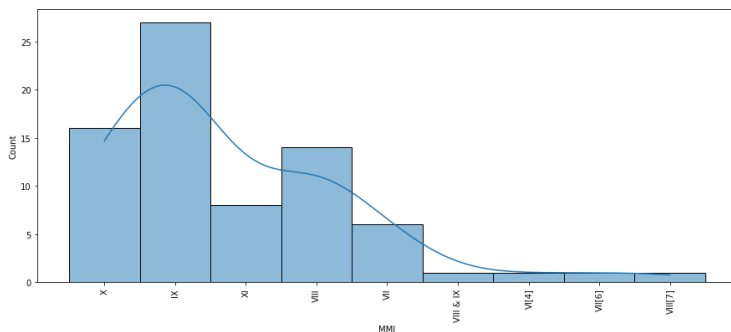
In [19]:

```
plt.figure(figsize=(15,6))
sns.histplot(df['Depth'], kde = True, palette = 'hls')
plt.xticks(rotation = 90)
plt.show()
```



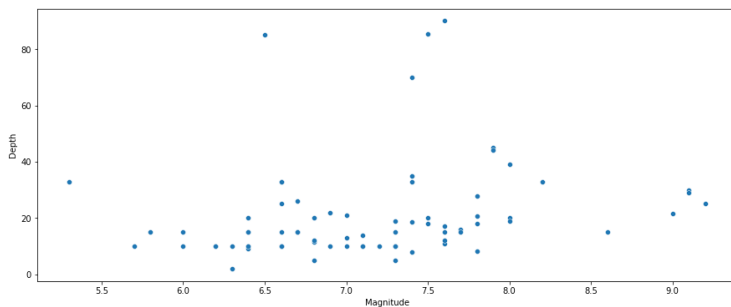
In [20]:

```
plt.figure(figsize=(15,6))
sns.histplot(df['MMI'], kde = True, palette = 'hls')
plt.xticks(rotation = 90)
plt.show()
```



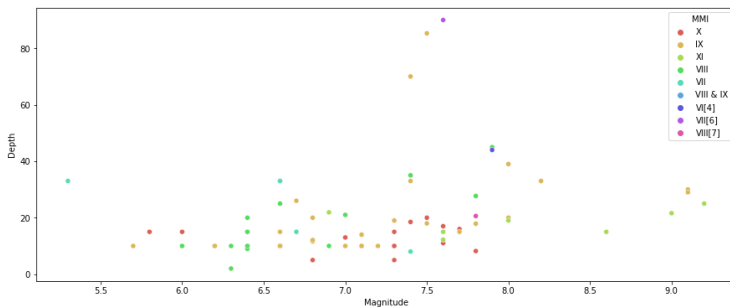
In [21]:

```
plt.figure(figsize=(15,6))
sns.scatterplot(x = df['Magnitude'], y = df['Depth'], palette = 'hls')
plt.show()
```



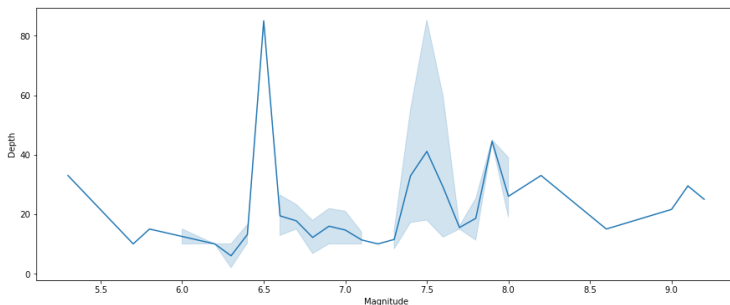
In [22]:

```
plt.figure(figsize=(15,6))
sns.scatterplot(x = df['Magnitude'], y = df['Depth'], hue = df['MMI'])
plt.show()
```



