Capstone_Project

September 23, 2024

[1]:
```
import numpy as np
import pandas as pd
import matplotlib.pyplot as plt
```

[2]:
```
df = pd.read_csv('MCMods.csv')
```

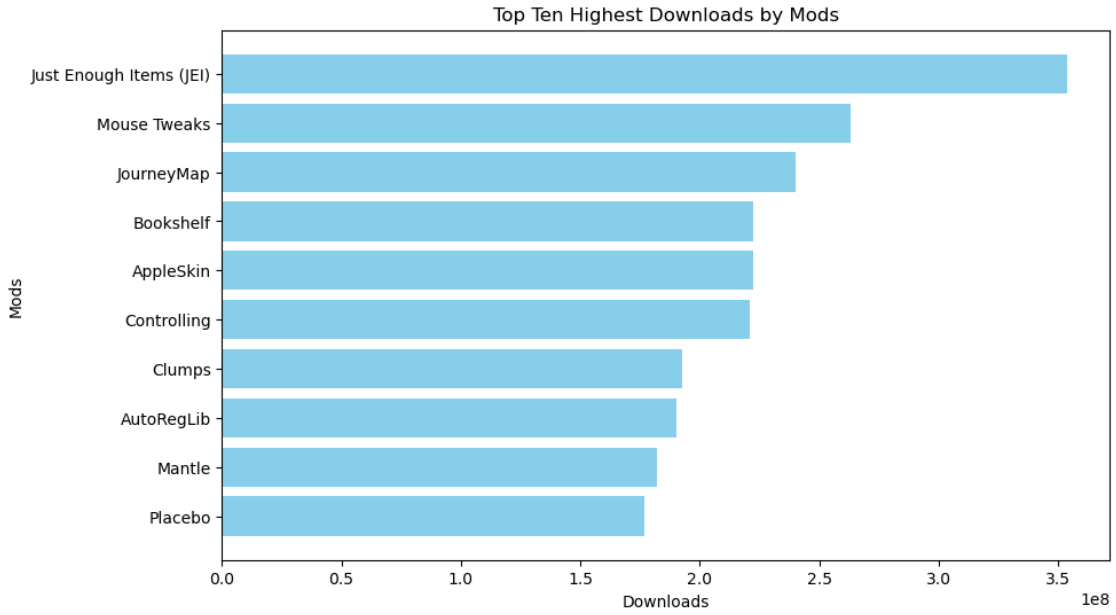
[3]:
```
df['downloads'] = df['downloads'].str.replace(',','').astype('int')
```

[4]:
```
df['latest_release'] = pd.to_datetime(df['latest_release'], format='%b %d, %Y')
df['created'] = pd.to_datetime(df['created'], format='%b %d, %Y')
```

0.1 Which mods is most downloads among players

[12]:
```
df_sorted = df.sort_values(by='downloads', ascending=False)
```

[13]:
```
plt.figure(figsize=(10, 6))
plt.barh(df_sorted.head(10)['name'], df_sorted.head(10)['downloads'],␣
 ↪color='skyblue')
plt.xlabel('Downloads')
plt.ylabel('Mods')
plt.title('Top Ten Highest Downloads by Mods')
plt.gca().invert_yaxis()
plt.show()
```



