Symposium

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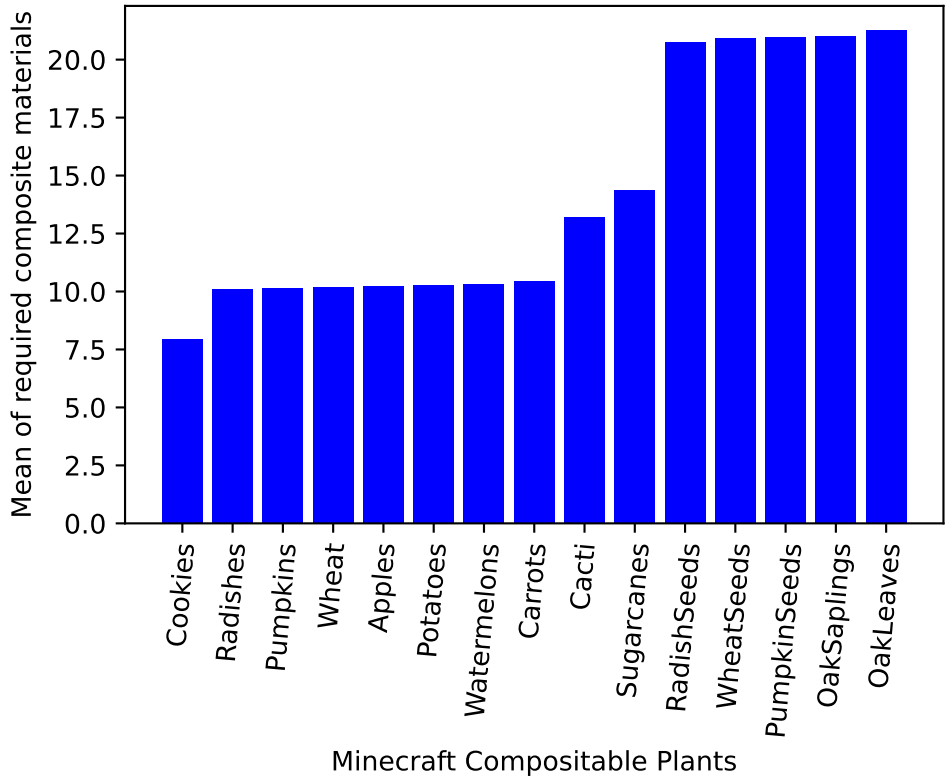
Initial Set Up

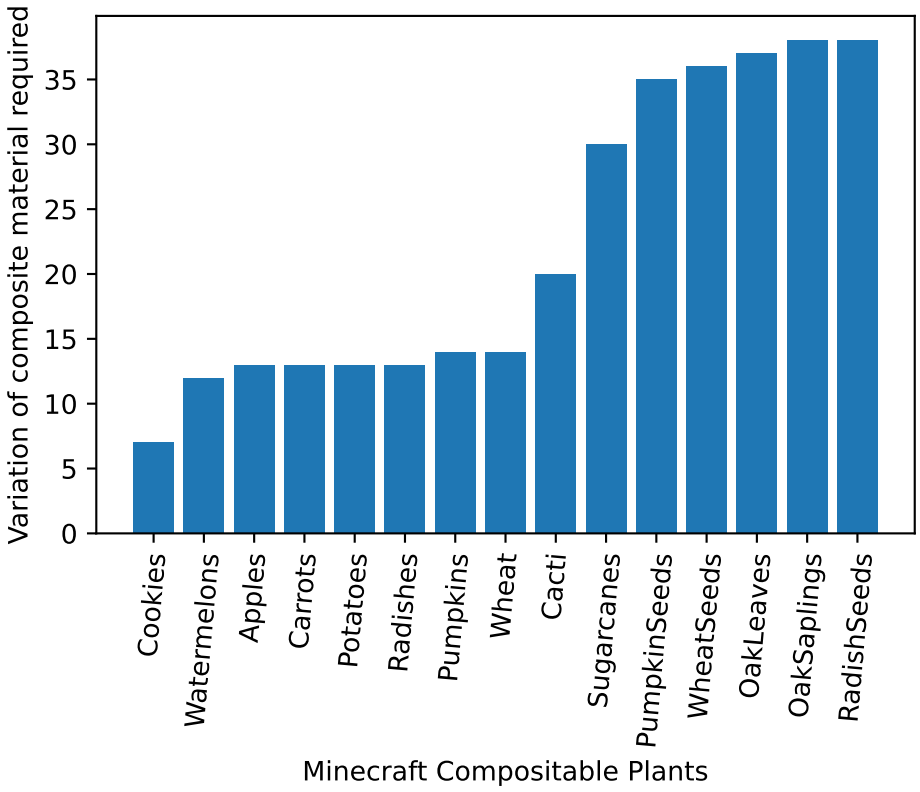
```
import numpy as np
import pandas as pd
import matplotlib.pyplot as plt
import seaborn as sns
```

```
apple_df = pd.read_csv("data/Apple_v2.csv", nrows = 500)
cactus_df = pd.read_csv("data/Cactus_v2.csv", nrows = 500)
carrot_df = pd.read_csv("data/Carrot_v2.csv", nrows = 500)
cookie_df = pd.read_csv("data/Cookie_v2.csv", nrows = 500)
melon_df = pd.read_csv("data/Melon_v2.csv", nrows = 500)
oakleaf_df = pd.read_csv("data/Oakleaf_v2.csv", nrows = 500)
oaksapling_df = pd.read_csv("data/Oaksapling_v2.csv", nrows = 500)
potato_df = pd.read_csv("data/Potato_v2.csv", nrows = 500)
pumpkin_df = pd.read_csv("data/Pumpkin_v2.csv", nrows = 500)
pumpkinseed_df = pd.read_csv("data/pumpkinseed_v2.csv", nrows = 500)
radish_df = pd.read_csv("data/Radish_v2.csv", nrows = 500)
radishseed_df = pd.read_csv("data/Radishseed_v2.csv", nrows = 500)
sugarcane_df = pd.read_csv("data/Sugarcane_v2.csv", nrows = 500)
wheat_df = pd.read_csv("data/Wheat_v2.csv", nrows = 500)
wheatseed_df = pd.read_csv("data/Wheatseed_v2.csv", nrows = 500)


df = pd.concat([apple_df, cactus_df, carrot_df, cookie_df, melon_df, oakleaf_df, oaksaplin
```