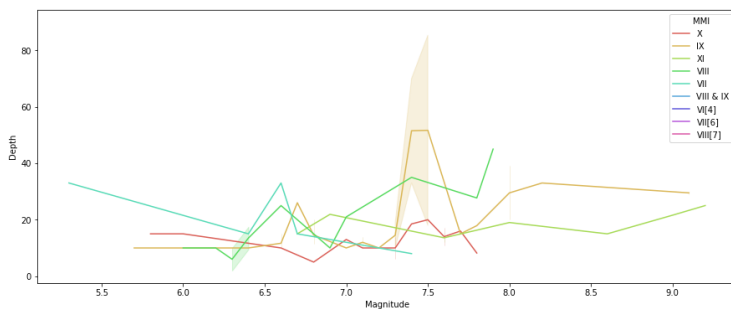
In [23]:

```
plt.figure(figsize=(15,6))
sns.lineplot(x = df['Magnitude'], y = df['Depth'], palette = 'hls')
plt.show()
```



In [24]:

```
plt.figure(figsize=(15,6))
sns.lineplot(x = df['Magnitude'], y = df['Depth'], hue = df['MMI'])
plt.show()
```



In [25]:

```
df[['Day', 'Month', 'Year']] = df['Date'].str.split('-', expand=True)
```

In [26]:

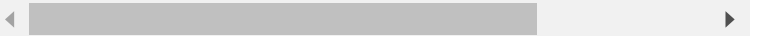
```
df_sorted_magnitude = df.sort_values('Magnitude', ascending=False)
```

In [27]:

```
df_sorted_magnitude.head()
```

Out[27]:

	Magnitude	Location	Depth	MMI	Notes	Event	Deaths
16	9.2	United States, Alaska	25.0	XI	It is the largest earthquake ever recorded in ...	1964 Alaska earthquake	200
63	9.1	Japan, Sendai offshore	29.0	IX	At least 19,747 people killed, 2,556 missing, ...	2011 Tōhoku earthquake and tsunami	14,000
56	9.1	Indonesia, Sumatra offshore	30.0	IX	This is the third largest earthquake in the wo...	2004 Indian Ocean earthquake	227,000
4	9.0	Soviet Union, Russian Soviet Socialist Republic	21.6	XI	Between 2,336 and 20,000 people were killed an...	1952 Severo-Kurilsk earthquake	1,000
2	8.6	India, Assam	15.0	XI	It is the largest earthquake on land and the l...	1950 Assam–Tibet earthquake	1,000



In [28]:

```
df_sorted_magnitude.tail()
```

Out[28]:

	Magnitude	Location	Depth	MMI	Notes	Event
15	6.0	Yugoslavia, Republic of North Macedonia	15.0	X	1,070 people killed and 80 percent of Skopje w...	1963 Skopje earthquake
74	6.0	Afghanistan, Khost	10.0	VIII	At least 1,163 people were killed and 6,027 ot...	June 2022 Afghanistan earthquake
12	5.8	Morocco, Souss-Massa	15.0	X	Worst earthquake in Moroccan history. Between ...	1960 Agadir earthquake
38	5.7	El Salvador, San Salvador	10.0	IX	1,000–1,500 were killed and 10,000–20,000 inju...	1986 San Salvador earthquake
41	5.3	Soviet Union, Tajik Soviet Socialist Republic	33.0	VII	More than 274 people were killed. Most of the ...	1989 Gissar earthquake

In [29]:

```
df_sorted_depth = df.sort_values('Depth', ascending=False)
```

In [30]:

```
df_sorted_depth.head()
```

Out[30]:

	Magnitude	Location	Depth	MMI	Notes	Event	C
61	7.6	Indonesia, Padang offshore	90.0	VII[6]	At least 1,115 people killed, 2,181 injured, 1...	2009 Sumatra earthquake	2
29	7.5	Romania, Vrancea	85.3	IX	1,578 people were killed (1,424 of them in Buc...	1977 Vrancea earthquake	1
3	6.5	El Salvador offshore	85.0	NaN	1,100 people were killed.	1951 El Salvador earthquake	1
17	7.4	Chile, Valparaíso Region	70.0	IX	400 people were killed, mostly due to a dam fa...	1965 Valparaíso earthquake and the El Cobre da...	1
22	7.9	Peru, Ancash	45.0	VIII	Worst earthquake in Peruvian history. Nearly 7...	1970 Ancash earthquake	1



In [31]:

```
df_sorted_depth.tail()
```

Out[31]:

	Magnitude	Location	Depth	MMI	Notes	Event	D
67	7.8	Nepal, Gorkha District	8.2	X	At least 9,182 people killed, 25,482 injured, ...	April 2015 Nepal earthquake	21
54	7.4	Afghanistan, Baghlan Province	8.0	VII	1,166 people were killed and 200 people were i...	2002 Hindu Kush earthquakes	N
40	6.8	Soviet Union, Armenian Soviet Socialist Republic	5.0	X	Between 25,000 and 50,000 were killed and up t...	1988 Armenian earthquake	15
11	7.3	United States, Wyoming	5.0	X	28 people were killed. Most of the deaths occu...	1959 Hebgen Lake earthquake	15
36	6.3	Japan, Nagano	2.0	VIII	14 people were killed, 10 were injured, and 15...	1984 Nagano earthquake	15



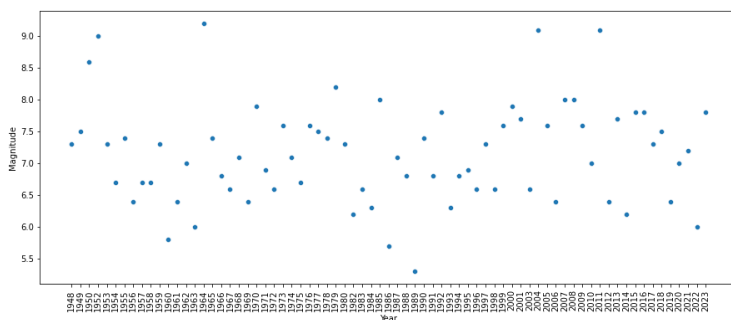


In [32]:

```
df = df.dropna()
```

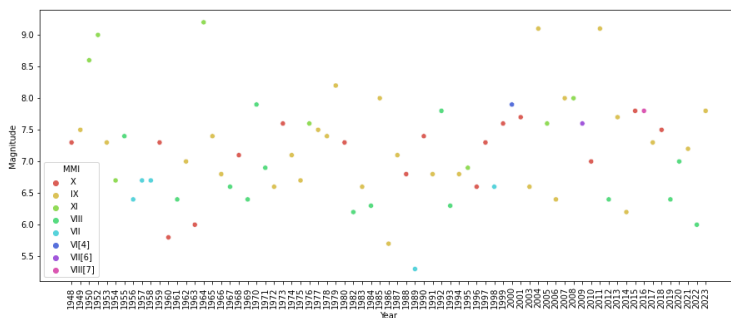
In [33]:

```
plt.figure(figsize=(15,6))
sns.scatterplot(y = df['Magnitude'], x = df['Year'], palette = 'hls')
plt.xticks(rotation = 90)
plt.show()
```



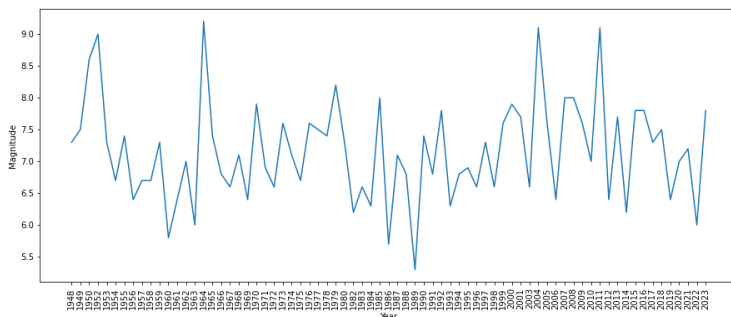
In [34]:

```
plt.figure(figsize=(15,6))
sns.scatterplot(y = df['Magnitude'], x = df['Year'], hue = df['MMI'])
plt.xticks(rotation = 90)
plt.show()
```