0.2 Which category of mods is most popular among player

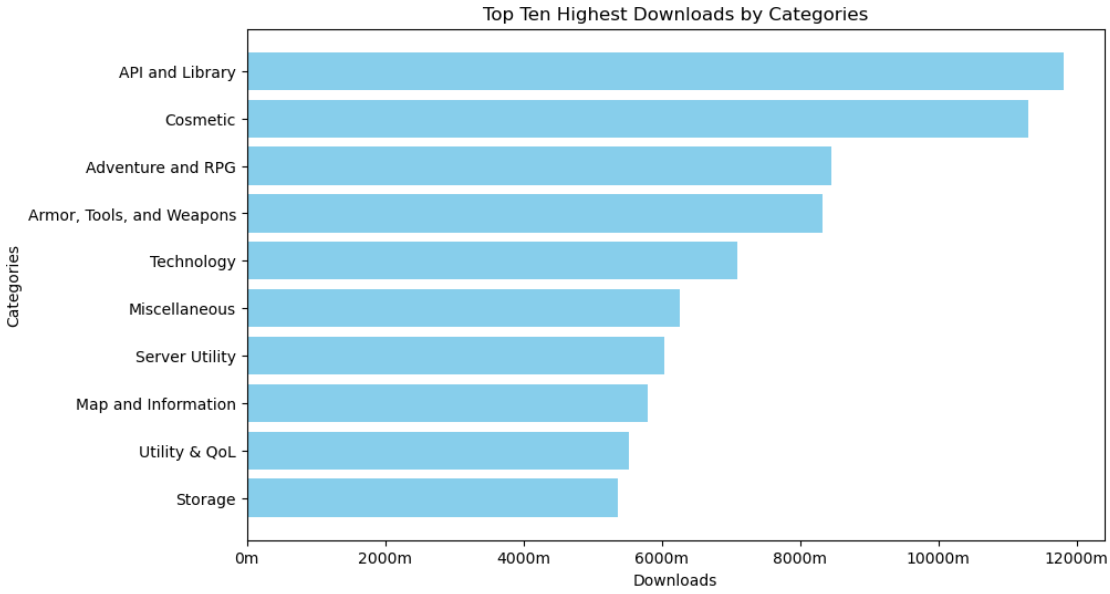
[8]:
```
df2 = df.copy()
```

[9]:
```
df2['categories'] = df2['categories'].str.split(' \| ')
df2_exploded = df2.explode('categories')
cate_downloads = df2_exploded.groupby('categories')['downloads'].sum().
 ↪reset_index()
cate_downloads_sorted = cate_downloads.sort_values(by='downloads',␣
 ↪ascending=False, ignore_index=True)
```

```
<>:1: SyntaxWarning: invalid escape sequence '\|'
<>:1: SyntaxWarning: invalid escape sequence '\|'
C:\Users\user\AppData\Local\Temp\ipykernel_15596\1080849801.py:1: SyntaxWarning:
invalid escape sequence '\|'
  df2['categories'] = df2['categories'].str.split(' \| ')
```

[10]:
```
plt.figure(figsize=(10, 6))
plt.barh(cate_downloads_sorted.head(10)['categories'], cate_downloads_sorted.
 ↪head(10)['downloads'], color='skyblue')
plt.xlabel('Downloads')
plt.ylabel('Categories')
plt.title('Top Ten Highest Downloads by Categories')
plt.gca().set_xticklabels([f'{int(x/1e6)}m' for x in plt.gca().get_xticks()])
plt.gca().invert_yaxis()
plt.show()
```