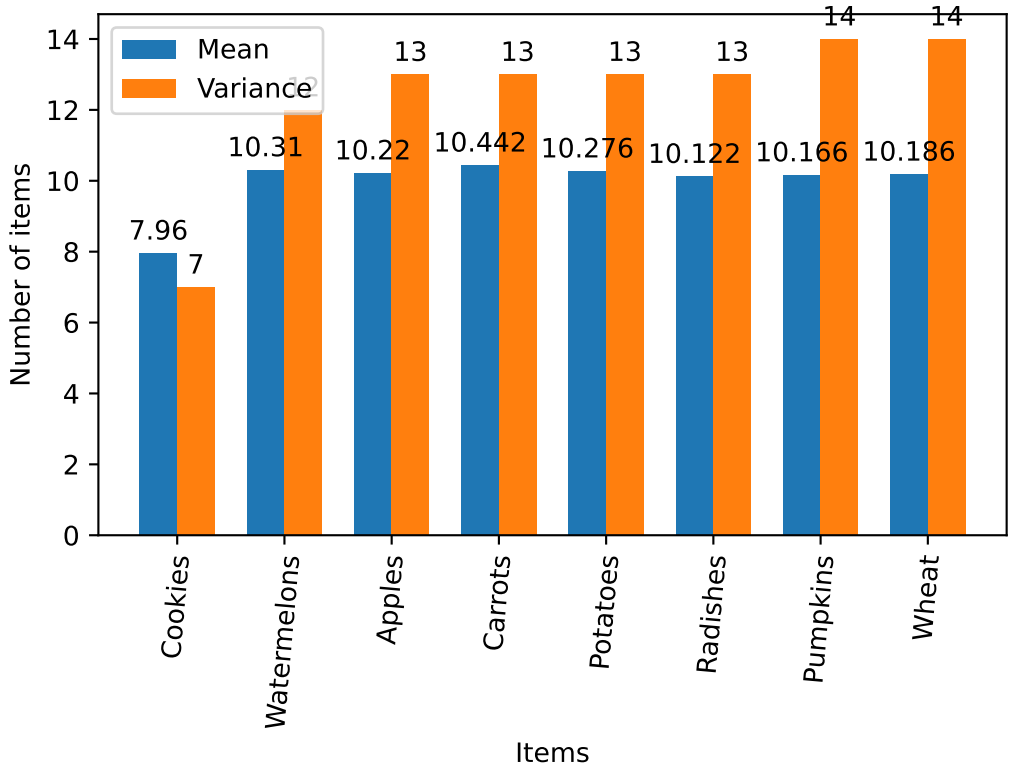
```
mean_series = dict(df.mean())
mean_series = dict(sorted(mean_series.items(), key=lambda item: item[1]))
m_plant_types = mean_series.keys()
m_plant_values = mean_series.values()

plt.bar(m_plant_types, m_plant_values, color="blue")
plt.xticks(rotation = 85)
plt.xlabel("Minecraft Compositable Plants")
plt.ylabel("Mean of required composite materials")
plt.show()
```



```
unique_series = dict(df.nunique())
unique_series = dict(sorted(unique_series.items(), key=lambda item: item[1]))
u_plant_types = unique_series.keys()
u_plant_variations = unique_series.values()

plt.bar(u_plant_types, u_plant_variations)
plt.xticks(rotation=85)
plt.xlabel("Minecraft Compositable Plants")
plt.ylabel("Variation of composite material required")
plt.show()
```



```
df_t = df[["Cookies", "Watermelons", "Apples", "Carrots", "Potatoes", "Radishes", "Pumpkin
items_t = df_t.columns
means_t = df_t.mean()
uniques_t = df_t.nunique()

x_t = np.arange(len(items_t))
width = .35

fig, ax = plt.subplots()
m_rects = ax.bar(x_t - width/2, means_t, width, label="Mean")
u_rects = ax.bar(x_t + width/2, uniques_t, width, label="Variance")

ax.set_ylabel("Number of items")
ax.set_xlabel("Items")
ax.set_xticks(x_t, items_t)
ax.legend()

ax.bar_label(m_rects, padding=3)
ax.bar_label(u_rects, padding=3)

fig.tight_layout()
plt.xticks(rotation=85)
plt.show()
```


Mean
Variance
Number of items
Items
Cookies
Watermelons
Apples
Carrots
Potatoes
Radishes
Pumpkins
Wheat
7.96
7
10.31
13
10.22
13
10.442
13
10.276
13
10.122
14
10.166
14
10.186