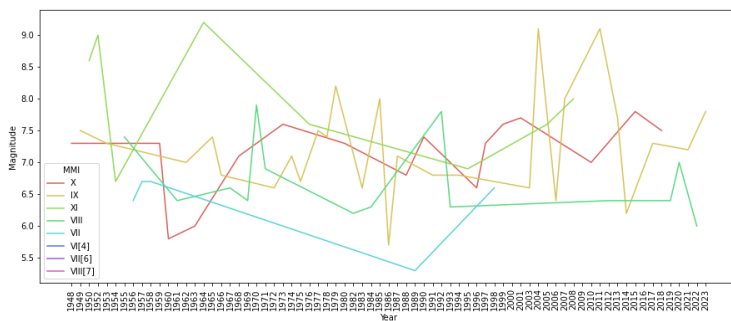
In [35]:

```
plt.figure(figsize=(15,6))
sns.lineplot(y = df['Magnitude'], x = df['Year'], palette = 'hls')
plt.xticks(rotation = 90)
plt.show()
```



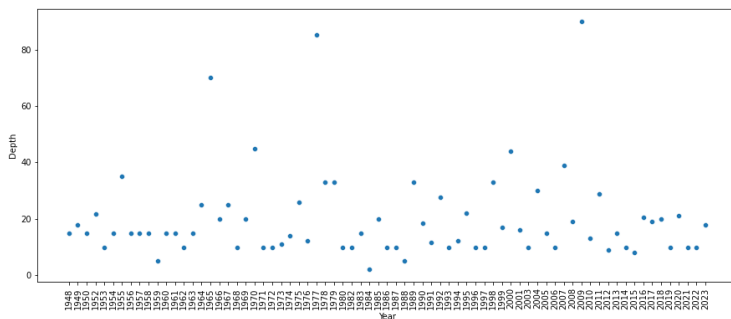
In [36]:

```
plt.figure(figsize=(15,6))
sns.lineplot(y = df['Magnitude'], x = df['Year'], hue = df['MMI'],
plt.xticks(rotation = 90)
plt.show()
```



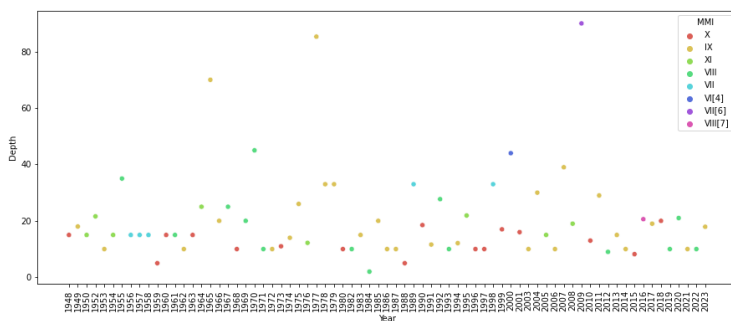
In [37]:

```
plt.figure(figsize=(15,6))
sns.scatterplot(y = df['Depth'], x = df['Year'], palette = 'hls')
plt.xticks(rotation = 90)
plt.show()
```



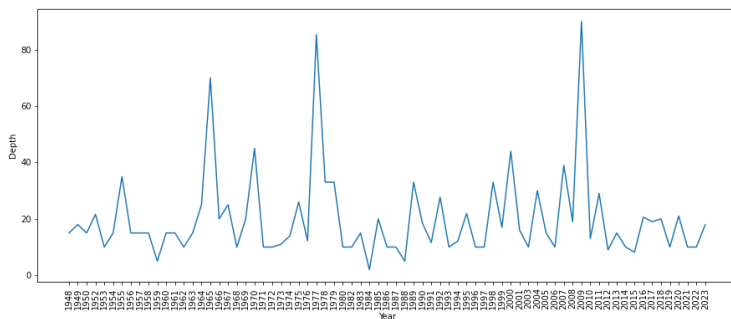
In [38]:

```
plt.figure(figsize=(15,6))
sns.scatterplot(y = df['Depth'], x = df['Year'], hue = df['MMI'],
plt.xticks(rotation = 90)
plt.show()
```



In [39]:

```
plt.figure(figsize=(15,6))
sns.lineplot(y = df['Depth'], x = df['Year'], palette = 'hls')
plt.xticks(rotation = 90)
plt.show()
```



In [40]:

```
plt.figure(figsize=(15,6))
sns.lineplot(y = df['Depth'], x = df['Year'], hue = df['MMI'], palette = 'hls')
plt.xticks(rotation = 90)
plt.show()
```