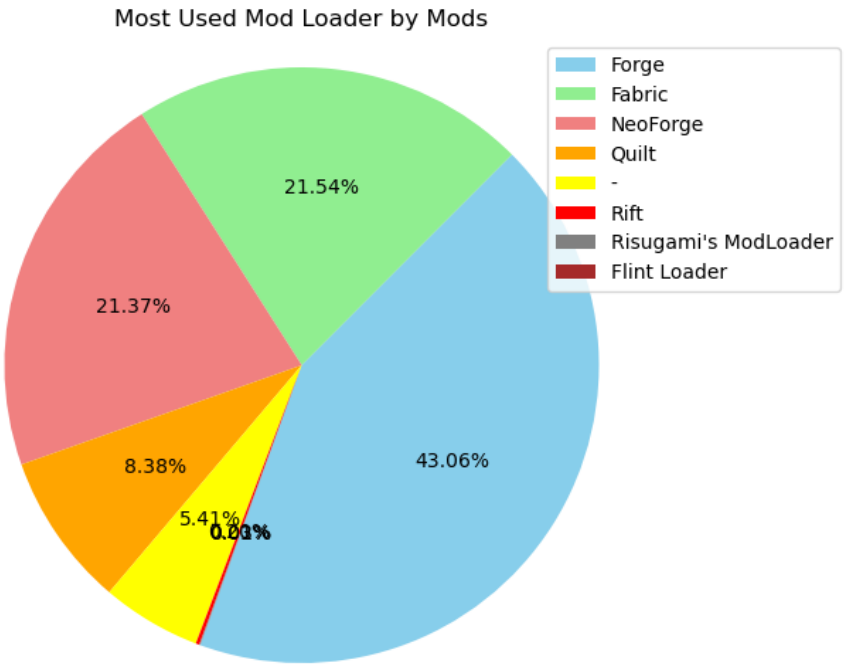
```
C:\Users\user\AppData\Local\Temp\ipykernel_15596\1064845695.py:6: UserWarning:
set_ticklabels() should only be used with a fixed number of ticks, i.e. after
set_ticks() or using a FixedLocator.
  plt.gca().set_xticklabels([f'{int(x/1e6)}m' for x in plt.gca().get_xticks()])
```



[14]:
```
df3 = df.copy()
```

[15]:
```
df3['mod_loaders'] = df3['mod_loaders'].str.split(', ')
df3_exploded = df3.explode('mod_loaders')
loader_downloads = df3_exploded['mod_loaders'].value_counts()
df3_sum = pd.DataFrame(loader_downloads).reset_index()
```

[16]:
```
plt.figure(figsize=(10, 6))

plt.pie(df3_sum['count'], autopct='%1.2f%%', startangle=250, colors=['skyblue',␣
 ↪'lightgreen', 'lightcoral',␣
 ↪'orange','yellow','red','grey','brown'],labeldistance=1.2)

plt.title('Most Used Mod Loader by Mods')

plt.axis('equal')

plt.legend(df3_sum['mod_loaders'])

plt.show()
```



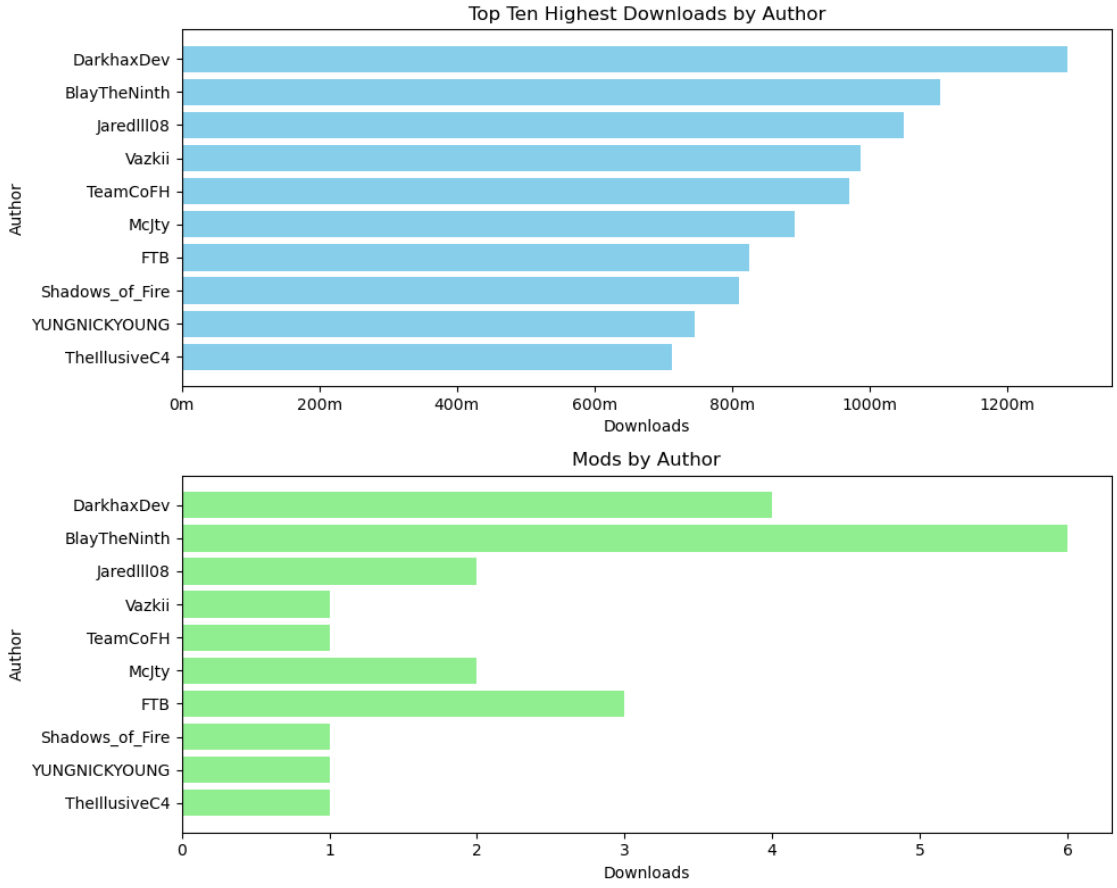
[15]:
```
df4 = df.copy()
```

[17]:
```
author_downloads = df4.groupby('author')['downloads'].sum().reset_index()
author_downloads['mods_qty'] = df4['author'].value_counts().values
author_sorted = author_downloads.sort_values(by='downloads', ascending=False,␣
 ↪ignore_index=True)
```

[22]:
```
fig, axes = plt.subplots(2, 1, figsize=(10, 8))

axes[0].barh(author_sorted.head(10)['author'], author_sorted.
 ↪head(10)['downloads'], color='skyblue')
axes[0].set_xlabel('Downloads')
axes[0].set_ylabel('Author')
axes[0].set_title('Top Ten Highest Downloads by Author')
axes[0].set_xticklabels([f'{int(x/1e6)}m' for x in axes[0].get_xticks()])
axes[0].invert_yaxis()

axes[1].barh(author_sorted.head(10)['author'], author_sorted.
 ↪head(10)['mods_qty'], color='lightgreen')
axes[1].set_xlabel('Downloads')
axes[1].set_ylabel('Author')
axes[1].set_title('Mods by Author')
axes[1].invert_yaxis()
```

```
plt.tight_layout()
plt.show()
```

```
C:\Users\user\AppData\Local\Temp\ipykernel_12684\29040996.py:7: UserWarning:
set_ticklabels() should only be used with a fixed number of ticks, i.e. after
set_ticks() or using a FixedLocator.
  axes[0].set_xticklabels([f'{int(x/1e6)}m' for x in axes[0].get_xticks()])
```



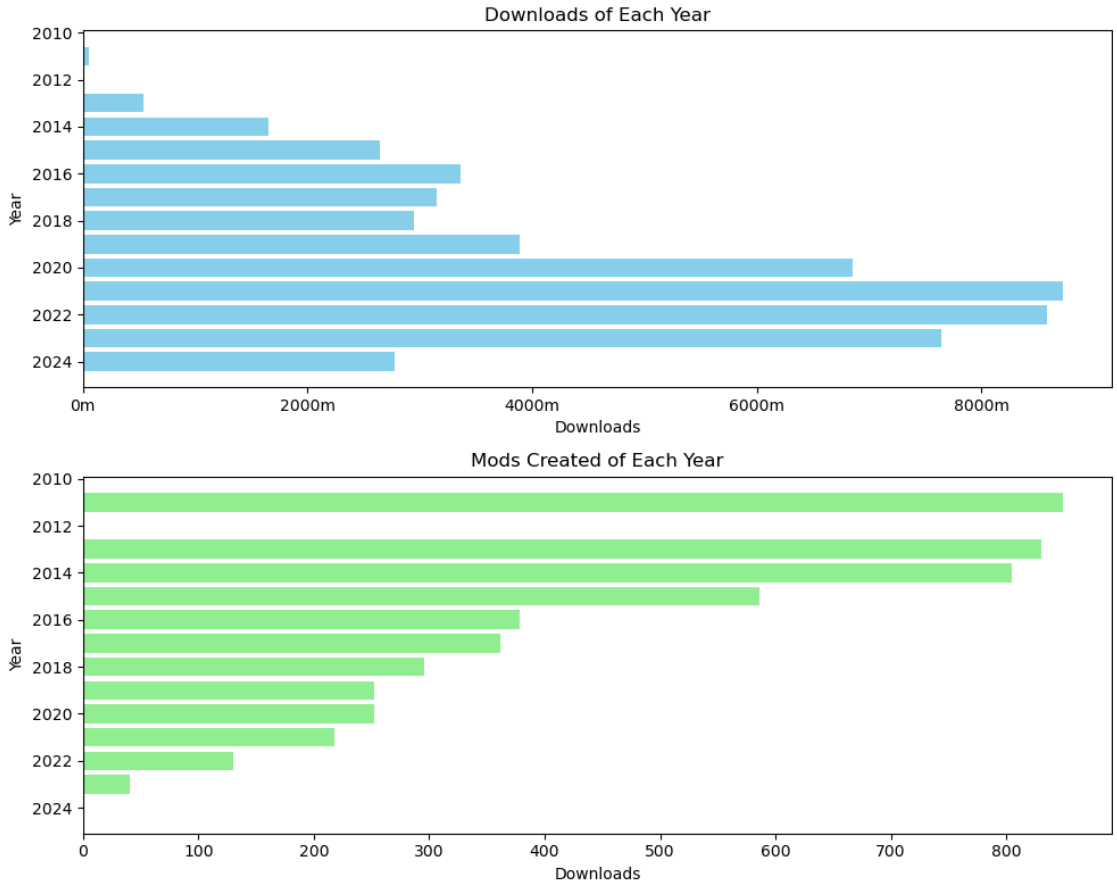
[18]:
```
df5 = df.copy()
```

[19]:
```
created_date_sorted = df5.sort_values(by='created', ascending=True,␣
 ↪ignore_index=True)
created_date_sorted['year'] = df5['created'].dt.year
df5_grouped = created_date_sorted.groupby('year')['downloads'].sum().
 ↪reset_index()
df5_grouped['mods_qty'] = created_date_sorted['year'].value_counts().values
```

[23]:
```
fig, axes = plt.subplots(2, 1, figsize=(10, 8))
```

```
axes[0].barh(df5_grouped['year'], df5_grouped['downloads'], color='skyblue')
axes[0].set_xlabel('Downloads')
axes[0].set_ylabel('Year')
axes[0].set_title('Downloads of Each Year')
axes[0].set_xticklabels([f'{int(x/1e6)}m' for x in axes[0].get_xticks()])
axes[0].invert_yaxis()

axes[1].barh(df5_grouped['year'], df5_grouped['mods_qty'], color='lightgreen')
axes[1].set_xlabel('Downloads')
axes[1].set_ylabel('Year')
axes[1].set_title('Mods Created of Each Year')
axes[1].invert_yaxis()

plt.tight_layout()
plt.show()
```

```
C:\Users\user\AppData\Local\Temp\ipykernel_15596\785388398.py:7: UserWarning:
set_ticklabels() should only be used with a fixed number of ticks, i.e. after
set_ticks() or using a FixedLocator.
  axes[0].set_xticklabels([f'{int(x/1e6)}m' for x in axes[0].get_xticks()])
```



[ ]: